



GCARD Regional Review for Europe
July/August 2009

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Foreword

This review aims to contribute to the preparation of the Global Conference on Agricultural Research for Development (GCARD) that will take place on 28-31 March 2010 in Montpellier (France).

The report reviews recent ‘official’ documents in the public arena at the time of its preparation –July/August 2009. We have given precedence to the most recent documents that could be accessed since the TORs require the review to identify a ‘refreshed, high level set of regional agricultural research priorities’. However, the reader should be aware that even the 2009 documents will often refer to information collected in 2006/2007 and may not reflect the effects on regional or global agriculture of the more recent turmoil in food prices, the banking crisis and influences in the geopolitical and climate change arenas. Consequently, some of these reports, and our interpretation of them, may be outdated or may become so very soon. To address this deficiency, we have taken the liberty of also reviewing more popular press material, particularly those that have close affiliation with farmers associations across Europe.

Whereas we were tasked to review and interpret these documents, we have also taken the liberty of including our own views on deficiencies in these documents based on our combined experience in agricultural development.

Finally, the reader should be aware of the two Annexes. The first considers in some detail the issue of rural poverty in Europe (the prevalence of which may not be well-known to development workers); the second is the modified Terms of Reference for the GCARD-Europe review.

Acronyms and definition of key concepts

ARD	Agricultural Research for Development -ARD is commonly taken to be research that addresses the agricultural challenges and issues faced by developing countries, emerging countries and countries in transition. Agriculture is used in its broad sense and includes crops, livestock, forestry, fisheries, environment and natural resources management. ARD includes capacity building and research into agricultural production, productivity, storage, processing and marketing; dissemination, up-scaling, uptake and distribution of the research products; as well as policy, institutional and societal issues. (<i>ERA-ARD, 2007</i>)
AWEPA	AWEPA works to support the well functioning of parliaments in Africa and to keep Africa on the political agenda in Europe. < http://www.awepa.org >
CAP	The Common Agricultural Policy (CAP) is a system of European Union agricultural subsidies and programs. It represents 48% of the EU's budget , €49.8 billion in 2006 (up from €48.5 billion in 2005) ^[1] . CAP combines a direct subsidy payment for crops and land which may be cultivated with price support mechanisms, including guaranteed minimum prices , import tariffs and quotas on certain goods from outside the EU. Reforms of the system are currently underway reducing import controls and transferring subsidy to land stewardship rather than specific crop production (phased from 2004 to 2012). Detailed implementation of the scheme varies in different member countries of the EU.
CC and PCC	Candidate Countries to the EU (3 countries: Croatia, The former Yugoslav Republic of Macedonia and Turkey) and Potential Candidate Countries to the EU (4 countries Albania, Bosnia and Herzegovina, Montenegro and Serbia)
CGIAR	Consultative Group for International Agricultural Research - its mission is to achieve sustainable food security and reduce poverty in developing countries through scientific research and research -related development activities.
CT	Countries in Transition – 24 former states of the Soviet Union.
DFID	Department for International Development, UK
DFID-RIU	DFID's Research Into Use Programme – aims to elucidate new approaches to facilitate greater levels of innovation in ARD
EFARD	European Forum for Agricultural Research for Development. EFARD's primary objective is to strengthen the contribution of European ARD in addressing the global challenges of eradicating poverty and hunger, fostering food security and food safety, and promoting sustainable management of natural resources. EFARD follows the principles of the GFAR, and contributes to GFAR's Global Plan of Action in partnership with the Regional Fora.
EIARD	European Initiative for Agricultural Research for Development –European Commission. EIARD facilitates the coordination of European policy and support for Agricultural Research for Development (ARD).
ELIDEV	European Livestock for Development initiative – an EC body aimed at addressing global livestock challenges through better intelligence gathering and coordination of the EU's R+D expertise.
EPA	Economic Partnership Agreements are a scheme to create a free trade area (FTA) between the European Commission of the European Union and the Group of African, Caribbean and Pacific (ACP) countries. They are a response to continuing criticism that the non-reciprocal and discriminating preferential trade agreements offered by the EU are incompatible with WTO rules. The EPAs are a key element of the Cotonou Agreement , the latest agreement in the history of ACP-EU Development Cooperation and took effect in 2008.

ERA	European Research Area – established by the European Commission in 2000, this a unified and attractive European Research Area to fulfill the needs and expectations of the scientific community, business and citizens
ERA-NET	European Research Area Network. A scheme for supporting the cooperation and coordination of research activities carried out at national or European levels
ETP	European Technology Platforms. Provide a framework for stakeholders, led by industry, to define research and development priorities,
EUAM	EU-Agri Mapping - Mapping and foresight of agricultural and food research capacity in the New Member States and in the Candidate Countries
GCARD	Global Conference on Agricultural Research for Development.
Global Donor Platform	Since the creation of the Global Donor Platform for Rural Development in 2004 major bilateral and multilateral development agencies are united in a coordinated endeavour to get the rural development agenda right. It has been jointly working to improve aid effectiveness — in line with the Paris Declaration on Aid Effectiveness (2005) and the Rome Declaration on Harmonisation (2003) http://www.donorplatform.org
GFAR	Global Forum for Agricultural Research - GFAR is a multi stakeholder-led initiative that serves as a neutral forum for dialogue and action on strategic issues in agricultural research for development (ARD). It facilitates and promotes cost-effective partnerships and strategic alliances among ARD stakeholders in their efforts to alleviate poverty, increase food security and promote the sustainable use of natural resources.
IAASTD	International Assessment of Agricultural Science and Technology for Development (IAASTD) - an international effort initiated by the World Bank that evaluated the relevance, quality and effectiveness of agricultural knowledge, science, and technology, and effectiveness of related public and private sector policies and institutional arrangements.
IADG	Inter-Agency Donor Group for Livestock Research in Development – an informal body established in 2000, it aims to inform and encourage coordination between public and private sector donors in livestock research for development.
IPA	Instrument for Pre-Accession Assistance (IPA) - this offers rationalised assistance to countries aspiring to join the European Union for the period 2007-2013 on the basis of the lessons learnt from previous external assistance and pre-accession instruments. The aim of the IPA is to enhance the efficiency and coherence of aid by means of a single framework. This framework incorporates the previous pre-accession and stabilisation and association assistance to candidate countries and potential candidate countries while respecting their specific features and the processes in which they are engaged.
NARS	National Agricultural Research System
NMS	New Member States, 10 countries that joined the EU in 2004 (Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Malta, Slovakia and Slovenia) and 2 countries (Bulgaria and Romania) that joined in 2007
SCAR	Standing Committee on Agricultural Research – European Commission. Its main purpose is to support the European Commission and Member States towards better coordination of agricultural research across the European Research Area (ERA).

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EXECUTIVE SUMMARY

The timing of the GCARD is very relevant to the EU political agenda as it takes place in the middle of discussions on the future of EU agricultural and research policies. In 2014, the EU will have a new agricultural policy and a new Framework Programme for Research (FP8). Discussions on the FP8

starts under the Swedish presidency of the EU during the second semester of 2009 while the first EC communication on the Common Agricultural Policy (CAP) after 2013 is scheduled for the summer of 2010 (the legal proposal will be published together with the financial perspective mid 2011). It is the first time that both EU agricultural and research policies will be discussed concurrently.

Over the past two years, a number of key ‘official’ reports on agricultural research have been prepared at both European and global levels. It appears that a consensus is emerging on the current weaknesses and the future challenges of agricultural research in general and agricultural research for development (ARD) in particular, both in terms of drivers (‘what’ areas require new knowledge) and mechanisms (‘how’ should new knowledge be disseminated and used). In other words, it seems that the phase of “*assessment of the current situation*” is already well advanced (save for the very latest implications on agriculture of the current global recession) and the next phase will be to formulate appropriate policy recommendations and associated priority research topics.

In addition to reviewing these key reports, we also sourced many documents through internet search engines, personal contacts etc. As far as is possible with available documentation, the review provides a synthesis of the current situation and future challenges facing agricultural research for development (ARD) from an “European” perspective. Because of Europe’s dominant role in supporting ARD in the developing world, we also included in the text the concerns expressed in the reports regarding the nature of the research European donors currently support and the processes which they employ to implement the research and its adoption, particularly as these address the needs of poor farming communities at the global level.

With regard to addressing the agricultural research needs of poor communities in Europe, we took the liberty of dividing the region into western and eastern components. Because of the significant differences between the developmental status of eastern and western geographical ‘halves’ of Europe (socio-political systems, old/recent membership of the EU, agricultural policies, agricultural performance, research systems, levels of poverty etc) the review deals separately with the issues faced by the poor and smallholder farmers in these two sub-regions and their associated research challenges. The review could have been divided into EU and non-EU countries in Europe but for reasons alluded to later in the text we opted for the former geographical division.

We were conscious of the fact that some readers of this report might not be aware of the state of agriculture in Europe so we composed some general introductory text, annexed to this summary, to help put the review into context. The first two chapters of the review proper deal with the issues indicated in the TORs; respectively, and in brief, these deal with: ‘what’ agricultural research issues are being undertaken in the 2 sub-regions; and ‘how’ agricultural research outputs are disseminated and taken up by users. Chapter 3 identifies the concerns of the poorest rural sectors in the region and the extent to which national and regional agricultural research and associated policies address them. Because of the key relevance of identifying appropriate researchable areas, we wrote a lengthy annex on the issue of rural poverty in Europe (see Annex 1), the incidence and prevalence of which may not be well-known to development workers outside the region. The final two Chapters deal respectively with: the gaps between current agricultural research efforts in Europe and the needs of the poor (rural smallholder farmers and other poor people in society) – Chapter 4; and in Chapter 5, we highlight the many challenges facing the R+D community, including policy makers, if the needs of the poor are to be addressed and resolved. We believe that these challenges can contribute to the issues to raise at the e-consultation with the stakeholder community in mid-September, the conclusions of which will feed into the face to face consultation at the end of that month.

Outputs of Review - in brief.

At the global level, the drivers which affect current/future global agricultural development issues are well formulated and agreed on. However, most of the reviewed documents do not provide details of researchable issues; research needs are normally mentioned at a very high level (as ‘drivers’ or ‘challenges’) such as: food security; climate change; biodiversity; eco- and evolutionary science &

management; soil and water management; plant breeding and biotechnology; animal welfare; forestry; fisheries; nutrition; rural vitality; and new technology (impact assessment); and more generally: generation of local knowledge; rural socio-eco research; biotechnologies; ICT; geomatics; carbon-trading; and agro-ecology. However, it is clear that the identity of researchable issues is dependent on who is asked.

It is also clear that agricultural R+D processes are weak. With regard to ‘how’ research is programmed and implemented by European countries for ARD in developing countries, there is a clear lack of coordination between donors – despite the presence of several informal and formal initiatives aimed at facilitating greater collaboration. Knowledge management is also acknowledged to be very weak, under-resourced and generally not fit for purpose. Knowledge transfer problems are acknowledged to exist at all levels – and the need to boost expenditures and change the approaches for knowledge management/extension service systems are proposed by all reviewers.

In Europe, there are a diversity of development and agricultural issues facing rural farmers. Levels of absolute poverty are low in comparison with the developing world but relative poverty levels are high, and increasing.

In Western Europe, the following **researchable issues** which address poor farmers were either stipulated or else identified from interpretation of the most recent texts we could find. This is not an exhaustive list and is not in any particular order but could be edited and prioritised by the upcoming e-consultations and face to face meetings:

- Further efficiency gains required in light of escalating input costs and reduced sale price of farm commodities
- Pros and cons of specialisation vs mixed enterprises on small farms in light of greater demands by consumer groups
- How can the negative perception of farming and farmers in the mind-sets of consumers, policy makers and the media be improved?
- Realistic alternative roles for the future of small farms – agro-tourism, carbon trading, commodity specialisation etc
- Coping with and mitigating the effects of climate change at the small farm level.
- Addressing land degradation through minimum tillage and loss of biodiversity through set a side etc.

In Eastern Europe, the research priorities which address poor small holder farmers include:

- Guidance for small semi-subsistence farmers to enable them to decide whether to intensify their farming enterprises, to diversify their income, to ‘hobby farm’ or to exit farming.
- Innovative approaches to non-farm employment – policies/practices/technologies
- Role of organic agriculture/agro-processing/labour intensive industries/part-time activities in addressing the needs of poor producers
- Improved productivity on-farm; research on specialisation vs mixed farming approaches
- What features of food safety can small farmers adopt to ensure agri-food competitiveness and public health and compliance with EU entry rules?
- What innovations can poor farmers adopt to mitigate/or adapt to climate change?
- What productivity gains can be made at the small farm level with current information?
- Collection of contemporary information on ‘new’ issues faced by poor rural farmers
- Innovations to improve small-farm productivity
- How to access credit and sustain viable commodity markets?
- How to establish and maintain a credible and well-informed agricultural advisory service?
- Innovations to help the ageing population of farmers on small-holdings
- How to improve the perception of agriculture and agricultural education in society and policy institutions?

In addition to these technological/social issues, a number of **research process** issues were also raised that have both **European and developing country dimensions**. These include:

- Should ARD institutions review their role? Researchers are often considered to be an exclusive clique by many development stakeholders – civil society, private sector, farmers associations etc. So perhaps it would be more attractive to these stakeholders, and encourage them to contribute to agricultural development strategies (and attend meetings), if the focus of the ARD initiatives was more inclusive: the establishment of Communities of Practice or ‘inclusive regional fora for agricultural researchers and development professionals - for development’?
- How can more joined up research effort be encouraged in Europe to improve global agricultural development and poverty reduction? There may be collaborative initiatives but rhetoric be converted into action?
- How can it be ensured that research addresses well-defined audience groups such as the poor?
- Who represents the value chain stakeholders in Europe? –eg how influential are small and commercial farmers and their associations, consumer groups, civil society, policy groups and parliamentary associations, the media in contributing to ARD issues?
- Extension issues – public and private – farmer first or farmer only systems?
- Marketing of research findings – whose role is this? Researchers or Marketing/Extension specialists? In many developing countries, researchers are expected to disseminate their findings to users. Is this an appropriate role for them? Unfortunately in public sector research, marketing specialists don’t exist and resources for market research and research output promotion/dissemination are minimal. Is it any wonder that research does not get into use?
- Need for European level databases in ARD – and make the information accessible to global ARD communities in the developing world. Current ERA-ARD initiative in this area is stalling for lack of funds.
- Unfortunately, in most Member States, the specific policy measures that can directly affect poverty do not have the *rural poor* as a target. How can this be changed?

Based on the foregoing, a series of key challenges and related questions were composed which we suggest could form a component of the e-consultation and, subject to the response, provide guidance to the questions to be posed at the face to face meeting in late September. The challenges are grouped around 4 main topics identified by this review:

- i) **Research prioritisation and programming**- how to address the current lack of joined up thinking and coordination on ARD issues associated with the ‘lack of common vision, long-term research agenda and implementation plan’;
- ii) **Knowledge creation** – how to facilitate a broad electorate of stakeholders across Europe to prioritise research issues, especially in light of the recent turbulence in the economic and labour markets and the new socio-political realities;
- iii) **Knowledge transfer** - how to tackle the acknowledged weaknesses of the current system of knowledge transfer and innovation pathways; and
- iv) **Focus on the poor** -how to address the concerns of the poor, including the future of smallholder farmers across Europe and the ‘pressure’ on NMS, CCs and PCCs to converge with the membership rules of the EU.

These and other key issues are in need of public consultation, discussion and verification by a wide stakeholder community.

Main characteristics of the European region

As this review covers a heterogeneous group of European countries, and is to be read widely, we considered that a short presentation of the main characteristics of the region would be helpful to the reader.

Geographical coverage

The geographical region comprises 42 countries; they present tremendous differences in all aspects which impact on this review (socio-political systems, agricultural policy, agricultural performance, research systems, levels of poverty etc.). The review includes 18 countries from Western Europe and 1 country associated with the EU programme for research –Israel; and 23 countries from Eastern & South-East Europe.

Countries from *Western Europe* include:

- 15 “old” member States of the EU (sometimes referred to as the EU-15) -Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom
- 4 countries associated with the EU research programme -Switzerland, Norway, Iceland & Israel.

Countries from *East & South-East Europe* include:

- 12 New Member States of the European Union (sometimes referred to as NMS or EU-12) -Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Malta, Slovakia and Slovenia joined the EU in 2004; Bulgaria and Romania joined in 2007;
- 7 Candidate Countries (CCs)& Potential Candidate Countries (PCCs) for EU membership -Albania, Bosnia and Herzegovina, Croatia, Montenegro, Serbia, The former Yugoslav Republic of Macedonia (FYROM) and Turkey;
- and 4 other Eastern European Countries -Belarus, Republic of Moldova, Russian Federation and Ukraine.

The review also has a “Mediterranean dimension” with 13 countries from the Mediterranean basin -Portugal, Spain, France, Italy, Malta, Slovenia, Croatia, Bosnia Herzegovina, Montenegro, Greece, Albania, Cyprus and Turkey.

Macro-economic development

According to the World Bank classification (*World Bank, 2008*), 6 of the above countries belong to the Lower Middle Income (LMC) category¹, 12 countries belong to the Upper Middle Income (UMC) category² and the remaining 24 countries belong to the High Income category³.

Half of the countries reviewed (21⁴ out of 42) have undergone tremendous changes since 1990 as a consequence of the ‘transition’ from a centrally planned system to market economies. Whereas there are macro-economic disparities between the countries, the overall trend was a severe decline during the first years of transition and subsequent growth between 1999 and 2007.

Poverty and rural poverty

Compared with other regional reviews prepared for GCARD, ‘absolute’ poverty is low in Europe; 38 countries out of 42 have less than 2% of their population living on less than 2 dollars a day. The countries with significant and persistent income poverty are in Eastern

¹ Albania, Belarus, Bosnia-Herzegovina, The former Yugoslav Republic of Macedonia – FYROM, Moldova and Ukraine.

² Bulgaria, Croatia, Hungary, Latvia, Lithuania, Montenegro, Poland, Romania, Russian Federation, Serbia, Slovakia and Turkey.

³ EU-15 plus Switzerland, Norway, Iceland & Israel and Cyprus, Estonia, Malta and Slovenia

⁴ The 24 countries from East and South East Europe with the exception of Cyprus, Malta and Turkey

Europe - Romania, Moldova, Turkey, Albania (and Kosovo). However, the incidence and prevalence of 'relative' income poverty is on the increase throughout Europe. Minimal acceptable standards usually differ between societies according to their general level of prosperity - some regarded as poor in a wealthy, developed country might be regarded as rich in a poor, developing country. The indicator Eurostat (2009) uses is an "at risk of poverty rate". This represents the share of people with an income below 60 % of the national "equivalised median income"- see Annex 1 for more information.

The agricultural sector

The EU is the world's largest importer and exporter of agricultural products and is the largest export market for developing countries. There is a gradual decrease in the number of farmers but the agri-food sector is still a key employer and generator of wealth (900 billion € turnover, 20 million employees) (EC, 2008a). In East and South East Europe, agriculture is characterised by land fragmentation, low productivity and competitiveness of agricultural production, shortage of off-farm income-earning opportunities and weakness in rural social services delivery; these key structural problems hamper sector modernization and reduction in rural poverty (World Bank 2008).

Agricultural policy

There is one agricultural policy in the 27 EU Member States: agriculture and fisheries are integrated EU Community policies with decisions taken at European level and a "communitarised" budget that is separate from the national budgets. The Common Agricultural Policy (CAP) has been in place since the 1960's and has evolved through many reforms - from a focus on an increase in agricultural production to an approach taking more account of sustainability of agricultural production (eg. introduction of compliance with EU legislation regarding farm production methods in 2003). The CAP provides support to the farming sector through two components: the first pillar provides sector specific measures related to agricultural markets while the second pillar addresses Rural Development programmes. The most important budgetary instrument of the CAP is the "single farm payment". This payment is (i) based on reference periods of past agricultural production; (ii) decoupled from (or not related to) the production (in the case of livestock farming, arable crops and milk), and (iii) conditional upon meeting criteria such as respect for the environment and animal welfare.

The agricultural research system in Europe

In the EU, research is a shared competence between the 27 Member States and the European Commission. This means that each country implements its own research policy while the EU also implements its own research programme. To date, the EU has done a lot to support its agricultural development sector yet done rather little for agricultural research. Thus, the CAP's annual budget is ca. 42 billion euros per year (or around 30% of the total EU budget). On the other hand, the EU provides ca. 275 million euros per year to the FP7 programme which is specifically allocated to agricultural research (under the theme "Food, Agriculture and Fisheries, and Biotechnology" of the "cooperation" programme): this represents only 0.5% of the CAP budget. The reason for the difference is that research in the EU is a shared competence between the EC and the Member States who implement their own research policies. The Framework Programme accounts for about 6% of total public research funding in the EU.

Europe and ARD for the developing world

Many individual European countries also have a long history of providing support to developing countries in their efforts to build strong and well functioning NARS, National Agricultural Research Institutions (NARIs) and extension systems that can deliver research outputs to the end-users. In recent years, European governments and the EC have promoted and supported the development of many of the new research approaches and mechanisms, such as regional and sub-regional research organisations, public-private research partnerships, GPPs and CPs.

A number of European networks and organisations have been established to facilitate the coordination of European technical contributions to ARD. National ARD fora have been established in most European countries to bring together the broad range of ARD stakeholders from the public, private and civil sectors. These national fora are coordinated by the European Forum for ARD (EFARD), which meets every three years, and acts as the European regional forum of the GFAR. The European Consortium for Agricultural Research in the Tropics (ECART), and the Network of European Agricultural (Tropically and Sub-tropically Oriented) Universities and Scientific Complexes Related with Agricultural Development (NATURA) provide further networking of researchers; and the International Centre for development-oriented Research in Agriculture (ICRA) is dedicated to capacity building in ARD. A European ARD database, and information management services, are provided by EARD-InfoSys+ (www.infosysplus.org).

Effective promotion and support for these various European ARD activities, and for ARD generally, requires coordination of European ARD policy, which is the role of EIARD. The ERA-ARD project is more focused on coordination issues.

Countries in Transition (CT).

Agriculture research is vital to increase productivity and efficacy in the sector and convert the CT to a market economy. It is long-term in nature, but should not be used as a justification for inaction or low priority. Agricultural research capacity is a strategic resource that can be justified from a number of perspectives (*Proskuryakova, 2009*)

Food security is relevant to CT in two important ways. First, CT can go a long way forward in realizing waste potential in agricultural production and in meeting future food needs, in increasing efficiency and quality in agricultural processing and distribution. Second, there is an important domestic need for food security. The transition to a democratic and civil society is significantly influenced by the price of sausages and bread. Agricultural research place an important role in improving productivity, increasing competitiveness and also standards of living for rural as well as urban people and supporting democratization, so it should be a priority investment.

NARS in CT were previously highly organized, fully funded and overcapitalized. The CEEC and newly independent countries of FSU inherited from this system a number of agricultural research institutions designed to serve a country with a command economy. The CEEC and the new Republics were then left with the daunting task of creating effective and sustainable systems to serve national needs. In many countries, the dominant strategy for dealing with agricultural research institutions was one that in effect maintained the status quo, i.e. system preservationist. This strategy reflects the forces in the existing scientific communities, which seek to maintain the current agriculture research and technology development system. Due to lack of finances, the probable outcome of the strategy was mainly downsizing of existing

research institutions. This appears true, despite the very strong desire to optimize NARS by both scientists and government agencies. However, the importance of a scientific and systematic approach to this optimization has been underestimated. The future development of these research systems will largely depend on the political will of the NARS leadership to take bold steps in reforming their NARS and in developing a sound strategy for this process. This strategy must take into account future demand for agricultural research - as reflected in emerging local and international markets - and be conditioned by the optimal utilization of the limited resources available.

Global poverty issues

Further to the submission of the draft GCARD- Europe review document, the review panel felt that insufficient attention had been placed on the European contribution to ARD in the developing world. We have thus attempted to integrate this global dimension into the text. As a consequence the review document is quite long for which we apologise.

Responsibility for the statements made in this review rest with its authors and not with the referenced authors whose work we may have inadvertently misinterpreted.

1. Existing needs and recommendations

Food insecurity, poverty and natural resources degradation are three scourges that continue to plague developing countries, and which often seem intractable. They are also problems which affect European countries, albeit not to the same extent, but are on the increase at this point in time. This Chapter looks at existing needs in terms of agricultural research and development priorities, with a focus on the topics for which we need new knowledge (viz. in **what** areas do we need new knowledge?) to address these three problems. Issues related to the organisation of the research and associated systems (viz. **How** knowledge creation and utilisation are organised) are covered in chapter 2.

This Chapter aims to identify coherence and gaps in current and projected research priorities against development aspirations. It attempts to differentiate between needs and recommendations at 3 levels: the contribution by European institutions to agricultural R+D at the global level (section 1.1); agricultural issues and research priorities in Western Europe (section 1.2); and agricultural issues and poverty in Eastern and South Eastern Europe (section 1.3). The reader should be aware that this convenient division creates occasional overlaps, duplications and inconsistencies in the text.

1.1 Research Priorities at the global level – European perspectives

The future of agriculture and agricultural research has raised considerable global attention over the past few years. Several important initiatives have been implemented and resulted in reports that discuss the future of, and promote the need for change in, agricultural research for development: the “International Assessment of Agricultural Knowledge, Science and Technology for Development – IAASTD” reports (“Agriculture at the crossroads” and “Policy recommendation for Europe and North America” adopted in April 2008); the “European Commission Communications” reports on Agricultural Research (Dec 2008) and on Policy Coherence (April 2008); the “EIARD strategy 2009-2013” published in November 2008; reports from “ERA-ARD” (“Strategic vision for ERA-ARD”, “Descriptive synthesis of ARD programmes”); the 2nd foresight report prepared for the “Standing Committee for Agricultural Research” (SCAR) published in December 2008; and to a lesser extent the “World Development Report 2008 – Agriculture for Development” (chapter 7 on agricultural research). Other initiatives are on-going; the GCARD initiative, to which this report makes a contribution, is one which aims to improve the effectiveness of global ARD; the re-structuring of the CGIAR system is another. Notwithstanding, there is a common belief among development workers that greater collaboration between Europe and Southern institutions needs to be encouraged and that this should be built on specific mutually agreed upon research programmes, projects and activities aimed at resolving broad thematic issues – food insecurity, poverty reduction, and natural resources degradation being the priorities - and should consider the needs of different categories of producers from subsistence farmers in marginal areas, through small scale farmers responding to local markets to medium and larger scale entrepreneurs targeting global markets. (Smith, 2005)

This section starts with a review of the priorities expressed by official authorities and organisations (based on the reports mentioned above) and by civil society institutions It

continues with a review of current activities and concludes with an analysis of the gaps between needs and current activities.

1.1.1 Existing needs and recommendations

The objective of this section is to highlight similarities and differences regarding drivers, challenges and research priorities in the key reports mentioned above.

Drivers and challenges identified in key reports

There is a consensus that agriculture will need to respond to several key changes in driving forces (or drivers) over the next few decades and to do so in an organised and collaborative fashion. (*A **driver** is understood here as a factor that influences the future of agriculture (and indirectly agricultural research)*). Some of the reports referred to above have identified the following key drivers:

- the IAASTD (*IAASTD, 2007b*) identify an increasing global population and food insecurity, changes in dietary and trade patterns, land and land-use competition, increases in agricultural labour productivity, climate change and demands for agriculture to provide ecosystem services.

- the first foresight report prepared for the SCAR identified eight major drivers: climate change, environment, economy and trade, energy, societal changes, science and technology, rural economy and health (*SCAR, 2006*). The second foresight report (*SCAR, 2008*) examined a broader set of drivers divided into: policy drivers (CAP reform, rural policies, Doha round agreement, agri-energy policies etc.), environmental drivers (eg climate change, water & water quality, soils & soil degradation, biodiversity, oil reserves, greenhouse emissions from agriculture, etc.); social drivers (world population, income distribution, migration flow etc.); and technology drivers (farm machinery, nanotechnology, nutrigenomics, functional food etc.). It emphasises recent changes that have led to the increased importance of several key drivers such as climate change, biodiversity, water & soil; and the physical scarcity of phosphorus and fossil fuels. Food security and energy security are also reported to have risen in the policy agenda.

- the EIARD strategy (*EIARD, 2008*) mentions several drivers relevant to ARD both at global and EU levels. At the global level, these include: food security; climate change; trends in fossil fuel uses and bio-energies development; globalisation of agricultural production, food systems and trade; animal diseases and pandemics. Drivers mentioned at European level include changes in European interests, geopolitics & policies; food safety & quality issues; mass migration

According to ERA-ARD (*ERA-ARD, 2007a*), the important drivers and trends that will influence future agricultural research agendas are: (i) climate change, bio-physical changes and ecosystem functioning; (ii) trends in global fossil fuel use, bio-energy, and energy security; (iii) globalisation of agricultural production and food systems and other economic trends, countered by civil society drivers towards more localised food and farming networks; (iv) increasing demand from developing countries for improved market access, for more equal access to negotiations and decision arenas, as well as wider access to information and technology. However, at a mid-term review of the ERA-ARD initiative in 2007, a global audience also highlighted their concerns about the focus which the EU and USA are giving to bio-fuel issues as opposed to food security, environment, and biodiversity. Several speakers

also mentioned the problem of migration and brain drain in relation to local development. Europe should be willing to change its paradigm and take co-responsibility of poverty in developing countries (ERA-ARD 2007b)

A number of other drivers (for example land competition) are not reported here as they are less relevant to thematic areas for which we need knowledge and more relevant to organisational aspects (covered in chapter 2).

Table 1 summarises this apparently diverse list of key drivers and their associated challenges. It confirms:

- That there is overall consensus on the major drivers and the future challenges facing global agriculture and agricultural research.
- That there is a convergence between agricultural research agendas in developing countries and European countries. With the emergence of global issues (issues of common interests to the global community - climate change, food security, recession) there is a trend towards common research domains, and where there is no need for scientific distinction between developing and developed countries. This trend is reported in several publications (EC, 2008a, ERA-ARD, 2007). This convergence can be seen more clearly in the table below:

Table 1: Common drivers and challenges for ARD & agricultural research at global & European levels

Driver	Challenge	Global level*	European level (agricultural research)**	European level (ARD)***
Climate change	Adaptation to and mitigation of climate change	✓	✓	✓
Growing population + change in food consumption pattern	Food security	✓	✓	✓
Scarcity of fossil fuel and bio-energy development	Energy security	✓	✓	✓
Globalisation	Improved trade	✓	✓	✓
Degradation of the environment	Biodiversity and natural resource management (including soil and water)	✓	✓	✓
Plant and animal diseases, pandemics	Food safety including animal/human health and animal welfare	✓	✓	✓
Change in dietary patterns	Nutrition: obesity and malnutrition	✓	✓	✓
Scarcity of phosphorous	Agricultural fertiliser security		✓	

Sources: * IAASTD reports, World Development report (2008)

** EC Communications + SCAR foresight

*** EIARD strategy, ERA-ARD report

Whereas these drivers offer guidance for research, the 2nd SCAR foresight report also states that “It can be said that there is much more consensus on diagnosis than on cure”.

The table also reveals that the global community is responding to new challenges – albeit ‘eventually’ in some cases. Thus, the concerns over emerging pandemics caused by unforeseen zoonoses have resulted in relatively rapid reaction by the R+D community; less reaction has been raised globally about the parlous state of phosphorus supplies and water for people and agriculture. Thus, for instance, the SCAR foresight report published in December 2008 indicates that global phosphorus reserves are limited and are likely to be totally depleted in 50-100 years time. Global peak P production is expected to occur around 2034. While oil and other non-renewable natural resources can be substituted by other sources, phosphorus has no known substitute in agricultural production. Like some other regions of the world, Western Europe is entirely dependent on its phosphorus needs through imports - mostly from Morocco; prices increased by 700% between 2007 and 2008. A global fertiliser (NPK) crisis can be expected and it is likely that small farmers in poor regions will be the most affected by higher fertiliser prices (SCAR, 2008) As for water, according to the World Bank, a billion people lack access to clean water altogether and as many as two billion people lack adequate sanitation facilities to protect them from water-borne diseases. According to the United Nations, which has declared 2005-2015 the “[Water for Life](#)” decade, 95 percent of the world’s cities still dump raw sewage into their water supplies. Thus it should come as no surprise to know that 80 percent of all the health maladies in developing countries can be traced back to unsanitary water. Agriculture is the largest consumer of water. As the world's population increases, how do we increase food production with limited water and land resources? Now appears to be the time for significant investment in research in these fields too.

Research needs identified in key reports

In principle, research needs (**what** new knowledge is required) should be identified following a detailed analysis of the drivers and challenges. Surprisingly, most of the reviewed documents do not provide such analysis. Research needs are often mentioned at a very high level (one of the drivers & challenges) such as “climate change or “biodiversity” but are deficient in detail – this gap appears to need urgent and coordinated attention.

However, the following global guidance can be extracted from the reports:

-In order to address global challenges multi-scale, interdisciplinary and cross-sectoral research approaches need to be implemented (ERA-ARD, 2007). This is as much a ‘how’ issue as it is a ‘what’ issue yet its significance and possible application would have enormous influence on how academic, research and government institutions pursue their work, identify their priorities and organise and fund their activities.

-The World Development report (World Bank, 2008) indicates that there is a need for “maintenance research”: eg. in plant science, it will be necessary to continue research on breeding for disease and pest resistance; existing varieties need to be periodically replaced to counter losses from outbreaks from new pathogens. The same applies for livestock (and human) diseases.

-Needs in terms of scientific disciplines have been identified in the IAASTD report (IAASTD, 2007b) and include the following: eco- and evolutionary science & management, soil and water management, plant breeding and biotechnology, animal welfare, forestry, fisheries, nutrition, rural vitality and new technology (impact assessment).

1.2 Research priorities, addressed at Western European and EU levels

1.2.1 Research needs expressed by public sector organisations

There is no system to monitor agricultural research activities (“what” topics are being addressed by the scientific community?) at the regional level in Europe. The first survey, implemented in 2007 in the “EU AGRI MAPPING” project (*EUAM, 2007*) looked at:

National research agendas. This showed that:

- National research agendas acknowledge the growing importance of recent challenges: **(1) consumer science and demands; (2) human health; (3) food quality and safety; (4) rural development; (5) environment (including water management); (6) mitigation of and adaptation to climate change; and (7) alternative bio-energy source**. The integration of new technologies - **Information and Communication Technologies and nanotechnologies** (study of the control of matter on an atomic and molecular scale) into agri-food research - are also underlined as priorities.
- Many of these challenges, including the adoption of a **more holistic approach to agricultural research**, have been integrated into national research programmes in Western Europe.
- Levels of funding are considered to be insufficient for 5 topics: climate change, non-food use of agricultural products, ICT, consumer concerns and water management.

At the EU level (keeping in mind the low importance of EU funded research with around 94% of the budget for research managed at national level), the following changes in research priorities can be underlined.

- FP7 (2007 to 2013) provides more support for biotechnology with an emphasis on bio-fuels (“*Activity 2.3 Life sciences, biotechnology and biochemistry for sustainable non-food products and processes*” under the thematic priority “KBBE” of the Cooperation programme). A recent FP7 initiative worth mentioning is a call for proposals dedicated to Africa launched in 2009 with 63 million Euros allocated to 14 research projects in the areas of **water, food security and health**
- The more recent initiatives of “*Joint Programming*” provide a more strategic approach to coordination and collaboration in the programming of public research in the EU. A first pilot initiative could be launched in 2010. The topics proposed for these pilot actions include “*Agriculture and Climate Change: Adaptation and Mitigation*”, “*Food, diet, health and prevention of metabolic diseases*” as well as “*World food security and supply*”.
- In its “Non Paper on ARD” the EC identifies six major areas: **local knowledge, rural socio-eco research, biotechnologies, ICT, geomatics (the discipline of gathering, storing, processing, and delivery of geographic information, or spatially referenced information) and agro-ecology** (*EC, 2008d*).
- Most countries in Western Europe have recently adapted their national research agendas to deal with ‘emerging challenges’. At the EU level, several initiatives have been launched with an emphasis on issues related to **biodiversity, biotechnology and energy aspects while climate change** was taken into account very recently.
- Regarding previous funding of ARD work, a report from an ERA-ARD project in 2006 indicated that between 2002 and 2005 around 30% of ARD funds were allocated to **plant science**, ca. 15% to **socio-economics and environmental research**. Investments into research on **animal production, aquaculture, forestry, soil, water farming systems and food technology** ranged between 4% and 9%.

1.2.2 Research needs expressed by civil society and farmers associations in Europe

Consumers- With regard to demand for agricultural commodities in EU countries, the role of the consumer and the large retailers/supermarkets have become dominant. In other words, food systems are no longer supply-driven but demand-driven – and **cost-driven**, as many small farmers in Western Europe have found to their cost recently viz. dairy farmers' uncomfortable relationship with dairy cooperatives and supermarket chains. Consumers are also increasingly demanding **higher quality products** and influencing management practices through increased demand for **organic produce** and **'animal welfare satisfactory' livestock products**. These demands are likely to increase and become more demanding with time.

Farmers Associations- Despite or because of these demands, the short-term forecast is a significant reduction in overall production from European farms – a 10% reduction in cereals is foreseen for 2010; and a 60% reduction in milk production by small-holders according to Copa-Cogeca 2009. Average yields are failing to increase as a result of lower fertiliser and plant protection product use due to increased costs. "These days, farmers are making sowing decisions based on production costs and less and less on market forecasts. Market prices do not cover production costs in the cereals sector currently", stated the Chairman of the Copa-Cogeca Working Party on Cereals, Oilseeds and Protein Crops in June 2009 –the largest Farmers Association in Europe. A prolonged drop in yields could in turn lead to greatly-reduced long-term investments in the sector. Society must be made aware of the consequences of a significant further drop in European production, especially at a time when food security is once again becoming a key item on the global political agenda and the effects of climate change are beginning to take effect. Thus in Western Europe, farmers' research themes are influenced by the need –

- to become more cost efficient,**
- to produce discreet types and quality of agricultural products (ideally provided year-round)**
- to reduce costly and environmentally-unfriendly inputs,**
- to comply with animal welfare concerns – and**
- to make a living!**

Small farmers in Europe are particularly vulnerable to these influences and protectionist policies are currently in place in many countries to sustain their livelihoods and to support their roles as custodians of the countryside. Hence, new research focused on the particular **-needs of small farmers in an unsubsidised economy would be very timely in view of the foreseen changes in the CAP and the rigours of climate change.**

Farmers are acutely aware of the need to combat extreme events due to **climate changes** like fires, flooding and drought, early or late frosts, the increasing variability of seasonality, inter-seasonal and inter-annual rainfall levels affecting crop cycles, and the arrival of new animal and plant diseases. All these are reflected in current and forecasted increased risk of agricultural yield loss (COPA-COGECA 2009). Thus, research needs

-to improve the resilience of farmers' activities to climate change so as to continue to supply the consumers with good quality food produced to high environmental and safety standards. European farmers associations state that they wish to work together with researchers to provide alternatives to fossil fuels and oil-derived products. These might include

-bio-energy feed-stocks from agriculture as well as from forestry and energy crops, alongside other renewable energy sources like wind and solar power; these could significantly reduce carbon dioxide emissions while contributing to Europe’s future energy security.

1.2.3 Gaps between needs and current activities

This review has helped to identify a number of weaknesses in the current agricultural research system in Western Europe:

1.2.3.1 Weaknesses in the diagnosis of research needs and priorities

-A lack of data-

The 2nd SCAR foresight report indicates that: ‘.....there is no organised body or procedure for continuous monitoring of the environmental drivers and trends that would enable science to play its alert function. This lack of data does not allow decision-makers to decide appropriately among the range of options’ (SCAR, 2008). The EC communication on the ERA (EC, 2008a) also acknowledges the lack of data for decision making: “Further globalisation, tightening energy supplies, climate change, unsustainable consumption of natural resources and the recent rise of food prices will all require a profound understanding of the triggers of future changes, their inter-relationship and their potential impact on European agriculture and the rural space as a whole”.

-A lack of prioritisation of the drivers & challenges

Whereas drivers and challenges have been identified, there is a lack of prioritisation. Applying objective criteria and methods would help to establish a ranking and help decision-makers to decide on future policy options.

- Drivers and challenges are not translated into research needs

Surprisingly few of the documents reviewed provided detailed information on research needs. Identifying these research needs is a pre-requisite for establishing long-term research agendas. Their absence demonstrates the weakness of the EU system and the lack of coordination at the European level. For the purpose of illustration, the table below indicates how challenges could be translated into research needs:

Table 2: Illustration of challenges could be translated into research

Challenge	Research needs	Scientific discipline
Climate change	<ul style="list-style-type: none"> - Better understanding of the effects of climate change on agriculture and the effect of agriculture on climate change. - Develop mitigation and adaptation measures for both plant production (new plant varieties and agricultural practices) and animal production (more efficient animal husbandry practices). - Develop policy instruments providing incentives for the introduction of new agricultural practices by farmers. 	<ul style="list-style-type: none"> - Eco- and evolutionary science & management - Plant breeding, agronomy, animal husbandry, agricultural engineering etc. - Agricultural economics and policy analysis.

-Diagnosis biased towards researcher interests

Conventionally, teams of ‘experts’ decide on research priorities at national and regional levels. These tend to be acknowledged ‘names’ in the scientific field. The influence of their knowledge and experience needs to be tempered, contextualised and balanced by the views of

other stakeholders who represent other key institutions within the particular ‘challenge’ area. These should include representatives of ‘users’, ‘beneficiaries’, ‘suppliers’ of goods and services (both public and private sector), ‘policy’ makers/planners, ‘relayers’ of information—and, perhaps more controversially, the ‘media’. Whereas this creates a more complex and costly process up-front, its value in ensuring adequate ‘market research’ will pay dividends in the relevance of research products and their subsequent adoption by users/beneficiaries.

1.2.3.2 Weaknesses in the implementation of research agendas

-A lack of vision, long term research agenda and implementation plan

Despite the positive initiatives undertaken by the SCAR in the implementation of two foresight exercises since 2006, there is still a lack of long-term vision. As discussions on the future of European research after 2013 are starting in 2009, it is imperative to launch an urgent initiative to compose a vision and a long-term agricultural research agenda. As there is currently considerable public and political support for issues related to global food supplies and prices, and empathy for food security issues in the developing world, timing for the inclusion of ARD into the global agricultural research agenda appears to be optimal; and European actors of ARD should declare their wish to link-up with other initiatives or propose their own policy options.

We consider that the debate on the future of the CAP and research policy that opened in 2009 represents a unique opportunity to improve the effectiveness of European ARD. The first step is to prioritise the challenges and to translate them into research needs. The second step is to establish a long-term vision and to design a strategic research agenda.

1.3 Needs and Recommendations in Eastern and South-East Europe

In reviewing existing research priorities in agriculture and food in this region, we have differentiated between EU members (12 countries), the Candidate and Potential Candidate Countries (7 countries) and the other 4 countries. The reason for this is that the EU provides assistance to rural development through the second pillar of the CAP for the Member States and through the instrument for pre-accession IPA for the Candidate and Potential Candidate Countries.

1.3.1 Eastern European EU members (12 countries)

Development priorities

On a macro-economic level, priorities are given in the “*Convergence Programme*” that concerns economic policies of EU Member States. Its main goal is the achievement of convergence of the economic indicators of the country to those of the most advanced Member States. In these New Member States (NMS) of the EU, the overarching policy objective is the convergence to average EU living standards with the view to complying with the country commitment to join the euro-zone⁵. In many countries this perspective translates into objectives of *improvement of public finances and employment (including the objective to reduce poverty and encourage social inclusion)*, and the implementation of structural reforms (*promote private sector development, strengthen institutional capacity etc.*).

The “Development priorities” of these EU members are expressed in “*National Development Plans*” and more specifically in the:

⁵ Cyprus, Czech Republic, Malta, Slovakia and Slovenia already adopted Euro

- *National Strategic Reference Framework (NSRF, 7 operational programmes)*
- *National Strategic Plan and Operational Programme for Rural Development*
- *National Strategic Plan and Operational Programme “Fishery and Aquacultures”.*

These programmes are implemented in each country for a multi-annual period (from 2007 to 2013) following guidelines prepared by the European Commission. The EU is co-financing the implementation of these national programmes with national governments.

An analysis of these documents reveals the following ‘rural and agricultural’ priorities:

- **Agricultural and Rural Development**: development of competitive agriculture and forestry sectors with a focus on innovations in the food-processing sector, conservation of natural resources and protection of the environment in rural areas, employment promotion and improvement of the quality of life in rural areas.
- **Environment**: protection and improvement of the condition of water resources, improvement of waste management and soil protection, conservation of biodiversity and the protection of nature.

Research priorities

The agricultural research agendas in the NMS are influenced by priorities set at the EU level; there is a clear emphasis on *food safety*, reinforced by the *need to comply with EU food quality and safety standards*.

Research priorities in the 12 NMS were identified in 2007 in the FP6 project “EU AGRI MAPPING”. Our study revealed that the research agendas focus mainly on *“traditional topics” (rural development, agricultural productivity, primary production and food safety) and that “recent challenges” (such as a more holistic approach to agricultural research – climate change, energy, biodiversity, consumer-oriented research and new technologies) are poorly covered*. These priorities are confirmed by the results of a survey that looked at the activities of 1,000 research groups in EC12. The results revealed that the most significant scientific areas (measured by number of articles in international agri-food research journals) were *plant production and protection* (21% of the total number of articles), *food technology* (17%), *plant breeding and biotechnology* (12%) and *animal health and welfare* (12%).

Gaps between research priorities & development aspirations

There is coherence between research priorities targeted at the improvement of agricultural and food production and the objective to improve competitiveness through innovation. There is also a coherence regarding food safety issues even if additional effort is needed to better integrate research groups from the New Member States into the European Research Area. On the other hand, there is a clear gap between EU aspirations and reality on issues such as the environment (biodiversity, soil protection and water management). A new need, not yet addressed in existing strategies and not reported in research agendas, is climate change.

Whereas the priorities may comply with EU guidelines, does this automatically mean they are relevant to national agendas and to the farming community at large? There appears to be little evidence that *research priorities* are determined by a broad stakeholder community; rather, it appears to be *dominated by researchers and bureaucrats* – and driven by the need to conform to EU membership criteria. Therefore one must question how relevant they are in addressing the needs of the poorest farmers in society.

1.3.2 Candidate, Potential Candidate and non- EU member Countries (11countries)

Development needs

In Western Balkan Countries and in Turkey, the overarching strategic goal is led by the perspective of accession to the European Union. Within this framework, the key priorities are related to economic growth (through increasing economic freedoms and strengthening the role of the private sector), to the reform of administration (including the fight against corruption) and to the improvement of living standards including the fight against poverty.

As per the New Member States, the “Development priorities” of CC and PCCs can be found in the documents programming the implementation of EU support: since 2007, the EU has provided financial support to the Candidate and Potential Candidate Countries through the “*Instrument for Pre-Accession Assistance- IPA*” (5.7 Bln Euros to the 7 countries for the period 2007-2010). The programme provides support for five areas, one of them being *rural development*. The “*Multi-Annual Indicative Planning Document*”⁶ prioritises the *improvement of market efficiency, the implementation of EU standards regarding public health, environmental protection and animal welfare, the protection of the environment (agri-environmental measures) and the development and diversification of rural economic activities. Key priorities are related to food safety, veterinary, phyto-sanitary and environmental matters as well as sustainable development of rural areas.*

Research priorities

Priority setting, as understood in the western Europe , i.e. consultation with the participation of stakeholders, was unknown within the agricultural scientific communities of countries in transition (CT). The process of priority setting was highly politicized, as one might expect, and it was top-down. The communist parties gave the general directions for societal development. Whether they were based on scientific knowledge or the personal ambitions of the leaderships is open to question. The scientific communities were often consulted, but were not always listened to (Duczmal, 2001). Customer identification and participation as known in western management culture was totally missing. The uniformity of agriculture enterprises in the countries did not allow a differentiated approach. They were similar in their farming methods and level of agriculture.

After the collapse of the former Soviet Union (FSU), new systems of research started to develop in newly-independent countries. In several of the PCCs, they remain essentially the same as at the time of establishment. The separation between agricultural research and education has changed only a little. As a result of reduced funding, some institutions have suffered very significant (up to 50-70%) staff reductions. The result of the first few years of activities of new scientific organizations can be summarized as the weakest point being application of research results in practice. The extension services do not have resources to introduce new products. At the same time, producers are weak economically and are not able to pay extra for development of new technologies.

Many countries have now drafted and implemented a framework for improvement of the system of research and extension to support the development of agro-industrial complexes. These include the research priorities, the mechanisms of research planning, funding,

⁶ http://europa.eu/legislation_summaries/agriculture/enlargement/e50020_en.htm

management, and implementation of the results. The necessity of re-structuring and optimizing the research network is also mentioned. The latest available information indicates that in the countries of FSU, there were 363 research institutions employing in total 30,913 scientists. The highest number of research institutions are still located in Russia (203, employing some 17,000 scientists), in Ukraine (51 with 7,000 scientists) (Duizmal 2001).

Recent collaboration with the EC has enabled some countries like Russia to develop strategies developed in collaboration with the EU.

Russia and the EU thematic priority areas

RF Priority S&T Areas	FP7 "Cooperation"
Information and telecommunications systems	Information and Communication Technologies
Nanosystems industry and materials	Nanosciences, Nanotechnologies, Materials and New Production Technologies
Living systems	Food, Agriculture & Fisheries, & Biotechnology+ Health
Rational nature use	Environment (incl. Climate Change)
Power engineering and energy saving	Energy
Transport, aviation and space systems	Transport (including Aeronautics) +Space
Safety and terrorism counteraction	Security

5

Thus the 'living systems' programme and 'Rational Nature Use' priorities conform closely with the FP7 drivers (Proskuryakova 2009). Available evidence suggests that much of the specific agricultural research remains as before – eg increase the productivity of cereals, especially wheat, through plant breeding; and improved crop and livestock husbandry practices and disease control in the new economic and political reality. As for research work on environmental issues, little detailed literature is available of work on the ground.

In the Balkan region, research priorities were identified in 2008 in the FP6 project BAFN (Balkan Agro-Food Networks) that interviewed 180 research groups from 5 Western Balkan countries (Albania, Croatia, Bosnia-Herzegovina, FYROM and Serbia). The priorities are very similar to the New Member States with an emphasis on "*traditional topics*"; low priority

is given to recent challenges such as climate change or biodiversity. This survey indicates that a priority is being given to *food technologies and plant science*.

Gaps between research priorities & development aspirations

The gaps are similar to those described for the New Member States with a coherence of the objectives and priorities regarding the improvement of the competitiveness of the agricultural sector (but with a greater emphasis on food safety issues) and a gap on issues related to the environment.

Only the voices of researchers seem to be considered in defining research priorities in the West Balkan countries. So, what guarantee is there that the concerns of the poor and the value chain institutions who work with them are being considered? Notwithstanding, there is an acceptance that the following development issues need to be addressed – *better infrastructure -roads, irrigation etc; a better business environment; more effective and relevant agricultural advisory services; education and research programmes to find innovative solutions to today's challenges and to disseminate them effectively to farmers; more encouragement to farmers to make investments; more social protection for the vulnerable (Lampietti et al 2009)*.

Whereas one can extract researchable issues from these development needs, they tend to be defined by national concerns rather than any general sub-regional need. Some common researchable concerns include the need to *improve the productivity and profitability of the myriad number of small farms established during the transition period; how to address issues of high cost of farm inputs; how to add value to farm produce; understanding and training in farm business management; how to access credit and markets; how to encourage investment to facilitate innovation; how to improve the extension/advisory process and its relevance; and how to deal with high levels of rural unemployment* (eg. through the development of rural non-farm 'industries' etc).

2. CURRENT IMPLEMENTATION MECHANISMS FOR ARD

This Chapter describes the organisation of the research system (= **how** are knowledge creation and utilisation organised?) with a focus on institutional capacities and mechanisms in research and extension systems. The objective is to identify coherence and gaps in the implementation of ARD. The review differentiates between three main groups: Global (Section 2.1); Western Europe (section 2.2) and Eastern and South East Europe (section 2.3).

2.1 Implementation mechanisms at the global level

2.1.1 ARD challenges for Europe and its partners.

With globalisation and the overshadowing climate change there is an urgent need to look at agricultural research not only in a European, but a global perspective. In addition, there is a consensus that agriculture is a strong driver to reach many of the MDGs both directly and indirectly. However, there is a need for ARD to be even more efficient and effective for the benefit of the poor. The agricultural research agenda is changing rapidly and embraces not only traditional agriculture, but sustainable rural development, including the use of water, natural resources, climate change, energy, food supply and safety, nutrition, production with focus on the private sector, trade and access to markets. Moreover, there is a growing awareness of the lack of coordination among the European donors and of the important role of capacity development including education and training for agricultural development. ARD has been loosing ground in Europe, but the EC is now strongly committed to achieving the MDGs, and ARD is recovering. Policies get more and more integrated, and there is now consensus that research is an engine for growth, sustainability and prosperity. The 'Life Science' and biotechnology sector will be important for agriculture. On the other hand, two years ago more money was spent on ARD in developing countries than in the North. Climate changes condemn us to collaborate (*ERA-ARD 2007b*)

2.1.2 Overview of current institutional arrangements

For historical reasons, the EU and its 27 Member States support ARD through bilateral and multilateral programmes. The European donors (Member States and the EU) are collectively the largest global donors of ARD by far. However, their investments are not coordinated at the central level in Europe nor at the developing country level: ARD programme planning and funding in EU countries is often shared between different ministries, public institutions, public/private initiatives and research foundations. The ERA ARD project aims at reducing the fragmentation of European ARD by improving coordination between consortium member states. The project seeks to improve synergies between the European national ARD programmes, increase the effectiveness and efficiency of European research planning, funding and implementation to fight poverty and hunger and to support a more rapid and sustainable development in the poorest countries in the world and thereby contribute to the Millennium Development Goals (*ERA-ARD, 2007b*).

The EC supports ARD through development assistance programmes and through the 7th RTD Framework Programme (FP7) (*ERA-ARD, 2007a*). At the EU level, the international S&T cooperation of the European Union (INCO) has a 20-year history of promoting excellence in

scientific and technological cooperation with third countries in all parts of the world. Such cooperation aims to contribute knowledge-intensive solutions to societal problems through investing in people and their institutions for sustainable development. The programme is based on dialogue with partner regions and promotes the development of long-term durable research partnerships and uptake of their research results. It increases coordination with Member State's bilateral cooperation and supports the implementation of Community policies with respect to third countries and other international commitments. Its overarching objective is to help stimulate sustainable socio-economic development and global competitiveness. It pursues this objective by:

- enhancing the added value and cost effectiveness that joint research projects can generate by exploiting the resources and scientific excellence of all partners,
- funding new research that reflect EU and partner priorities,
- exchanging know-how and transfer technologies whenever possible, providing on-the-job training and work experience

Apart from competitively won funds from the bilateral agricultural research programmes of several European countries – particularly from France and the UK - research funds are also provided to other organisations and initiatives: to the CGIAR system (more than 140 million Euros per year), to the NARS, other national and regional IARCs and regional and sub-regional research networks such as FARA and sub-regional groups. Two significant changes over the previous 10-year period were: the increase in untied bilateral aid from 68 to 92%; increased involvement by Eastern European countries in international development eg.in 2007, the Czech Republic, Hungary, Poland, Slovakia, Turkey, Estonia, Lithuania, Latvia and Slovenia were active donors.

With new donors and private foundations such as the Bill & Melinda Gates Foundation playing a growing role, there is a desperate need to improve donor coordination and cooperation (*EC, 2008d*).

ARD capacity and mechanisms

A survey implemented in 2006 within the ERA-ARD initiative provides indicators about ARD in the EU (*ERA-ARD, 2007a*). The results are incomplete (14 countries covered) but they still provide a good overview of the European contribution to ARD. The survey covered 85 programmes financing ARD activities, representing a total budget of 415 Mln Euros.

- Around 1800 organisations were involved in ARD in the 14 countries surveyed. They contributed to around 700 projects in 2006.
- The principal beneficiaries of the surveyed ARD programmes were Africa (44% of total budget), Asia (31%) and Latin America (25%). Europe represented only 4% of the budget and 9% of the number of projects.
- The budget of the surveyed programmes was targeted at both research and capacity building (about half each). Around 50% of the budget was invested in European research institutions, around 25% was allocated to International Research Institutes and the remaining 25% was allocated directly to Developing Countries – mostly NARS.
- An analysis of around 340 projects showed that research activities were almost exclusively coordinated by European or international organisation. This indicates that organisations from Europe have ***“a clear advantage regarding agenda setting, research planning, knowledge generation and accumulation”*** (*ERA-ARD2007a*)

A subsequent mid-term conference of ERA-ARD attended by southern (mostly African) stakeholders also highlighted key issues of concern for European donors (*ERA-ARD 2007b*)

- Voices from the South are not sufficiently heard when donor countries elaborate development strategies, including ARD.
- The North has considerable focus on Monitoring and Evaluation, and less on the impact of ARD on poverty and economic growth.
- Programmes are often nationally led, implying many different policies and approaches to research.
- European ARD mainly focuses on the public research institutions, not much on the private sector or farmer organizations.
- The trade agenda and private-public partnerships are underestimated in ARD for poverty alleviation.
- There is a missing link between ARD and practice as extension services have failed in many countries. Need for research on ‘research into practice’.
- Technology and capacity development is a highly needed component at all levels involving farmers, merchants, extension services, and research.
- There is an urgent need to strengthen and build partnerships with European institutions to support local investments in agriculture to obtain the 6% growth targeted by African leaders, (who through NEPAD (<http://www.nepad.org/>) has asked FARA (<http://www.fara-africa.org/>) to contribute to the development of African agriculture).
- Whether agriculture is high on the agenda in developing countries is decided by National Poverty Reduction Strategy Plans, and often it is not. There is need for greater advocacy

Other reports (*EC, 2008a; EIARD, 2008*) indicate a need for coordination at different levels:

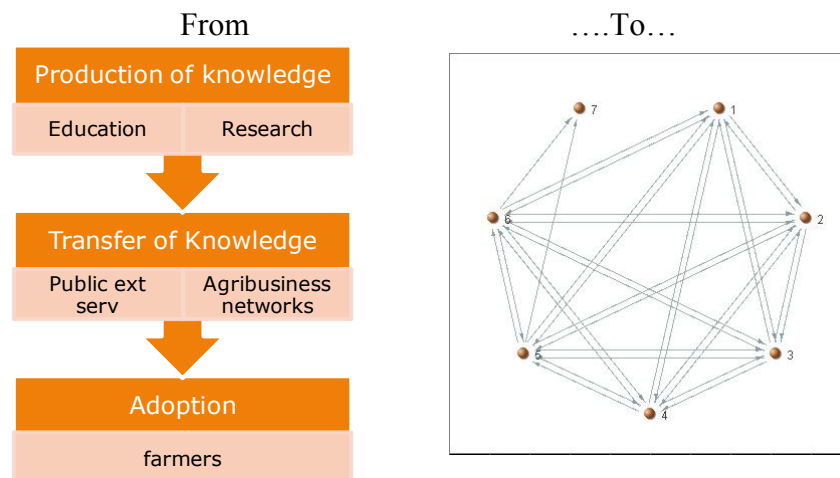
- Coordination between ARD and a broader development effort such as development aid and neighbourhood policies of the EU.
- Coordination with other scientific areas such as health, energy and environment
- Coordination of ARD programming and funding (as a component of the European agricultural research policy that should involve international cooperation)

2.1.3 Overview of the main research uptake and innovation pathways

Innovation pathways at the global level: current situation and trends

It is recognised that the institutional setting for technological innovation is changing rapidly: it is becoming more complex with the involvement of plural systems and the multiple sources of innovation (*World Bank, 2008*). There are a variety of organisational models linking knowledge production to innovation with the coexistence of linear models (based on the transfer of knowledge by extension services and agribusiness networks to farmers) and non-linear models (with interactions between value chain actors) - see figure below. Given the limitation of the linear model, a shift away from it is already observed (*EC, 2008b; IAASTD 2007a*). Another trend is the shift of extension programmes from a delivery model (using a prescription of new technological practices) to an empowerment model (focusing on building capacity among rural people to identify and take advantage of available opportunities) (*World Bank, 2008*). The EC recognised the need for establishing a typology of the models and for identifying good practices (*EC, 2008b*).

Figure 1 – The shift of organisational models



Source: Brunori, presentation at SCAR Workshop Angers – 6-7 October 2008

Knowledge Transfer and Uptake - an acknowledged weakness

The EU is performing well in the production of agricultural knowledge: according to a bibliographic survey exploring the “World of Science (WoS)” database, the EU-27 published 30% of the total number of agri-food articles between 1996 and 2005, more than any other region, including the USA (EUAM, 2007). However, whereas the EU’s knowledge production record may be good, its knowledge transfer record is considered to be weak in all documents reviewed. This weakness is acknowledged at global and European levels and is not peculiar to ARD but to other sectors too:

- *Technology transfer has been far from successful in some areas (IAASTD, 2007a). The Transfer of Technology (ToT) model has been the most dominant model used in operational arrangements and in policy. However, the TOT model has not been the most effective in meeting a broader range of development goals that address the multiple functions and roles of farm enterprises and diverse agro-ecosystems. (IAASTD, 2007b – ch2)*
- *“The mounting challenges facing agro-food and rural sectors in Europe call for revising the links between knowledge production and its use to foster innovation” (EC, 2008a) ;*
- *“There is a lack of research results uptake by end-users, which is exacerbated by inefficient or even lacking linkages between research – education – extension services and the productive sector” (EIARD, 2008).*
- *“Linkages between research and extension systems have in the past been weak and remain so in many developing countries despite various efforts to integrate technology development and dissemination systems. Therefore, it seems critical to revitalize the advisory services, complementing the investments being made in agricultural research.” (EC, 2008d).*

2.1.4 Coherence and gaps in implementation mechanisms

At the global level

The World Development Report (*World Bank, 2008*) and the IAASTD reports (*IAASTD, 2007*) identify weaknesses and indicate recommendations at the global level. These recommendations concern:

- The need to increase funding of agricultural R&D by both the private and the public sectors. This is particularly true in developing countries where public investment should support public goods. Investment should also be directed at actions helping to reshape the existing system.
- The need to reform the existing research system. Given the acknowledged failure of technology transfer, there is an urgent need to improve the uptake of knowledge by users. This could be achieved through the implementation of “participatory research approaches” where users are involved in both setting the research agenda and the implementation of the research. Mechanisms allowing greater involvement of the private sector, farmers and civil society (eg interactive knowledge networks, multiple stakeholder participation and a greater account of stakeholder needs in research programming) are needed. There is also a need to promote inter-disciplinarity and to improve the governance of the research system.

At the EU level

The conclusions of a global multi-stakeholder meeting to discuss the progress of the ERA-ARD initiative on how best to mobilise all European ARD forces (*ERA-ARD 2007b*) concluded that:

- collaboration between the EU and Africa must be on Africa’s agenda, and that we must collaborate with **all** stakeholders for the successful development of agriculture.
 - new, relevant policies being promoted by the African Union (AU), like: the Comprehensive Africa Agriculture Development Programme (CAADP), which will use ARD for sustainable agriculture, environment, and water management; in close collaboration with Forum for Agricultural Research in Africa (FARA); and the Banjul Declaration of the AU from 2006, which states that coordination of ARD should be reinforced for the effective implementation of agriculture within AU and 'New Partnership for Africa's Development' (NEPAD).
 - Likewise the African Farmers’ Forum under AU was created to give farmers a voice in policy-making processes.
 - AU also targets a new, holistic strategy for agricultural development in collaboration with EU.
 - In general, the atmosphere for collaboration for ARD is much better now than it used to be; and multi-stakeholder conferences are highly appreciated.
- **Capacity Development (CD) in ARD identified at ERA-ARD 2007 meeting:**
 - CD should be included in all national and regional agendas and into young professionals’ programmes.
 - It is important also to pay attention to the important research carried out in connection with M.Sc. and Ph.D. theses.
 - To increase the capacities of the poor to adapt to climate changes
 - To change educational curricula to focus more on farmers’ problems and to recognize field-work in scientific careers
 - IT and innovation skills need to be strengthened

- CD of farmers, farmers associations and of extension and information dissemination.
- Training in multi-stakeholder and ‘bottom-up’ approaches.

‘Who’ issues.

In addition to ‘what’ and ‘how’ concerns is the issue of who’s responsibility/role it is to undertake the prioritised research. The primary responsibility of finding sustainable solutions to these problems through research contributions is ostensibly that of the National Agricultural Research Systems (NARS) of developing countries, albeit with support from developed countries in keeping with MDG number 8 of developing a global partnership for development – and regional coordination through regional fora. With the exception of a few NARS, such as those of Brazil, India and China, many others are not sufficiently endowed to tackle these complex issues alone, and necessarily have to team up with others to form a critical mass of researchers. The critical role of the IARCs including the CGIAR, private sector, foundations and others remains to be resolved in order to ensure that available resources, priorities and effort are channelled effectively to address the urgent needs of natural-resources dependent poor communities.

2.2 Implementation mechanisms at the Western European level

2.1.1 Overview of current implementation mechanisms.

- **National research.** 85% of European public research funding is spent nationally without any transnational collaboration between programmes or competition between researchers from different Member States. National programmes are very important, but they often unnecessarily duplicate each other and that of the EU, or lack the scope and depth required to make a significant impact on major challenges. The Member States have their own bilateral agreements and implement their own initiatives with developing countries that are not financed by the EDF or any other Community funds.
- **FP7.** Only 15% research is coordinated in intergovernmental organisations, programmes such as EUREKA, or spent jointly in the Community's Research Framework Programme (FP7). This is the EU's main instrument for funding research on Research and Technological Development in Europe and it will run from 2007-2013 with a budget of EUR 53.2 billion. It allocates EUR 32.4 billion to the 7 year Cooperation programme; The budget is devoted to supporting cooperation between universities, industry, research centres and public authorities throughout the EU and **beyond** (eg through joint calls). EUR 1,935 million (6%) is devoted to Food, Agriculture and Biotechnology, EUR 1,900 million (5.9%) to the Environment – including climate change. The largest budgets are devoted to Information and Communication Technologies (28%), Health (19%) and Transport and Aeronautics (13%). There is undoubtedly some spill-over of these funds and the products of research to ARD for developing countries but this is difficult to assess. Important themes identified in the Strategic Research Agendas (SRAs) developed by the European Technology Platforms (ETPs) are covered by the Cooperation programme. Across all these themes, support to trans-national cooperation is being implemented through: [Collaborative research](#); [Coordination of national research programmes](#); [Joint Technology Initiatives](#); and [Technology Platforms](#)

- **Food Security Thematic programme FSTP.** Due to the crisis created by soaring food prices in developing countries, an open Call for Proposals "2009-2010 Global Programme on Agricultural Research for Development" of the FSTP on Research and Technology for Food Security was launched in July 2009. The details of this Call were published on the [Call for Proposals notices](#). Also, the [2009 Annual Action Programme](#) implementing the "Food Security Thematic Programme" (FSTP) was adopted by the Commission in May 2009; and a € 1 billion [Food Facility](#) was approved in December 2008 as an EU rapid reaction response. This facility is additional to the €800 million given by the EU to help poor farmers to improve production through facilitation of access to farming inputs. The EU is contributing a total of €1.8 billion to help developing countries to cope with the food crisis.
 - **EDF** The European Development Fund is the main instrument for providing Community aid for development cooperation in the [ACP States](#) and [OCT](#). The 1957 Treaty of Rome made provision for its creation with a view to granting technical and financial assistance, initially to African countries with which some Member States had historical links. It is funded by the Member States, is subject to its own financial rules and is managed by a specific committee. The aid granted to ACP States and OCTs will continue to be funded by the EDF, at least for the period 2008-2013. The tenth EDF covers the period from 2008 to 2013 and provides an overall budget of EUR 22.6 billion. Of this amount, EUR 22 billion is allocated to the ACP countries, EUR 286 million to the OCT and EUR 430 million to the Commission as support expenditure for programming and implementation of the EDF. The amount for the ACP countries is divided accordingly: EUR 17.7 billion to the national and regional indicative programmes, EUR 2.7 billion to intra-ACP and intra-regional cooperation and EUR 1.5 billion to Investment Facilities. An increased share of the budget is devoted to regional programmes, thereby emphasising the importance of regional economic integration as the basic framework for national and local development.
 - **SCAR** created two new "*Collaborative Working Groups - CWG*" in 2008 to address the lack of coordination in two challenges: on climate change and on energy. The CWG bring together research funding organisations from EU countries in order to elaborate co-ordination needs for research funding. It is a preliminary step to research coordination as the CWG does not finance research. They may lead to the creation of an ERA-Net that can launch calls for research proposals.
 - **ERA-NET** initiatives allow some EU Member States to work together on the coordination of research by implementing studies (mapping of research activities or capacities, foresight) and by financing research projects (through national budgets). ERA-Nets are active for a limited period (four years on average) some of them being extended (including the ERA-NET on ARD and the one on organic farming). There is no ERA-NET dedicated to climate change and agriculture (although there has been an ERA-NET on climate change running from 2004 to 2009). ERA-NET suffers from a lack of critical mass: for example the latest call for proposals from the initiative on climate change was targeted at 7 countries and had a total budget of only €2 Mln⁷.
-
- Among the 9 existing "**European Technology Platforms – ETP,**" one deals with bio-fuels. ETPs are led by stakeholders (not research agencies) and aim at elaborating long-term research agendas (called "*strategic research agendas – SRAs*") for a

⁷ see <http://www.circle-era.net/research-calls/>

specific domain. It is worth mentioning that there is no ETP (hence no research agenda) on climate change.

- The “**European Institute of Technology**” created in 2008 in Budapest will launch two or three “Knowledge and Innovation Communities (KICs)” in 2010 in the areas of sustainable energy, climate change mitigation & adaptation and/ or information and communication society (ICT)⁸.

2.2.2 Coherence and gaps in implementation mechanisms

There is a lack of coordination and under-investment at the EU level as indicated in a recent (December 2008) EC communication on the ERA:

“....., in response to these societal demands, and even though European agricultural research encompasses a broad spectrum of disciplines and stakeholders, research efforts often remain fragmented and poorly coordinated; there is underinvestment and a lack of critical mass. In many situations, no single Member State has the full resources or capacity to carry out the necessary research and policy developments alone” (EC, 2008a).

Concerning knowledge production processes at the EU level, the principal concern is **lack of coordination**. Whereas it is acknowledged that the coordination of agricultural research planning and funding at the EU level is weak (EC, 2008a), better coordination is reported at national level with the establishment of Research Councils, the setting-up of multi-annual research programmes and the award of financial support through competitive programmes (EUAM, 2007). But all documents reviewed recognise the need for more coordination at EU level. Several initiatives have already been launched (ERA-NET, ETP, SCAR, Joint Programming) but more effort is still required.

Concerning innovation (utilisation of new knowledge by users), the diagnosis is similar to the one at the global level: the current system is recognised to be weak and there is a consensus on the need to take urgent action to improve knowledge transfer processes. The first action needed is to invest more in knowledge transfer and exchange measures (SCAR, 2006). Concerning implementation and institutional arrangements, several suggestions are reported in the reviewed documents, including:

- Mechanisms favouring a greater involvement of users and beneficiaries of research results in both the definition of research agendas and the knowledge production process (EIARD, 2008 ; SCAR 2007). Suggested mechanisms are the same as the ones reported at the global level (participatory research approaches, interactive knowledge networks).
- Mechanisms which allow the full exploitation of existing knowledge with for example the promotion of knowledge brokers (facilitating linkages between actors and setting up frameworks to select and evaluate relevant information) or the implementation of evidence-based approaches (“systematic review of the evidence base” as used in “Evidence Based Medicine- EBM”) (SCAR, 2009).
- Instruments which provide incentives for rural communities to innovate such as favourable tax regimes, vouchers for extension support, marketing of success stories,

⁸ For more information on the EIT: <http://eit.europa.eu/about-eit/knowledge-and-innovation-communities.html>

field visits, formal groups and circles of farmers supported by farmers associations (SCAR, 2009).

- Mechanisms which improve the absorptive capacity of rural communities with a reinforcement of communication skills of people in charge of transfer and vocational training for farmers with an urgent need for boosting professional development programmes (SCAR, 2009 ; World Bank 2008).
- Advocacy - Farmers Associations such as COPA-COGECA can play a stronger role in representing the needs of small farmers and in *advocacy* with the research community and policy makers. They will call for an approach which takes into account that whereas food is a basic need for consumers, it is also a basic livelihood strategy for millions of small farmers across Europe.

2.3 Implementation mechanisms in Eastern and South East Europe

2.3.1 Overview of current institutional arrangements

Despite differences between countries, the agricultural research systems of the three sub-groups of countries present similarities. For this reason, this section does not differentiate between the three sub-groups (12 EU members, 7 EU Candidate and Potential Candidate Countries and the 4 other countries). Many of these countries were formerly under a centrally-planned economic structure and have since 1990 been subject to a painful transition process.

A very important reason for delays in agriculture research in these countries in transition (CTs) is the anachronistic structure of the agricultural science sector, usually divided into three independent organizations: agricultural education institutions, with a large number of faculties; scientific units of academies of sciences; and specialized R&D units. This has led to difficulties in efficient use of existing research potential and declining budgets and the creation of large and multidisciplinary research groups, and results in waste of the limited research funds (*Proskuryakova 2009*)

In East and South East Europe, the research systems were originally designed to provide technical packages to large state-owned farms. Whereas these priorities have changed since the 90's, current research effort has limited relevance to the new class of small private farmer and tends to focus on on-station rather than on-farm trials, partly because of limited funds. The level and quality of expenditures are generally insufficient. Agricultural research and development spending across the region is usually less than 1 percent of agricultural GDP, compared with 2.36 percent (in 2000) in developed countries (*World Bank, 2009*).

In the international arena, the highest priority was cooperation with the other socialist countries. There were several mechanisms for cooperation. First, one of the most important mechanisms was establishment of joint research programmes addressing common problems. For example, a successful programme that focused on winter wheat breeding united plant breeders from Russia, Ukraine, Hungary, Romania, Bulgaria and other countries. This programme resulted in a number of advanced varieties. Second, cooperation at the research- and the R&D-unit level was encouraged. This involved both joint research activities and exchange of scientists. It seems that cooperation and coordination of agricultural research at this international level was much better than at the national level. Third, reciprocal membership of the academies was one of the mechanisms to maintain communication (*Duczmal, 2000*)

The agricultural research capacity remains fragmented. In the NMS, it is estimated that there are 30-35,000 researchers involved in agricultural research, scattered within 414 research entities and 1,800 research groups (EUAM, 2007). The fragmentation is even higher in CC and PCC than in the NMS: it is estimated that there are around 3,500 researchers scattered into 325 research groups within 47 research entities (including 17 universities) in Albania, Bosnia Herzegovina, FYROM and Serbia only (BAFN, 2008). In order to overcome this fragmentation, two trends can be observed: (i) the merging of entities and (ii) the creation of research clusters (public institutes, universities and private companies) (EUAM, 2007).

The level of private sector agricultural research is very low and unlikely to play a major role in the immediate future (World Bank, 2009). No figures are available but 94 percent of the agricultural research and development is conducted by the public sector. The agri-food research sector relies mainly on public research with a good balance between universities and public institutes (40% each) in the NMS. There is a trend for a growing importance of universities (EUAM, 2007).

Reforms are happening but further changes are needed to improve research efficiency and increase its impact on rural communities. The 12 NMS and the 7 CC and 4 PCC are in the process of aligning their national agricultural research programmes with the structure and priority areas set out in the EU Research Framework Programmes. As a result, the trends observed in recent years are similar to the ones observed in the EU. They concern:

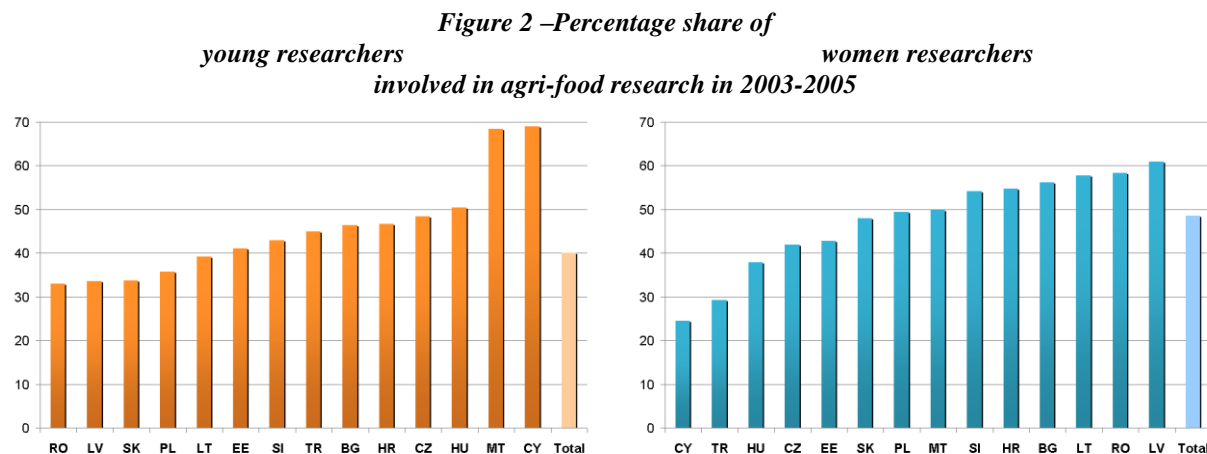
- improved research capacity - the concentration and rationalisation of research capacity (merging of research entities)
- improved research programming - better coordination of priorities through the establishment of Research Councils, the setting-up of multi-annual research programmes and the award of financial support through competitive programmes.

This trend is observed in almost all countries but the pace of implementation differs between countries (EUAM, 2007).

Many research organisations lack adequate facilities, equipment and budgets. Existing infrastructures are old. This is an obstacle to international research cooperation in most of the countries and an obstacle to domestic contracts in some of them. Inadequate equipment handicaps their participation in international research projects, including the collaborative research projects funded by the EU under FP7 (World Bank, 2009, EUAM 2007, BAFN 2008) leading to a feeling of isolation among many research scientists. As participation in bilateral and international programmes is recognised as an important factor in the development of research organisations (BAFN, 2008) it is another constraint to the improvement of agri-food research.

There are two processes directly affecting human resources: a massive and continuous ‘brain-drain’, frequently of top experts who have emigrated to seek employment opportunities abroad; and the ‘brain-waste’, where specialists leave their professions for better paid jobs in other sectors of the economy (BAFN Mapping 2008). There are important differences between countries, with the ones in the Western Balkans (in particular Albania and Bosnia Herzegovina) being most severely affected by these trends. For example, the University of Tirana lost some 40% of its academic staff over the last 10 years (BAFN Mapping 2008). Another difficulty is the ageing of the research staff: in Albania, Serbia and BH, less than 30% of the agricultural researchers are younger than 35 years (BAFN mapping, 2008). The situation is better in the NMS (cf figure below) and there is a trend for an increase in the number of young scientists involved in agri-food research (EUAM mapping 2007).

Concerning gender equality, the percentage of women employed in agricultural research varies from 25 to 60% in the NMS and 40 to 60% in the Western Balkans (*BAFN mapping 2008, EUAM mapping 2007*). Finally, the ability to attract foreign researchers is poor; researcher mobility is low (*BAFN, 2008*).



Source: AgriMapping Survey 2006-2007

2.3.2 Coherence and gaps in implementation mechanisms

The overall diagnosis is similar to the one for the EU but the dimension of the weaknesses is much more alarming. According to the reviewed documents, cooperation and linkages between research organisations, extension services and clients are weak. Communications and knowledge transfer are often informal and so many potentially useful research results are not made available to farmers (*World Bank, 2009*). The publication record of scientists is generally poor in the region; although there is no indication as to why this is so, the lack of incentives appears to be one. Compared with publications in the agri-food sector from the EU over the 4 year period 1995-99, the 24 countries in transition published less than 30% and their impact factor was less than 25%. (*Duczmal, 2000*). These statistics may well have changed in the meantime. The links between the scientific community and the institutions in charge of policy design or implementation is also weak (*AgriPolicy, 2006*). Public research institutions carry out **some** extension activities, but these are limited mainly to publicly funded training and educational activities linked to their research; they occasionally provide advice on an individual basis (*World Bank, 2009*).

A study implemented in 2007 in the FP6 Project “CEEC AGRIPOLICY⁹” provides a detailed analysis of knowledge transfer in rural areas in 15 East and South East European countries (*AgriPolicy, 2007*). The results are rather alarming as demonstrated by the main findings:

- No tradition and recent creation of knowledge transfer infrastructures:

In many countries there is no established tradition in organised knowledge transfer. Agricultural Extension Services (AES) have been established only recently in many countries (2002 in Bosnia Herzegovina, 1999 in Bulgaria, 1997 in Croatia for example). Farmers began to organise into associations only recently.

⁹ <http://www.agripolicy.net>

-Insufficient resources in existing AES:

There is a lack of resources resulting in poor infrastructures, low salaries and insufficient budget for operational costs. AES are mainly delivering to big farms and advice is rare in some rural areas. For example in Bulgaria, only 1% of the farms are visited by advisors. Many other countries reported insufficient numbers of advisors. In some countries, producer organisations as well as sellers of farm machinery and inputs of goods and services play an increasing role in delivering advice and training.

- Low level of education for both farmer and advisor communities:

In many countries a significant share of the rural population didn't finish elementary school. Insufficient personnel enter higher education: there is a lack of "prestige" associated with the agricultural sector and a low level of social trust in state agricultural education resulting in low interest by young people in farming. A lack of strategy for the development of professional agricultural education is also reported. There are also deficiencies in the education of advisors with in particular a lack of skills in communication, in the use of computers (worsened by poor access to the Internet in many areas) and poor knowledge of new technologies. There is also a lack of continuing professional training.

- Advice is mostly related to technical aspects and not demand-driven:

Knowledge transfer and training has increased in recent years but it is more project-linked and not farmer demanded. Training of farmers is mostly focused on technical issues and there is a lack of attention to managerial and business skills.

- Countries that joined the EU are in a more favourable position:

In EU member States, the situation is improving thanks to Rural Development programmes. There is a lack of multilateral and bilateral support to non-EU countries. The situation may improve in the coming years thanks to the implementation of IPA.

-Major concerns over knowledge production:

The current agricultural research system suffers from a lack of resources that has adverse consequences on research infrastructures (old research equipment, difficult to participate in research projects) and human capacity (brain drain, scientific isolation, low mobility of researchers). The situation is particularly alarming in the Western Balkan Countries. A conclusion of a recent European project that looked at the agricultural research system in the region (*BAFN, 2008*) was that without any increase in financial resources, the future of agri-food research in the WBC could be jeopardised.

The EU currently plays a major role by providing financial support but more needs to be done, especially in Western Balkan Countries. An interesting initiative is the allocation of substantial support (1 - 3 million Euros) to help promising research organisations to pay salaries, buy equipment and network with other research organisations (activity "*Unlocking and developing research potential in the EU's convergence regions and outermost regions*" of the FP7 Capacity programme¹⁰). The programme is not specific to agriculture and the allocated budget (340 million Euros for 7 years) should be substantially increased to make significant impact on the research system.

Examples of mechanisms that could help agricultural research organisations in South East Europe include (*BAFN, 2008*):

¹⁰ see http://cordis.europa.eu/fp7/capacities/convergence-regions_en.html

- 1) Incentives for the purchase of research equipment and consumables (through co-financing, exemption of VAT).*
- 2) Stimulate researcher mobility and training through the organisation of staff exchanges and support for participation in conferences and training courses.*
- 3) Facilitate the access to scientific journals, electronic databases and to the principal European network of computers for research and education –GEANT*

In this context of limited resources, it is estimated that *“agricultural research spending needs to be focused on clearly identified priorities and farmer needs. Limited funds may be better used for applied research rather than more basic research. Applied research includes a greater focus on on-farm and onsite trials with farmer involvement, and can be widened to include storage, packaging, and marketing technologies”* (World Bank, 2009).

-Major concerns about knowledge transfer:

There is also a need for financial support for improved knowledge transfer. Bilateral and multilateral support could have a significant impact, particularly in the Western Balkan Countries given their relative small size (20 million inhabitants for an area 207,800 km², it is roughly equivalent to half the land area of Spain). In addition to more financial resources, other needs include:

- 1) Improvement in the education of farmers and advisors both at initial (university) and professional level (vocational training)*
- 2) Stimulation of farmers' representation (farmer associations), reinforcement of farmers' training and their 'voice' in identifying research agendas.*
- 3) Capacity building for advisors with an emphasis on communication skills and of new knowledge.*

To conclude the chapter on a positive remark, an encouraging quotation from a recent World Bank report (World Bank, 2009) *“Many research stations and institutes are developing valuable links with both international research organizations, including the Consultative Group on International Agriculture Research (CGIAR) institutions and regional partners. This should continue, with added emphasis on linking domestic research and educational institutions, extension services, and farmer clients”*.

3. ENSURING THE NEEDS OF THE POOR ARE MET

It is important to stress here that in reviewing the available literature, it became clear that the vast majority of it reflected the situation of the global poor and those in Europe prior to the global turbulence during late 2007 through 2008-9 - in food prices, input costs, credit availability and other consequences of the current global banking crisis and associated recession. Even data reported emanating from the many reports published in 2009 tend not to reflect the consequences of this turbulence – and ‘regional’ data from non-EU eastern European countries is particularly lacking, at least in a composite manner. The upcoming ‘e’ and face-to-face consultations thus provide an unique opportunity to gather more contemporary information on the poverty dimension and on the needs of the poorest sections of the community in Europe – and on the role agriculture and agricultural research can play in addressing their needs.

This section of the text attempts to review and synthesise the extent to which the needs of the poorest are addressed within regional and national policies and priorities in Europe; and identifies the main development barriers constraining poverty reduction and what new knowledge, capacity and skills would best help overcome them. It deals with both research and development issues since the latter govern the issues which need to be prioritised through investments in research. (*For a more in-depth review of this topic the reader should read Annex 1*)

3.1 The Global Poor

3.1.1. Overview

The latest reports from FAO and other global contemporary information sources indicate that the number of **hungry people** in the world increased in the past 2 years by 75million to 963 million and that issues such as decreasing area of farm land for food, higher input prices, greater demand for and increased price of food, and climate change are primary culprits for this (*FAO 2008*). Consequently, every day, some 16,000 children die from hunger-related causes-one child every five seconds (*UNICEF 2008*). In essence, hunger is the most extreme form of poverty, where individuals or families are unable to grow, do not have access to, or simply cannot afford to buy their most basic need for food. And the consequences are particularly disastrous for families suffering from HIV-AIDS, malaria, dysentery etc (*World Bank 2005*). Rising food prices have led to sharp increases in the number of families in need, but surplus stocks of farm produce used in the past are now at an all-time low in EU countries thanks to the ongoing reform of the common agricultural policy – so projections for the near future are poor and will have profound global influences. The decrease in international food prices in the second half of 2008 has failed to translate into more affordable food for most people around the world (*MDG Report 2009*)

3.1.2 Agriculture and poverty reduction – challenges and opportunities

Quantitative projections of food supply and demand up to 2050, assuming no major policy reforms take place, indicate a tightening of world food markets and increasing resource scarcity, with adverse effects on poor consumers. Real-world prices of most cereals and meats are projected to increase in the coming decades, dramatically reversing trends over the past

three decades. Higher prices can benefit surplus agricultural producers, but can also reduce access to food for a larger number of poor consumers, including farmers who do not produce a net surplus for the market. High food prices will contribute to what is projected to be relatively slow progress in reducing malnutrition. Price increases are driven by both demand and supply factors. Population growth and stronger economic growth in Sub-Saharan Africa, together with already high economic growth in Asia and moderate economic growth in Latin America, will stimulate a rapid increase in demand for food. Rapid growth in meat and milk demand is projected to put pressure on prices for maize and other coarse grains and meals. Bioenergy production is projected to compete with food production for land and water resources. Adverse impacts from climate change on agricultural production are expected to become more pronounced, especially in developing countries. Even under moderate climate change scenarios, impacts are projected to be negative for dryland areas in Africa, Asia, and the Mediterranean area. Growing scarcities of water and land are projected to progressively constrain food production growth, slowing progress toward food security and human well-being goals. Given these prospects, the question posed by the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD)—“How can we reduce hunger and poverty, improve rural livelihoods, and facilitate equitable, environmentally, socially and economically sustainable development through the generation, access to, and use of **agricultural knowledge, science, and technology (AKST)**?” is highly relevant and timely. Although experts agree that AKST has played a crucial role in reducing hunger and poverty in the past, its future role is uncertain, as is the relative impact of alternative development pathways of AKST on the food and nutrition security of the rural poor (Rosegrant and Ringler 2009)

The CGIAR Science Forum (CGIAR Science Council -2009) has provided some scenarios of the future of food for the mid-21st Century. This article also briefly addresses the major developments in food production, especially the possible role of food technology, and based on this analysis, some issues for shaping a priority agri-food research agenda have been identified. Next to technological issues, it should be realized, however, that institutional barriers can be a major obstacle for the developing world to gain access to local, regional and global markets. At the same time, it is also clear that technology could help to overcome these institutional barriers by making it possible to produce high-quality, safe and nutritious food. If it is possible to realize such a development, it should also be possible to reduce poverty by linking food demand in the developing world to national food production. In summary, their key messages are:

1. Projections indicate a tightening of world food markets as resource scarcity increases, adversely affecting poor consumers. Real world prices of most cereals and meats are projected to increase in the coming decades, dramatically reversing trends from the past several decades. Higher prices can benefit surplus agricultural producers but can reduce poor consumers' access to food, including farmers who do not produce a net surplus for the market. As a result, progress in reducing malnutrition is projected to be slow.

2. Growing pressure on food supplies and natural resources requires new investments and policies for AKST. Tightening food markets indicate that a business-as-usual approach to financing and implementing AKST cannot meet the development and sustainability goals of reducing hunger and poverty, improving rural livelihoods and human health, and ensuring equitable, environmentally sustainable development. Innovative AKST policies are essential to build natural, human, and physical capital for social and environmental sustainability, which will require more investment in AKST.

3. Continuing structural changes in the livestock sector, driven mainly by rapid growth in demand for livestock products, bring about profound changes in livestock production systems. Projected increases in livestock numbers to 2050 vary by region and species, but substantial growth opportunities exist for livestock producers in the developing world. With rising prices of maize and soybeans, the cost and availability of animal feed will affect both the rate and extent of this growth. Moreover, declining resource availability could lead to degradation of land, water, and animal genetic resources in both intensive and extensive livestock systems. In addition to the potential environmental impacts of more intensive livestock production systems, the sector faces major challenges in ensuring that livestock growth opportunities do not marginalize smallholder producers and other poor people who depend on livestock for their livelihoods.

4. Growing water constraints are a major future driver. Agriculture continues to be the largest user of freshwater resources in 2050 for all regions, although its share is expected to decline relative to industrial and domestic uses. Sectoral competition and water scarcity problems will intensify. Reliability of agricultural water supply is projected to decline without improved water management policies.

5. Agricultural research cannot ignore human nutrition issues as well as processing and distribution types. Food systems are no longer supply-driven but demand-driven. The role a diversity of farming systems (commercial, familial, specialized or multipurpose) could play to satisfy a diversity of food demand, of spatial organisation regarding environmental issues as well as a frantic rural life need to be investigated.

Finally, the *Agrimonde 1* scenario (*Holmes and Nabarro, 2009*) proposes a change of approach to the pursuance of agricultural research for development; it emphasises the need to consider the **multi-functionality of agriculture**, assessed as essential both by the recommendations of the IAASTD (*IAASTD-2007*) and by the *World Development Report 2008* on agricultural issues (*World Bank 2008*). In such a scheme, they propose that different types of agriculture complement one another rather than having to fit into a single model (e.g. from commercial specialized to family multipurpose farming).

In both scenarios, the question remains as to the real capacity for the emerging new technology options generated by agricultural research which affect and are affected by many factors - social, economic and local development issues. It may prove difficult for many (researchers, academics, government institutions, farmers) to break away from past choices and paradigms that are embedded in technical solutions (e.g. mechanization, fertilizer and pesticide use, intensification, monoculture, genetic engineering) or cognitive systems (such as current knowledge and know-how) and in the values of the current actors involved. Some argue that we are trapped in a technical rationalization? It is a sort of lock-in that other sectors have also experienced – except we cannot do without agriculture.

3.1.3 What can Europe do to better address the needs of the global poor?

Research issues

-Improve coordination and targeting of agricultural research to address the needs of the global poor. This has been discussed in previous chapters. In essence, the basic needs of the poor are: Food (and water) security; Political stability and end to conflict; Better education and health services; Resolving land tenure/rights issues in an equitable manner; Ensuring affordable and sustainable inputs and added value services from stakeholders; Appropriate

advice and services on good farming business practices; Accessible local/national markets and greater involvement in equitable international markets; Coping mechanisms (adaptation) to increasing concerns about climate change. The design of coordinated cross-sectoral research effort to address these needs is urgently required.

- Improve extension of existing and new information to users –Market research is required to ensure beneficiary/users needs and demands are addressed; Communications strategies (and adequate resources) need to be embedded in research programmes to maximise the likelihood of getting ‘research into use’; Urgent capacity strengthening is required in the professional marketing of new research findings, on out-and up-scaling of information, on involvement of the media, use of ICT, consideration of economies of scale etc.

Development issues

-Revise the EPA - Since 2001, the EU has granted duty-free and quota-free access to all exports from Least Developed Countries, except armaments, and the same approach is being extended to African, Caribbean and Pacific (ACP) countries in the context of the **Economic Partnership Agreements (EPAs) 2007**. The EPAs are meant to stimulate trade and growth - including in the food and agricultural sectors - which will also contribute to food security in developing countries. The EU considers that it is taking clear and bold steps to help developing countries meet their food security objectives. The EU considers that the proposed € 1 billion Food Facility, the ongoing CAP reform process and EPAs are among these steps. However, a Pan African delegation recently travelled to Berlin, Brussels, Madrid, Paris and London to engage European farmers, parliamentarians, civil society and media in discussions regarding the EPAs and the CAP, both instruments they believe risk having disastrous consequences on African small scale farmers. The Interim EPA requires that African countries open up to 80 percent of their markets to European goods. Many African leaders have expressed the need to review several clauses within the agreement. Yet, the EU is now pushing for the speedy signing of these interim agreements as well as the Full/Comprehensive EPA that include services, investment and other issues yet to be agreed upon at WTO level. The African delegates expressed their concerns with the content and process of the EPA negotiations, which once signed threaten the livelihoods of 70 percent of Africa’s population that relies on farming for their income. They advocate that what Africa needs is support from the EU in setting up national infrastructures that sustain agricultural organisations of sub-regional markets and financial and agri-business systems (**Research and capacity building on farm business management is not a traditional area of support by the research donor community but is worthy of consideration as the technological fix approach on its own is not effective**) By exposing local markets to competition by super-production systems from Europe, import-export reversals, contraction of budgetary capacities of African states in favour of newly-formed regional blocs, the EPAs minimise the real chances for local and regional economic actors to resist the global crisis (ACORD2009).

-Aid for Trade - The EU is the biggest donor of trade-related financial assistance globally. The European Commission will raise its overall spending on trade related assistance to €1bn annually by 2007. EU Member States have committed themselves to match that amount with another €1bn annually by 2010. Support for the wider Aid for Trade agenda comes on top of this. These funds are used to help develop the capacity to trade in partner countries by investing in infrastructure, meeting health and safety standards and facilitating regional

market building (EC 2009 Trade). Currently this initiative has some relevance to commercial farming sectors in the south – but has little influence on the concerns of smallholders.

3.2 The poor in Western Europe

3.2.1 Overview

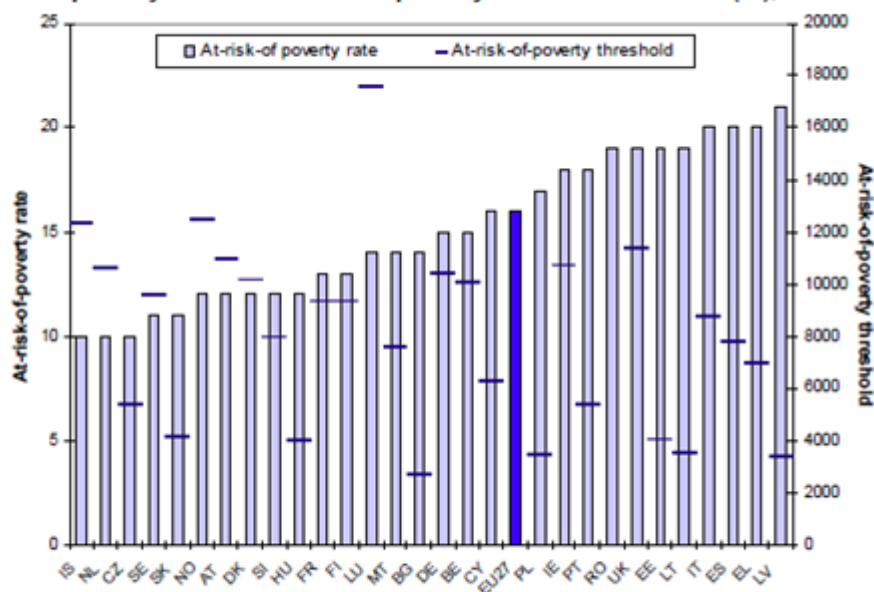
Incidence and prevalence of poverty- From the perspective of this review, we interpret the term ‘poor’ to represent both the absolute and relative poor. In 2007, of the EU27’s total population of some 500 million, ca 79 million (16%) lived below the income poverty (or at risk of poverty) threshold; some 43 million people in the EU were thought to be at risk of food poverty, meaning that they could not afford a meal with meat, chicken or fish every second day; and ca.32 million were deemed to be materially deprived (ie with a very high likelihood of suffering income poverty and social exclusion) (*Eurostat 2009*)

The income poverty index was more than 30% for the elderly population in Cyprus, Estonia and Latvia. Among children, the at-risk-of poverty rate was highest in Italy, Romania, Spain and Poland. In most countries, the rural population are poorer than the urban population and in almost all countries they suffer from far greater social exclusion. Social protection reduces income poverty by 36% on average in the EU. New Member States (Romania, Latvia, Poland, Hungary, Cyprus, Lithuania and Slovakia) have the highest shares of the population who are materially deprived.

Economic growth is predicted to decrease by 50% in Europe and Central Asia from 5.5% to 2.7% for 2008-2030 – the largest global reduction. (*Eurostat 2009*)

I

Chart 1: At-risk-of poverty rate and At-risk-of-poverty threshold in the EU (%), 2007



Source: SILC 2007 for all countries except Bulgaria and Romania (National household budget surveys)

Demography -In Western European countries, two large scale processes of demographic change are taking place and these need to be understood if the social and economic parameters of poverty are to be addressed : a long established “urbanization” trend drawing population out of more remote rural areas into urban and accessible rural areas, and a more recent “counter-urbanization” flow out of urban areas into accessible rural areas (made possible by new transport and ICT infrastructure) increasingly under pressure from an

urbanized lifestyle. The latter phenomenon is particularly evident in the case of France and the UK. Moreover, there is an increasing weight of the so-called returning migrations, i.e. people who return to their home villages after a previous migration to urban areas or abroad.

Agriculture – rich or poor, farmers have been exposed to unprecedented increases in input costs over the past 18 months - and consumer prices for foodstuffs have also increased to unprecedented levels (See Annex 1). Despite this, Europe's farmers have still needed to meet the challenge of producing quality and safe food at affordable prices; there is some contemporary evidence to indicate that farm production levels of cereals and milk have decreased year on year over the last 2-3 years – (COPA-COGECA 2009). Despite its critics, the CAP has achieved a great deal over the last decade; it has evolved and reformed itself to reflect new realities, a process which is at this moment being re-discussed within the context of the CAP Health Check (see EC 2009). Among a range of measures, the agreement abolishes arable set-aside, increases milk quotas gradually leading up to their abolition in 2015, and converts market intervention into a genuine safety net. Ministers have also agreed to increase modulation, whereby direct payments to farmers are reduced and the money transferred to the Rural Development Fund. This will allow a better response to the new challenges and opportunities faced by European agriculture, including climate change, the need for better water management, the protection of biodiversity, and the production of green energy. Member States will also be able to assist dairy farmers to adjust to the new market situation in sensitive regions.

Agriculture and Poverty- In Western Europe, the presence of farmers as a specific group at risk can be explained by a conjunction of factors such as: a) the structural decline in the price of agricultural goods; b) the fact that, in most cases, farming remains a lifetime job; the reason may be strong individual preference for the agricultural lifestyle, but also the guaranteed minimum income provided by current agricultural policies; c) the political lobby of farmers is not as strong as before due to their limited and declining numbers and the increased competition for their commodities from the growth of global trade of agricultural products.

Food Production -An enormous increase in the productivity of commercial farming systems has occurred making them highly effective and efficient. Smaller family-farms have also had to increase their efficiency although this is not universal and many farms are in business solely because of government subsidies. While this situation has resulted in unprecedented food security, it seems to have led to other problems (COPA-COGECA 2009):

- Industrialization of farming practices has alienated consumers/the media towards food produced in this way and against farmers who do not follow good animal welfare practices.
- Yet, affordability of food by the poor is still an issue – note the large number of people in the EU at risk of food poverty.
- When food security is realized, food quality issues become important; consumers have become more aware of the relationship between food and health.
- Because of abundant food supplies, the role of the consumer has become dominant. Thus food systems are no longer supply-driven but demand-driven – and cost-driven as many small producers in Western Europe have found to their cost recently, viz. the dairy industry and their relationship with the retailers/supermarket chains in the UK.
- Strong integration has developed in food chains at national and international levels; consequently strong interdependencies have developed which sometimes break down

Employment The response by most farmers in Western Europe to the economic and social challenges of the last 30 years has been to increase the level of mechanization, intensification

and efficiency to such an extent that agriculture now employs less than 5% of the population in western Europe and 5% in the EU. However, further challenges driven by markets and CAP reform are likely to challenge the efficiency of small producers even more in the short term – milk and meat producers being one group of small producers which will be particularly challenged.

Linked to agricultural activity there is often a large employment of immigrants from Eastern Europe and North Africa. Mainly for seasonal workers, there is a risk of illegal immigration often associated with very poor living conditions, low salaries, and absence of any kind of insurance. Those problems are more severe in southern European countries, where the production of fruit and legumes has a strong seasonal cycle that requires a large labour input (Italy, Spain, Greece). Moreover, the risk of poverty and exclusion is still higher in those areas where there is a presence of criminal organizations that controls the sector labour market by new forms of *caporalato* (illegal work intermediary); this is particularly evident in Southern Italy, Spain and France.

Population decrease -in Europe (including the CIS)'s ca. 800 million people, growth rate is projected to decline between 2005 and 2015 to -0.2%, the lowest rate of 'growth' in the world. The urban population is foreseen to increase to 64% of total population; under 15s are projected to decrease further to 17%; and total fertility (births/woman) is projected to decline to 1.5% (cf 5.5% in Sub-Saharan Africa) –(Eurostat 2009)

3.2.2 Agricultural research and the poor in Western Europe

Whereas there is abundant information available on practices and technologies to further improve the efficiency of agricultural holdings, they pale into insignificance compared with the overriding influence of national and EU policies, the global market of agricultural produce, the power of the retail sector and the escalating costs of inputs (COPA-COGECA 2009). Small farmers in Western Europe are particularly vulnerable to these influences and protectionist policies are currently in place in many countries to sustain the livelihoods of smaller farmers and to sustain their roles as custodians of the countryside. Efforts to encourage specialisation on small farms to produce niche products for the market such as organic farming has not resulted in the breadth of benefits originally envisaged. Hence new research focused on the particular needs of small farmers in an unsubsidised economy would be very timely in view of the foreseen changes in the CAP.

3.3 The poor in Eastern Europe

3.3.1 Overview

Incidence of Poverty - Most of the countries reviewed in this group are among those collectively known as the transition states. Some are now members of the EU; others are EU candidate countries; while others are potential candidate countries and/or still allied to central planning systems. Most were subject to the transition process that occurred with the demise of the centrally planned economies of Central and Eastern Europe and the former Soviet Union at the turn of the 1990s.

Unequivocally, transition produced an initial increase in poverty levels as well as a higher inequality of income distribution. This was characterized by a dramatic economic decline. In the rural areas, this was largely the result of reform policies such as agricultural price and

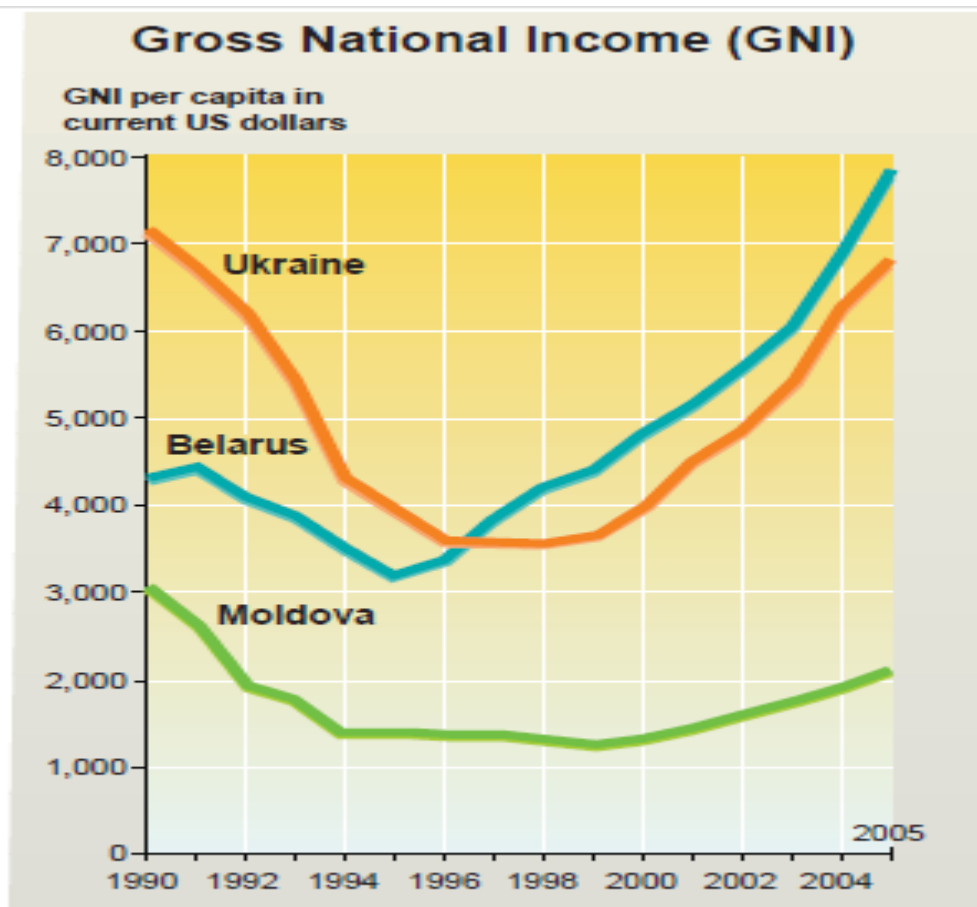
trade liberalization, land privatization, and farm restructuring. After 1998, economies generally grew strongly in the region. In 1998, an estimated one in five people in the transition countries survived on less than US\$2.15 per day (World Bank 2000). While both rural and urban poverty declined significantly after 1998, rural poverty is not catching up and therefore grows in relative importance. Alam et al. (2005) have analyzed the general poverty changes in the post-1998 period. They show that poverty decreased after 1999 in almost all countries in the region and emphasize the crucial role of economic growth. The positive impact of growth on poverty reduction occurred through increases in wages, job creation, and both social and private transfers. Differences in land reform and farm restructuring, and the migration patterns triggered by those, can help explain why the rural-urban poverty gap is higher in some countries than in others. Although reform created a food security problem in some countries, the cause of the problem was not insufficient food supply, but rather inadequate access to food by segments of the population and regions within countries. However, over the next 9 years, there was a declining trend in income poverty, though very few transition countries were successful in creating enough **jobs** to fully replace those that were lost (Mollers and Buchenreider 2009). Also see World Bank Figure below to illustrate GNIs in 3 countries during the transition period until 2005 – see Annex 1 for more detailed analysis.

To summarise, the economic collapse, privatization and the transformation processes in industry and services, re-distribution into private hands of small parcels of state-owned land, the effects of EU accession, and the post-2000 recovery affected countries differently. The poorest people in society were those who suffered most as a consequence of these changes; the majority experienced the reform process rather as a shock which brought inflation, unemployment, and a loss of lifetime savings.

The global economic crisis as well as high food and farm input prices are likely to have reversed some favourable trends since these data were collected (see MDG Report 2009). The persistence of rural poverty is one of the reasons why current rural development approaches adopt a more comprehensive view of the diversity of rural areas and particularly the multiplicity of income sources that rural households depend on (OECD 2006, WORLD BANK 2007).

3.3.2. Key areas for addressing the needs of the poorest, and the main development barriers

Agricultural development policies- Economic reform in the transition economies of the former Soviet bloc transformed the volume and mix of these economies' agricultural production, consumption, and trade. Initial production decreases in most countries ranged from 25 to 50 percent. The livestock sector was hit particularly hard, all but eliminating U.S. grain exports to the region (Liefert and Swinnen 2002). This report concludes that the output decline was an inevitable part of market reform and that the main goal of agricultural policy in the transition economies was not to return output per se to pre-reform levels but ***to increase the productivity of input use***. Many policy issues remain to be resolved: eg. ***land policies*** need urgent reform to enable those who wish to exit agriculture to do so; ***macro- and micro-rural development policies*** that deal with EU convergence need to pay more attention to improving employment rate and labour productivity. Despite the already highly diversified income portfolios and the willingness and interest to enter RNFE, ***job creation is the Achilles' heel of the rural areas***.

Figure 3 –Evolution of GNI in 3 Eastern European countries

UNEP/GRID-Arendal, May 2007.

Note: Purchasing Power Parity method.

Source: World Bank. Development Indicators database (www.worldbank.org).

Poverty and Agriculture -Farms with *very small economic size* represent the majority of total farms in most Eastern European countries. Moreover, semi-subsistence farms are definitely predominant in Albania, Bulgaria, Hungary, Lithuania, Romania and Ukraine and very common in Poland. European Size Units of < 2 ESUs are common; a quarter of rural households in EU12 countries have ESUs of 1-4. (1 ESU = 1200 € of Standard Gross Margin of the agricultural holding which is equivalent to either 1.3 hectares of cereals or 1 dairy cow or 25 ewes or equivalent combinations of these). Whereas these poorest farm households have little land, they are generally dependent on farming incomes which is insufficient for them to live on. The diffusion of very small or even semi-subsistence farms is a matter of serious concern because in most Eastern and Mediterranean countries (Bulgaria, Lithuania, Romania, Greece, Italy, Portugal) less than 30% of farmers have other gainful activities which can top up the income received from agricultural activities. Diversified sources of income may indeed reduce the risk of poverty among farmers. Therefore small farmers appear to be a specific group at risk of poverty and social exclusion in rural areas. The better-off farms are slightly bigger, earn a larger share from agriculture and receive significantly higher incomes per hectare of land. The question arises how these small farmers can cope with the ongoing structural changes, and if *rural non-farm employment* (RNFE) could be a key to sustain their livelihoods.

Employment opportunities in rural areas are forecast to decrease considerably – and made worse by the relatively low quality of education and the lack of investment by government and the private sector in rural-based enterprises. There is on-going debate among the rural farming communities about options open to them - whether to *intensify their farming activities*, to *diversify their income through non-farm employment* or to *exit farming altogether* (see Buchenreider et al 2009; Moellers and Buchenreider 2009). In Serbia for instance, ca 50% of farmers with holdings of less than 3ha. see their future outside agriculture and in ‘off-farm’ activities (Bogdanov, 2007). In the western Balkans, many rural residents previously not directly involved in agriculture became smallholders because they had no other source of income. The result is a complex and highly fragmented production systems dominated by small, unorganised producers with unsophisticated production structures and quality control systems. Many small farmers operate outside organised value chains, lack adequate access to inputs and markets and have difficulty taking advantage of economies of scale (Lampietti et al 2009)

Demography -In Eastern European countries, the exodus from rural to urban areas (especially the capital city) is a major contemporary phenomenon; moreover, migration abroad – notably of young people and women – has led to a general impoverishment of rural areas. The latter phenomenon is particularly acute in Bulgaria, Lithuania, Poland and Romania. There are ageing and gender disparities too. The feeling of remoteness in the rural areas is one of the drivers of urbanization since concentration of the main services in urban areas can impact on the quality of life of groups already at risk of social exclusion: health services for the elderly or disabled, child care facilities for female workers, etc. The accessibility of schools is another important question for children and parents living in remote rural areas. Also poorer housing and access to transport –the latter increasing the distance from markets and, more generally, creating *social isolation of some farming communities*. Access to quality ICT is also a concern of rural households: in most countries covered by the study, an important digital gap in rural areas is reported.

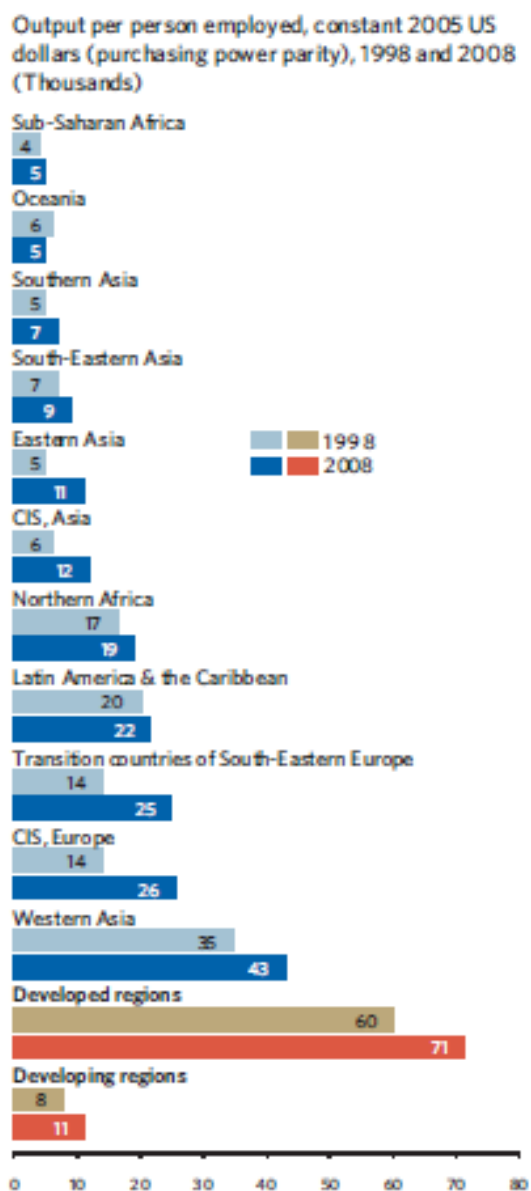
Education- In Eastern Europe, even if the level of education is usually quite high, there is still a problem of illiteracy that affects rural areas. Moreover, the quality of education is lower in rural areas due to both education infrastructure and level of qualification of staff; ICT is also very scarce as is equipment for vocational training; and apprenticeship education is obsolete or missing in rural schools. *Agricultural research and its products thus need to accept and address the poor levels of education of the rural farming communities*

Labour Productivity- Labour productivity has remained low in developing regions — a bad sign for future job-creation (MDG Report 2009).As a key measure of economic performance, labour productivity can be used to gauge the likelihood that a country can create and sustain decent employment opportunities with fair and equitable remuneration. With limited increases in productivity, an economy generally sees little increase in the wages of workers, and there is no additional potential to create new jobs. It is also important that productivity growth be accompanied by improvements in education and training so that the future workforce is better prepared to perform the jobs needed. Developing regions have seen only minor advances in labour productivity over the last decade, and fall far behind developed regions. However, considerable progress has been made in the Commonwealth of Independent States (CIS) and transition countries of South-Eastern Europe. A 9% decrease in the share of those classified as the working poor has been reported in the transition countries of South-Eastern Europe since

1997 while productivity levels have nearly doubled and the proportion of vulnerable employment dropped – see figure 4 below.

Social welfare services. Many of the farmers who manage the new generation of small-holdings in the Eastern and Central Europe are elderly or retired. They suffer from social exclusion and marginalisation; in rural areas it is primarily a reflection of poverty through lack of access to economic resources. Another important factor is poor access to social services. Limited access can prevent the elderly from participating fully in social life or even from reaping the benefits of living in economies with highly developed welfare systems. Low levels of community-based care and assistance, either from health care providers or from family members - due to the effects of out-migration – make things much worse. Pensions and social benefits are not able to guarantee the elderly a life standard comparable to the national average. Thus in devising *meaningful agricultural research issues to address these populations, these inherent limitations need to be considered.*

Figure 4



3.3.3 Key areas where agricultural research is being proposed

Many of the issues facing rural farming communities in Eastern Europe can be inferred from the breadth of issues identified above and are highlighted in italicized text. In general, they resonate around the consequences of geographical isolation and social exclusion of rural farming communities and their effects on educational, health, employment and agricultural development factors.

Consequently, key research areas need to consider policy and technological packages to address these issues. Among the researchable issues are innovations to improve small-farm productivity, innovations to increase non-farm income such as food/feed processing and input services, policy changes to increase access to credit and to sustainable and viable markets, and research on more credible system for providing farmers with the outputs of research and general agricultural advice. All these need urgent attention but there is little evidence that they are being addressed to date. See Annex 1.

4. FIT BETWEEN RECOMMENDATIONS AND IMPLEMENTATION

A number of generic gaps have been highlighted in the foregoing Chapters. They are mostly related to:

- i) A need to prioritise regional research issues in response to global challenges especially in light of the recent turbulence in the economic markets, in the price of and access to basic food, water and energy needs and the increasing influence of climate change on agriculture and the poor;
- ii) A lack of joined up thinking and coordination on ARD issues, especially by donor groups - associated with a ‘lack of common vision, long-term research agenda and implementation plan’.
- iii) Acknowledged weaknesses of the current system of knowledge transfer and in facilitating innovation.
- iv) Ensuring the concerns of the global poor are addressed by agricultural research. Also a need to ensure research addresses the lot of poor smallholder farmers across Eastern Europe in light of the ‘pressure’ on NMS, CCs and PCCs to ‘converge’ with the economic policies of the EU –food safety issues for instance – and the consequences of such ‘diverted’ expenditures.

This chapter provides a synthesis of gaps translated into key challenges (or needs) in four sub-sections corresponding to aspects related to research priorities (4.1), knowledge creation (4.2), knowledge transfer (4.3), and the needs of the poor (4.4).

4.1 Research priorities: need for better programming

The need for more coordination in research programming and funding – the findings of chapter 1 and 2 indicate that there is a consensus among donors and other stakeholders for more coordination in research programming and funding. Coordination is needed at different levels: between the agricultural research agendas in the EU and the rest of Europe, between European agricultural research and global ARD, and between ARD and other scientific/sectoral areas (health, energy, climate). A key challenge is thus to identify robust and attractive mechanisms to allow more effective and efficient coordination. This will require stronger collaboration between decision-makers in charge of research programming at international, EU and national levels; some of this might be achieved through providing greater legitimacy to the informal and formal mechanisms already in place to facilitate greater coordination between different R+D actors, viz. the Neuchatel Initiative, European Livestock Development initiative (ELIDEV), the Inter-Agency Donor Group for Livestock Research in Development (IADG), Community of Practice for Pro-poor Livestock Development (CoP-PPLD) and the Global Donor Platform.

=> *Key challenge 1: to improve coordination in research programming & funding*

The need to prioritise drivers and translate them into pro-poor research priorities - in order to improve coordination, a necessary step is the establishment of research agendas. Drivers and challenges have been identified in several initiatives and there is a need for frequent updates as drivers rapidly evolve. However, even when drivers are well identified, the reviewed documents provided little indication of associated research needs (see example below Fig 6 - from IAASTD -2007).

A long-term agenda is being prepared at the CGIAR level through a “Mega-Programme” (work under progress in the document “*Towards a Strategy and Results Framework for the CGIAR*”). A preliminary analysis of this draft document shows that most drivers (including the use of non-renewable resources in agriculture) are taken into account.

To summarise, there appears to be intellectual agreement on the main issues (both current and emerging) which affect agriculture and the poor at regional and global levels. Translating this agreement into practice however will require much greater effort in coordination and collaboration than has been seen thus far – where traditional short-term donor driven agendas and national/regional/international trade dominated issues have priority over those which impact on the needs of the poor

=> *Key challenge 2: to prioritise and update drivers & research agendas*

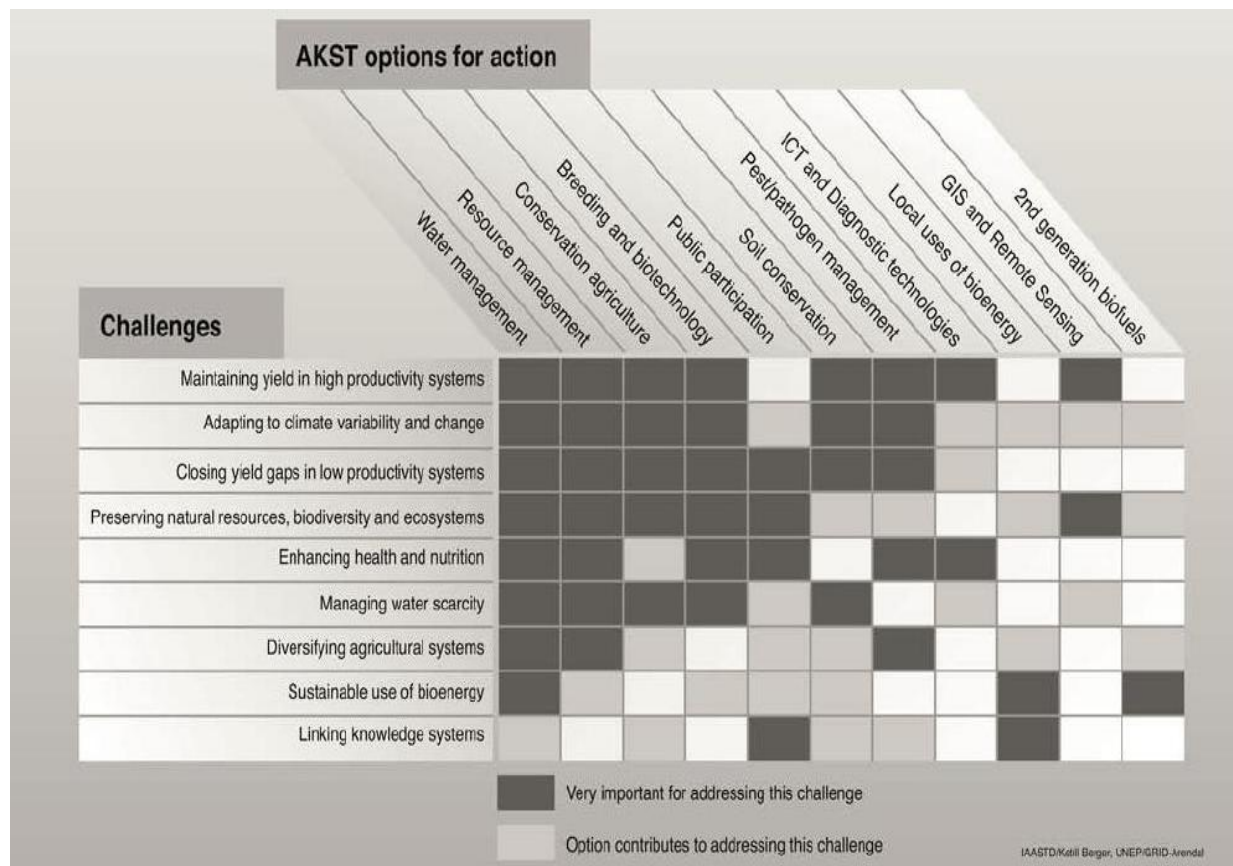


Figure 5: Challenges and associated scientific areas

Governance issues: the need to take account of user needs

Our review (chapter 1) reveals that more of the views of users and civil society need to be taken into account in the identification of global and regional research needs and the setting up of research agendas. The heterogeneity in institutional capacity at local levels of government throughout Europe and the developing world often results in weak governance and the promotion of top-down research agendas. This problem tends to particularly affect small and dispersed farming communities. A possible solution could be the creation of networks of local communities in order to reach a critical mass of population, territory and technical capacity to articulate bottom-up issues for research.

=> *Key challenge 3: to improve civil society participation in research agenda setting*

The need to consider the poor in Europe within the GCARD mega-programme – The findings of chapter 3 reveal that the particular research needs of poor farmers in Europe also need to be considered within the GCARD programme. In Western Europe, there is a growing

concern about the survival of small farmers faced with rising input costs, greater global competition, climate change effects and CAP reforms. Whereas these concerns impact on small farmers in East and South East Europe too, more pressing research priorities include innovations to improve small-farm productivity, access to credit and to sustainable and viable markets, credible and well-informed agricultural advisory services and the promotion of non-farm income innovations. (Most of these issues resonate with the needs of farmers in the developing world – although addressing the effects of climate change may not be so urgent as elsewhere). Improved mechanisms aimed at identifying the specific needs of poor people are urgently needed – particularly in light of the current down-turn in the global economy.

=> *Key challenge 4: to identify areas relevant to Europe in ARD research priorities*

4.2 Knowledge creation: strengthening the existing potential

The need to invest more in research at the Global level-

Extensive literature on agricultural economics convincingly demonstrates that investment in agricultural research yields a high pay off. For public sector agricultural research, average returns were 48% for developed countries and 80% for developing ones (*Duczmal, 2000*). However, the size of the rate of return varies from one crop to another, between sectors (crops vs livestock) or aggregate agricultural production, and from one country to another eg. the rate of return to investments in research(*) varies from 22-42% for potatoes in Peru and for rice in India is 65%. The nature of agricultural technology, the level of agricultural productivity and appropriateness of agricultural policies greatly influences returns on investment in agricultural research.

For the poorest people, GDP growth originating in agriculture is about four times more effective in raising incomes than GDP growth originating outside the sector. It has been demonstrated that public investment in agricultural research has significantly contributed to economic growth (*IAASTD, 2007 ch8*). The findings of Chapter 2 also show that the current agricultural research system is suffering from a lack of resources.

Increased investments in global agricultural R+D up to the late-1980s, doubled global grain and livestock production and exceeded population growth needs –and prompted the slogan ‘end of famine forever’ –but with a reservation about Africa. This created ‘mountains’ of stored grain, meat, dairy commodities – the levels of which caused much public criticism and political concerns in the north.

In response, overzealous and short-sighted policies were put in place to limit agricultural production (eg. milk quotas in the EU in 1983) in order to reduce the mountains of stored food and increased donations of subsidised food made to the developing world - which caused frustration in the local farming communities. The stores are now empty – just as demand for food is exceeding supply!

At the same time, investments in global agricultural R+D fell dramatically from 2% growth year on year through the 1980s to 0.6% pa from 1990 to 2005. Since science takes a generation to filter through to farms at best – the underfunding of R+D means there is nothing much new in the ‘tank’ to disseminate.

The need to invest more in research at the European level

In Eastern Europe in particular, lack of investment in agriculture has had adverse consequences on research infrastructure, on human capacity, interest in agricultural research and resulted in scientific isolation. EU initiatives such as the allocation of substantial financial support to promising centres (in the “Capacity programme” of FP7, see section 2.2.3 for details) attempt to address some of these issues. In Western Europe, the NARS systems are well structured and relatively well funded but their focus is commodity oriented and not farmer (and particularly small-farmer) focussed. Some of the researchable issues in need of attention were indicated in earlier chapters.

The default mechanism used by most European donors to fund ARD at European (and Global levels) is through competitive calls for research proposals involving consortia of centres or individuals. These mechanisms certainly help to improve research coordination but they also raise concerns regarding their possible adverse effects on poorer countries (weaker institutes excluded/marginalized; calls often not suited for some scientific areas requiring long-term investments; often exclude young/inexperienced researchers). For some countries therefore, direct non-competitive research grants still have a role to play; as does capacity strengthening mechanisms.

=> *Key challenge 5: to improve the efficiency of financial support for research – ‘more bangs for bucks’*

The need for capacity building and specific support mechanisms– specific mechanisms are available to strengthen the research capacity of weaker research organisations in Europe. As reported in chapter 2 (section 2.2.3), incentives to purchase equipment, access to research infrastructure, and exchange of scientific/technical personnel are specific mechanisms that can support research organisations in East and South East Europe. There is a need to identify and prioritise such mechanisms in order to help decision-makers design effective capacity building programmes. At the **global** level, more and closer interaction between donor mechanisms which deal with agricultural research and technical cooperation (training, equipment, expert services) would appear to be needed. Currently, these two needs are normally dealt with by discreet departments within donor organisations.

=> *Key challenge 6: to improve research capacity through non-financial mechanisms*

The need to identify where investments can have the highest impact – the impact of financial support may differ from one country to another. In the Western Balkans for example, it is estimated that limited funds may be better targeted at applied research rather than basic research. Elsewhere, investments in searching databases of existing research products and transforming them into practical use may be a better approach eg similar to the ERA-ARD initiative. There is a need to identify where investments could have the highest impact with the view to help decision-makers to decide on best options for research programming. This need applies both at the regional and global level. Mining the information within the NARS and transforming the useful information for the needs of target audiences would appear to be an investment worthy of priority over new research which may well have been done before.

=> *Key challenge 7: to prioritise areas of investment in a context of limited financial resources*

The need to involve users in research implementation – participatory approach (where users are involved in research implementation) is identified as an effective way to improve

research efficiency. There is a need to identify mechanisms that help civil society groups, especially farmers organisations to be more involved in research activities. There is also a need to reinforce cooperation between the private and the public sector and to stimulate greater inter-disciplinarity (see section 2.13).

=> *Key challenge 8: to stimulate interactions between public research and other stakeholders (including civil society and private sector).*

4.3 Knowledge transfer: urgent actions required

Global concerns.

While acknowledging that investments in agricultural research have generated a wealth of potential technologies, practices, policies and processes to address the needs of the poor in the developing world, there is little objective evidence available on the value of such investments on their livelihoods. Several reasons are suggested for this failure; these include a major disconnect between the generators, users and target beneficiaries of new information; too great a focus on issues of trade than on the problems of poor farmers by much of the research establishment; a reserve by researchers and an understandable lack of competence to market and promote the results of publicly-funded research findings; the perception that it is 'someone else's responsibility' to identify and inform target audiences. Contrast this with marketing of research in the commercial sector where the millions of dollars used in developing a new product such as a veterinary drug are normally matched with equally high marketing budgets – and they are at a loss when they see the paltry sums and inexperienced hands used for marketing the products of public-sector funded research. Some Western European countries now invest significant proportions of their ARD budgets in communications (eg DFID research programmes allocate 30% of their budgets to knowledge transfer and adoption) although there is still a lack of professional communication skills in publicly-funded global agricultural research institutes.

In Europe too, the findings in chapter 2 reveal the need for urgent action to improve knowledge transfer and exchange mechanisms. The general financial situation in the NARS in Eastern and South East Europe is grave and there is an urgent need to inject more resources into knowledge transfer and up-front market research. The current budgets mean that there are too few organisations involved in agricultural extension and, combined with low salaries, poor infrastructures and low level of budget available for operational costs (see point 2.2.2), the public agricultural extension services are generally not 'fit for purpose'. New ways to raise funds (through commercialising the service for example or through taxes or production levies) could help to increase available budgets.

=> *Key challenge 9: to increase financial support for knowledge transfer*

The need for better agricultural education - Like most developing countries, many countries in Eastern and South East Europe are encumbered by low levels of education in their farming communities. This is due to their geographical isolation, to the lack of "prestige" associated with agriculture in the national psyche, a low level of social trust in agricultural universities and the lack of continuing professional training. To make agricultural education more attractive, Western Europe could play a role by boosting greater collaboration between universities, by doing more capacity building and by advising on structural changes in the institutional and academic frameworks – eg to promote greater cross-sectoral interaction between agriculture, human health, social development, the environment etc.

=> *Key challenge 10: to enhance the attractiveness of agricultural education in East Europe*

Governance issues: the need to empower farmers' representation – both in the developing world and in Eastern Europe it is reported (chapter 2) that in many cases, research issues and agricultural training are not sufficiently 'voiced' by poor farmers. The recent establishment of national farmers associations in many of these countries is encouraging but there is a need to facilitate their emergence as empowered NGOs to represent the interests of rural communities to policy and research organisations.

=> *Key challenge 11: to help farmers to be better represented*

The need to develop incentives for innovation in rural areas – innovation in rural areas can be facilitated by the introduction of suitable incentives. New mechanisms such as vouchers for extension support, favourable tax regimes, guaranteed markets for commodities, subsidies for inputs, micro-credit schemes, Farmers Unions, farmers shows and exhibitions, field visits or study tours can stimulate farmers to innovate. There is also a need to enhance professional development programmes (eg. vocational training for farmers).

=> *Key challenge 12: to provide incentives for innovation in rural areas (including vocational training)*

The need for capacity building for professionals involved in knowledge transfer – public sector agricultural extension professionals play a central role in knowledge transfer. However, those practicing in global development and in Eastern Europe desperately need in-service training - in communications, computer literacy, database management, latest technological and policy developments.

=> *Key challenge 13: to support professionals involved in knowledge transfer*

The need to facilitate access to and exploitation of existing knowledge – many agricultural scientists at the global and Eastern European level (particularly those in CC and PCC countries) are isolated from the ideas and innovations that have been generated in the developed world. Attempts to correct this deficiency include some actions of the Neuchatel Initiative (2008). Up-to-date knowledge, entrepreneurship, openness to new ideas and willingness to experiment with new technologies are qualities needed today as never before. AGRIDEA's team for cooperation in Eastern and South Eastern Europe (AGRIDEA -2009) - a component of the Neuchatel Initiative, offers up-to-date and practical technical know-how combined with innovative analytical, methodological and communication skills. The concept and use of "Knowledge brokers" as well as the implementation of evidence-based approaches (inspired from "Evidence Based Medicine") are other examples of mechanisms that could help to fully exploit existing knowledge. Finally, initiatives to exploit existing research information for development need to consider mechanisms and issues which encourage widescale adoption of technologies or practices, including components such as 'economies of scale', informing/strengthening all value chain institutions – not solely the farmer, the exploitation of various media; training in farm business management etc. Many of these issues have been considered by DFID's Research Into Use initiative (DFID-RIU,2009)

=> *Key challenge 14: to fully exploit existing knowledge*

4.4 Addressing the needs of the poor

The need for people centred agricultural research as opposed to rural or commodity research. At the global level, there appears to be a concentration of research effort directed at productivity efficiencies which may not have the benefits for the poor that might be expected in the north. For instance investments which require greater demands for purchased inputs and

other resources such as labour may not be appropriate for resource-poor farmers; similarly, greater investments in monoculture as opposed to strengthening mixed farming approaches have resulted in catastrophic consequences in marginal areas in Africa. All this suggests a need to ensure that research addresses the need of the targeted population (poor farmers and consumers) not solely improvements in the productivity of crops or livestock. The need to invest heavily in market research would obviate some of the problems of the past and ensure that the limited funds available for research are spent appropriately.

In Eastern and SE Europe, a set of policies affecting the rural poor need to be addressed: these include the social security system (including the promotion of welfare benefits such as health care), labour market policies, the policies of education and training; and the promotion of agriculture and agricultural research for small producers. Evidence suggests that improved delivery of education at all levels of the school system, is likely to prove an important long term means of increasing the growth rate of rural and peripheral areas and of helping the poor and socially excluded in those areas. The foregoing also have relevance to the developing world in general.

=>Key Challenge 15: to promote people centred research

A need to correct the ‘Political Irrelevance’ of the poor - one the main obstacles faced by a strategy against rural poverty is *the political irrelevance of the rural poor* (Bertolini et al 2008). In many Western European countries, the relatively small number of people involved in agriculture (less than 2% on average) means they have little political clout – and so government policies focus on the needs of rural *areas* as opposed to rural *farmers*. However, in Eastern Europe, the percentage of national populations employed in agriculture is much higher (on average ca 30%) – and in some countries like Albania and Romania, the values are 58% and 32% respectively, and so their views and concerns should be being considered more by the governments of the day. Similarly, in the developing world at least half the population in most countries is involved in agriculture or related rural pursuits. However, the rural poor are less organized than the urban poor, because of their geographical dispersion and because of their remoteness from the political and economic centres of the country: this makes their *voices* much weaker than those expressed by other groups or categories at risk of poverty. Also because of the stronger community and social links and dependencies which exist in the rural areas, particularly among the farming communities, there is a perception that it makes public support for the poor less necessary. These factors determine a lack of public awareness around the real understanding of rural poverty and the need to intervene to address it. This, in turn, reduces the political support for policy measures which could imply a possible redistribution of resources in favour of the rural poor. Consequently, the specific measures that can directly affect poverty do not have the *rural people* as a target.

=>Key Challenge 16: to empower the ‘voice’ of poor farmers

A need for greater Advocacy – In the developing world, informing and promoting the concerns of poor communities to political and media groupings is left to strong-minded individuals – there are very few institutions who play this role. Advocating the concerns of the farming communities to parliamentarians has been found to be effective recently; in Kenya, AWEPA has been successful in effecting pro-poor policies through facilitating linkages between farmers representatives and all the party group with responsibility for agriculture issues.

At the European level rural areas have been neglected in their specific features in the analysis of poverty; indeed, European public opinion and the commitment of public institutions to the problems of rural poverty are extremely weak. There is therefore need for greater advocacy – aimed at government, the media, private sector, civil society and the promotion of campaigns,

conferences and meetings in order to raise the public's awareness of rural and agricultural issues. There is a need to advocate for new policies directed towards the rural poor; to change national and regional agricultural policies to sustain and improve the livelihoods of poor European farming communities; and address their income/employment situation, education, healthcare and social security.

=>*Key Challenge 17: to advocate for greater empathy for rural farmers*

A need for emergency food aid for the poor – The provision of food aid in development is a controversial issue. Whereas it is a necessity to address the curse of famine/drought/wars etc its use in other scenarios can be deleterious to national agricultural development by creating an artificial reduction in commodity prices. Whereas the topic may not be traditionally researchable, there remains a need to identify agreed criteria for the provision of food aid by donor agencies.

In the EU, its food distribution scheme began in 1987; now the commission proposes to increase the budget for food aid by two-thirds to around €500m - starting in 2009 – so that it reaches even more of Europe's deprived families. Initially, the EU will meet 75% of costs (85% in poorer areas), but by 2015 costs will be split 50/50 between the EU and the member countries (and 75/25 in poorer areas). The new proposal will also allow countries to choose which foods they distribute – based on local needs and nutritional criteria. Three-year food distribution plans would ensure continuity and better management. As far as can be determined, no such food aid schemes are active in non-EU countries of eastern Europe although the latest information on levels of undernourishment in Serbia and Montenegro are ca. 9% (Stankovic 2008).

=>*Key Challenge 18: to provide responsible levels of food aid*

A need for rapid interventions to link small farmers to markets - interventions should rapidly target the constraints that rural food producers and sellers believe are hindering their ability to benefit from local, regional or global markets. Such interventions could address quality of produce; reliability of supply; efficiency improvements; waste reduction; collective marketing; investments in small-scale market infrastructure; value addition activities such as rural processing; and facilitation of contractual arrangements between smallholders and companies. All these are highly researchable off-farm interventions that attract very little funding currently from donors or the NARS.

=>*Key Challenge 19: to facilitate stronger links between farmers and markets*

The need for contemporary data - a first set of actions in order to help national governments address the problem of rural poverty includes the collection of adequate contemporary data at regional and national levels in order to study, on a comparative basis, the incidence, prevalence and features of rural poverty. This applies equally to the European and global levels. The consequences of the recent severe global recession must be assessed in order to ensure appropriate research is prioritised and pursued.

=>*Key Challenge 20: to collect contemporary data on poverty and agriculture*

The need for more monitoring and evaluation- the need for effective *monitoring and evaluation* of research and development activities, including current policies which impact on pro-poor agricultural development issues is crucial – to learn from the successes and failures and thereby improve the efficiency of R+D processes and to provide credibility to donors/taxpayers of the value of their investments in agricultural research and to **ensure that poverty issues are addressed** adequately. To improve practice in this respect, it is necessary to agree on a set of appropriate indicators which assess impact of research on poverty, farm

productivity and the performance of related policies – see Annex 1. Such a systematic process of monitoring and evaluation is missing from the agricultural R+D processes in many Global and Eastern European countries - an exchange of good practice with Western European research institutions would be beneficial to strengthen this process.

=>*Key Challenge 21: to ensure good M+E practice*

5. FRAMING THE E-CONSULTATION

This Chapter proposes to set an initial frame for further exploration of key issues requiring wide public consultation. It will be designed to improve the value of agricultural research in achieving development goals in Europe and contribute to agricultural development in the developing world through an e-consultation and a face to face workshop with key stakeholders.

5.1 Overall approach

The overall approach is based on the utilization of the key challenges identified in chapter 4. For each key challenge, examples of questions are proposed (see section 5.2). It is not expected that all questions will be used in the e-consultation. Our intention is to provide a list reflecting the main issues raised in this review. A selection of the most relevant questions will be made for the e-consultation and complemented by more generic queries emanating from the GCARD secretariat.

For the face-to-face meeting, the meeting could be structured according to the 4 main topics:

1. Research priorities and programming
2. Knowledge creation
3. Knowledge transfer
4. Addressing the needs of the poor

The discussion within each topic could be divided according to the challenges. As an introduction to each challenge, a summary of the review's main findings and an overview of the e-consultation results would help to start discussion. We feel that if some challenges are left out as a consequence of the e-consultation, they will not be addressed during the face-to-face meeting. Similarly, if there are major inaccuracies or omissions in this review document, we trust that they will be teased out by the e-consultation and the face to face meeting such that the final GCARD-Europe document will have wide stakeholder approval.

Regarding invited participants to the e-consultation and the face-to-face meeting: we will develop and agree with EFARD a set of criteria to identify representative stakeholders (in terms of geographic location – different parts of Europe plus overseas organizations and types – research, extension and other users of research products) and pay particular attention to ensure a meaningful and legitimate representation of farmer organizations, other civil society organizations including consumer groups, providers of goods and services particularly represented by the private sector, and representatives from the media. Using these criteria, we will collaborate with EFARD in identifying a wider group of European ARD stakeholders to participate in the e-consultations scheduled for early September 2009 and a core group to participate in the face-to-face meeting scheduled on 29 September 2009.

5.2 Examples of questions

In the e-consultation, the text of Chapter 4 could be utilized as an introduction to each challenge. The questions are given as examples: only the most relevant questions will be selected.

5.2.1 “Researchable issues”

- *Do you agree with the major drivers of research as identified from global and regional reviews at:*
 - *Global level*
 - *European level*
 - *East and south East Europe*
- *Should further drivers be added? Should some of these be removed?*
- *Do you concur with the list of ‘researchable issues’ on page 7 of the Executive Summary*

Table 3: Common drivers and challenges for ARD & agricultural research at global & European levels

Driver	Challenge	Global level*	European level **	E/SE Europe ***
Climate change	Adaptation to and mitigation of climate change	✓	✓	✓
Growing population + change in food consumption pattern	Food security	✓	✓	✓
Scarcity of fossil fuel and bio-energy development	Energy security	✓	✓	✓
Globalisation	Improved trade	✓	✓	✓
Degradation of the environment	Biodiversity and natural resource management (including soil and water)	✓	✓	✓
Plant and animal diseases, pandemics	Food safety including animal/human health and animal welfare	✓	✓	✓
Change in dietary patterns	Nutrition: obesity and malnutrition	✓	✓	✓
Scarcity of phosphorous/other inputs	Agricultural fertiliser security		✓	

Sources: * IAASTD reports, World Development report (2008)

** EC Communications + SCAR foresight

*** EIARD strategy, ERA-ARD reports

5.2.2 Mechanisms and Processes in prioritising research and its programming

=> *Key challenge 1: to improve coordination in research programming & funding*

- In your opinion, which mechanisms would improve the coordination of research programming and funding between:
 - b. Agricultural research in general and ARD?
 - c. ARD and other development initiatives?
 - d. ARD and other scientific areas?

=> *Key challenge 2: to prioritise and update drivers & research agendas*

- In your opinion, what mechanisms would ensure regular updating of the drivers that influence future agricultural research agendas?

=> *Key challenge 3: to improve civil society participation in research agenda setting*

- In your experience, which mechanisms are best fitted to increase the participation of civil society (NGOs, farmers' organisations) in setting-up of research agendas?
- Can you give successful examples of civil society participation in research agenda setting?

=> *Key challenge 4: to identify areas relevant to Europe in ARD research priorities*

- Do you think that poverty issues in Europe are sufficiently addressed by the European research community?
- Considering poverty issues in rural areas, what are the peculiarities in Europe compared with other regions in the world?
- In your opinion, what researchable issues require urgent attention to tackle poverty in Europe?
- What institutional arrangement would help to address the specific needs of the rural poor in Europe?

5.2.3 Mechanisms for knowledge creation

=> *Key challenge 5: to improve the efficiency of financial support for research*

- In your opinion, what kind of financial instruments would effectively support research organisations in Eastern and South East Europe (eg, support calls for research projects, co-financing to pay salaries, purchase of equipment, training etc.)?
- Do you think that supporting research organisations on a contract basis (following a competitive call for proposals) is the best way to support agricultural research? Does it have adverse effects?
- Do you think that there is a need to evaluate the cost-effectiveness of the financial support allocated by the EU to agricultural research organisations? Cost effectiveness refers to the extent to which support has been successful in strengthening research activity.
- Do you think the EU is providing adequate and sufficient financial support to research organisations in the New Member States? If not, what is needed?

=> *Key challenge 6: to improve research capacity through non-financial mechanisms*

- In your opinion, which non-financial mechanisms could improve the effectiveness of research organisations in East and South East Europe?

=> *Key challenge 7: to prioritise areas of investment in a context of limited financial resources*

- In a context of limited resources for research, which scientific areas should be prioritised?
- In a context of limited resources for research, would you recommend that more be invested in applied research than basic research? Why?

=> *Key challenge 8: to stimulate interaction between public research and other stakeholders (including civil society and private sector).*

- In your opinion, what mechanisms might increase the participation of civil society (NGOs, farmers organisations, consumers) in the implementation of agricultural research?
- How can farmers be more involved in research activities implemented by public research organisations?
- Do you think there is a need to increase collaboration between public and private research organisations? If yes, can you suggest how it could be done?

5.2.4 Mechanisms for knowledge transfer

=> *Key challenge 9: to increase financial support for knowledge transfer*

- In your experience, what is the best way to raise additional funds for knowledge transfer?

=> *Key challenge 10: to enhance the attraction of agricultural education in East Europe*

- In your experience, what are the main difficulties faced by agricultural education institutions in East and South East Europe?
- What can be done to make agricultural education more attractive to students?
- How can Western European academic institutions do to improve agricultural education in East and South East Europe?

=> *Key challenge 11: to help farmers be better represented*

- In your experience, what difficulties are encountered by farmer organisations in East and South East Europe?
- What kind of support do farmers' organisations need in East and South East Europe?

=> *Key challenge 12: to provide incentives for innovation in rural areas (including vocational training)*

- In your opinion, what is the best way to incentivise farmers to innovate?

=> *Key challenge 13: to support professionals involved in knowledge transfer*

- In your opinion, in what areas do knowledge management professionals need training? Are there sufficient numbers of trained professionals to undertake knowledge transfer?

=> *Key challenge 14: to fully exploit existing knowledge*

- In your opinion, what could be done to better utilise existing agricultural knowledge?

5.2.5 Mechanisms: focus on the needs of the poor

=> *Key Challenge 15: to promote people centred research*

- In your view, what new research areas would have a significant impact on the rural poor?

=> *Key Challenge 16: to empower the 'voice' of poor farmers*

- In your experience, what mechanisms help to promote the views of poor farmers

=> *Key Challenge 20: to collect contemporary data on poverty and agriculture*

- In your opinion, what would be the most effective way of quickly collecting contemporary data (2007-9) on poverty and agriculture in your country?

=> *Key Challenge 21: to ensure good monitoring and evaluation practice*

- In your experience, have M+E practices been routinely used to improve agricultural research and policy effectiveness? If not, why not?

6. CONCLUDING SUMMARY

The main conclusions we draw from this review include:

-There is a diversity of development and agricultural issues facing rural farmers in Europe - The review of 42 European countries highlighted tremendous differences (socio-political systems, agricultural policies, agricultural performance, the importance of agriculture to the economy, research systems, contribution to global ARD, levels of poverty etc.). We divided the countries into 2 geographical sub-regions: 23 countries from East & South-East Europe (12 NMS, 7 CCs and PCCs and 4 other Eastern European countries); and 19 countries from Western Europe (EU-15 and 4 associated countries).

-Levels of absolute poverty are low but relative poverty levels are high and increasing. In 38 countries and out of the 42, less than 2% of the population live on less than 2 dollars a day. The countries with significant and persistent income poverty are in Eastern Europe - Romania, Moldova, Turkey and Albania – where levels of poverty in the rural areas is high – up to 30%. The incidence and prevalence of ‘relative’ income poverty is on the increase throughout Europe. For instance, the latest estimates we came across indicated that some 43 million people in the EU are thought to be at risk of food poverty; and some 10- 40% of inhabitants in **all** countries reviewed were classified in the ‘at risk of poverty’ category.

-Drivers which affect current/future agricultural development are well formulated - Based on the recommendations of several recent European and international ARD reviews, there is overall consensus on the major drivers and the future challenges facing agriculture and agricultural research; and there appears to be increased convergence between agricultural research agendas in developing countries and in European countries. However, most of the **reviewed documents do not provide details of researchable issues**; research needs are normally mentioned at a very high level (as ‘drivers’ or ‘challenges’) such as climate change, biodiversity, eco- and evolutionary science & management, soil and water management, plant breeding and biotechnology, animal welfare, forestry, fisheries, nutrition, rural vitality and new technology (impact assessment), and more generally: generation of local knowledge, rural socio-eco research, biotechnologies, ICT, geomatics and agro-ecology.

-Whose development counts? The identity of researchable issues is dependent on who is asked. Perhaps not surprisingly, farmers associations representing the demands of Western European small holders for research have more targeted and immediate needs. These include: to become even more responsive to ever more demanding consumers and retail chains, more cost efficient in light of escalating input costs, global market competition, to respond to replacement of environmentally unfriendly inputs, to comply with animal welfare concerns – and to make a living! Also: new research focused on the particular needs of small farmers in an unsubsidised economy would be timely in view of the foreseen changes in the CAP; research on how to improve the resilience of small farmers to climate change is also an issue; as is an interest in growing bio-energy feed-stocks from agriculture and forestry to complement other renewable energy sources. In Eastern Europe, the majority of the countries are charged with ‘conforming’ to EU entry criteria – particularly on food quality and safety issues and so much of the official R+D effort is being directed by this. Unfortunately, such a focus detracts attention away from the more immediate needs of small-holder farmers: better infrastructure; farm business guidance; innovations to improve small-farm productivity; access to credit and to sustainable and viable markets; effective agricultural advisory services;

more encouragement to farmers to innovate; more social protection for the vulnerable; and how to increase rural employment opportunities.

-Agricultural R+D processes are weak – With regard to ‘how’ research is implemented in Europe for ARD, there is a clear lack of coordination between donors – despite the presence of several informal initiatives aimed at facilitating greater collaboration. Mechanisms allowing greater involvement of the private sector, farmers and civil society, a greater account of stakeholder needs in research programming, a need to promote inter-disciplinarity and to improve the governance of the research system are highlighted. In Eastern European countries, there is little evidence that research priorities are determined by a broad stakeholder community; rather, it appears to be dominated by researchers – and driven (by Government) to conform to EU membership criteria. Therefore one must question how relevant they are in addressing the needs of the poorest farmers in society. There appears to be an urgent need to improve research capacity, to improve research programming through competitive calls, better coordination of research priorities through the establishment of Research Councils and the setting-up of pluri-annual research programmes. Currently, one must question whether the needs of the poorest farmers in society are being addressed.

Knowledge management is very weak, under-resourced and not fit for purpose. Knowledge transfer issues were acknowledged to exist at all levels – and the need to boost expenditures for, and change the approaches by, knowledge management/extension service systems were proposed by all reviewers. Also need for researchers to undertake more market research up-front – more like private sector research.

Gaps in research. Based on the foregoing, a series of key challenges and related questions were composed which we suggest could form a component of the e-consultation and, subject to the response, provide guidance to the questions to be posed at the face to face meeting in late September. The challenges are grouped around 4 main topics identified by this review:

- i) **Research prioritisation and programming**- how to address the current lack of joined up thinking and coordination on ARD issues associated with the ‘lack of common vision, long-term research agenda and implementation plan’;
- ii) **Knowledge creation** – how to facilitate a broad electorate of stakeholders across Europe to prioritise research issues, especially in light of the recent turbulence in the economic and labour markets and the new socio-political realities;
- iii) **Knowledge transfer** - how to tackle the acknowledged weaknesses of the current system of knowledge transfer and innovation pathways; and
- iv) **Focus on the poor** -how to address the concerns of the poor, including the future of smallholder farmers across Europe and the ‘pressure’ on NMS, CCs and PCCs to converge with the membership rules of the EU.

These and other key issues are in need of wide public consultation, discussion and verification by a wide stakeholder community.

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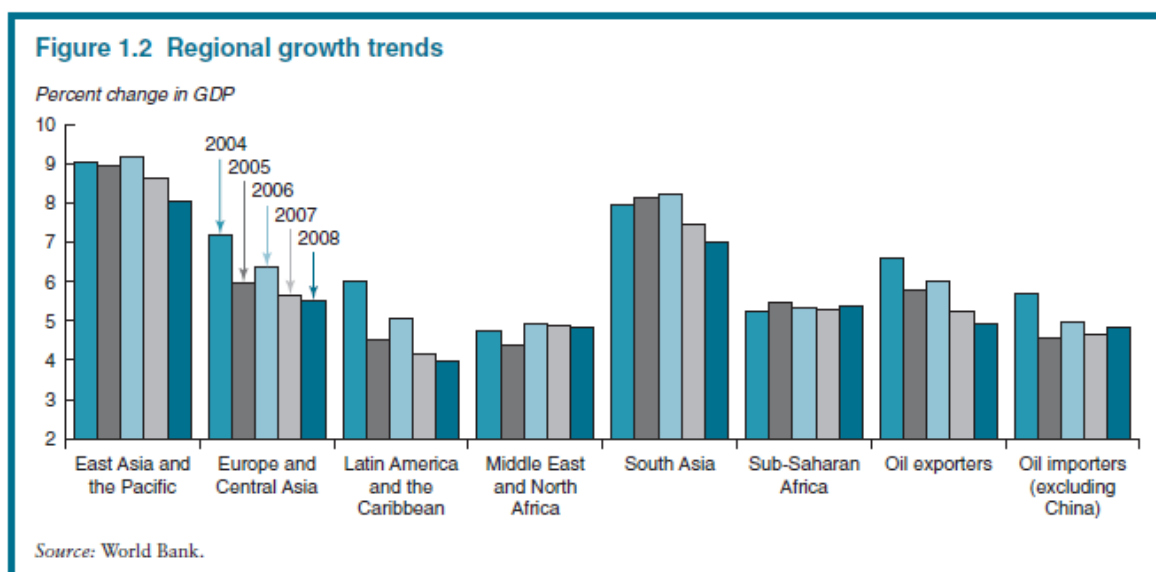
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ANNEX 1: POVERTY IN EUROPE

This review attempts to respond to the following questions: i) what are the main poverty indices in use? ii) where are the poor in Europe? iii) what are the specific needs of the poor in Europe? iv) which policies need to be put in place to address the needs of the poor? v) what is being done to address the needs of the poor at national and regional levels? vi) how does/can agricultural research and development address these concerns? vii) where are the gaps? viii) what are the global research challenges?

i).What are the main Poverty Indices

Despite the ambitious goals set by the Lisbon European Council of March 2000 and the subsequent efforts in this direction by the European Community and Member States, poverty is still significant in Europe. Compared with other regional reviews prepared for GCARD, ‘absolute’ levels of poverty are low in Europe with 37 countries out of 42 having less than 2% of the population living on less than 2 dollars a day. The countries with significant and persistent income poverty are in Eastern Europe - Romania, Moldova, Turkey, Albania and Kosovo. However, these national figures disguise the polarisation of poverty in the rural areas – particularly among smallholder farmers – (1). The relevance of absolute poverty has significantly increased with the recent enlargement of the EU that involved countries with a lower level of income. Rural poverty, and its relationship to the farming community, represents an important aspect of European poverty, considering that rural areas account for a large part of the territory and of the ca. 800 million population of the region. Nevertheless, rural areas and their agricultural, environmental and touristic contributions to development have been neglected in their specific features in the analysis of poverty; indeed, the awareness of European public opinion as well as the commitment of the public institutions to the problems of rural poverty is extremely weak (2), (3), (4). The future predictions for the poor are not good in Europe if they are linked to overall economic growth which is forecast to continue to decrease (by 50% over the next 20years – from 5.5% in 2008 to 2.7% in 2030), - the largest regional decrease in the world (5).



Definitions of the term poor and poverty in Europe.

Absolute poverty per se is traditionally perceived to have 3 principal components: insufficient income, employment, and food. However, poverty is a complex topic which resonates around 7 other criteria captured by the Millennium Development Goals: education, gender equality, child mortality, maternal health, the ability to combat disease, the environment and global partnerships (6).

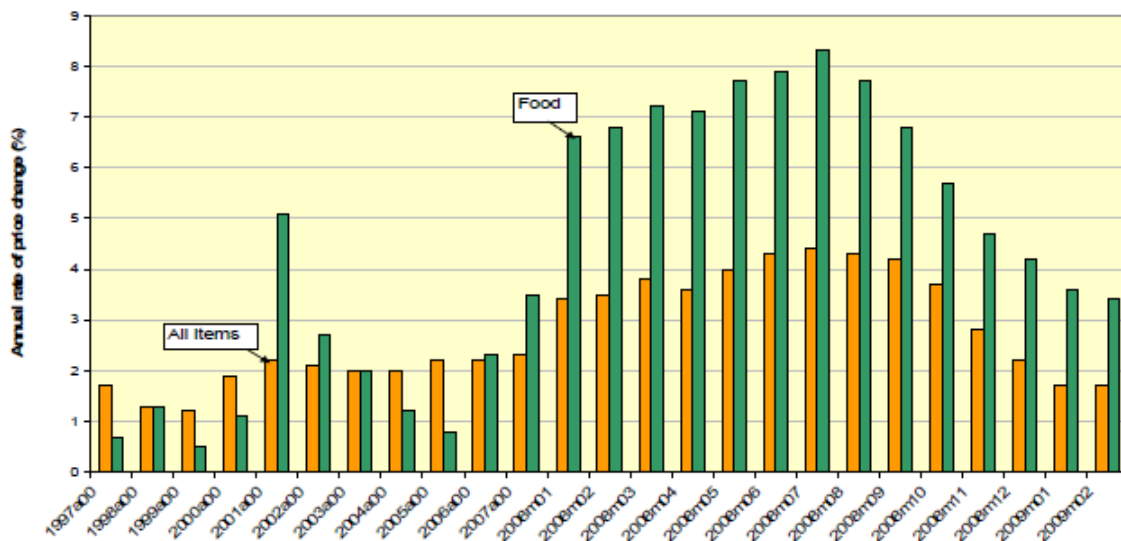
Other indicators of poverty are used in global discourses and these more sophisticated descriptors are occasionally reported in this document when recent data is available from the European area. Such indicators include: basic human needs such as access to food, water, shelter and clothing; the UN's Human Development Index (HDI) which looks at quality of life factors including access to education, health systems and credit (38); others are human security indicators – whether people have the assets or skills to survive shocks such as poor rainfall; while others stress the importance of empowerment and participation in decision making, including the right to information and knowledge (7) (8) and (9). And in the agricultural context in Europe, there is a growing body which see poverty reduction not as an one uniquely driven by economic parameters but equally or more importantly by an integrated system index whereby social and community indicators and the sustainability of the land and environment in which farmers operate are included– (10) and (11).

Food and Hunger. According to the International Convention on Economic and Social Rights, every human being has the right to adequate food and the fundamental right to be free from hunger. Realization of the right to food requires that every man, woman and child has a right to access at all times to adequate food or means for its procurement. Food, and means for its procurement should be affordable without needing to compromise the enjoyment of other human rights. Access to food also includes physical accessibility of food for vulnerable people, such as infants, elderly, persons with disability, etc. Adequate food means sufficient quantity and quality to satisfy the dietary needs of individuals, free from adverse substances and acceptable within a given culture. In an European context, this is defined as ‘those who cannot afford a meal with meat, chicken or fish every second day.’

Food poverty Some 43 million people are thought to be at risk of food poverty in Europe. Aid is typically distributed to a wide range of people, including families in difficulties, the elderly, the homeless, the disabled and asylum seekers (8) and (9).

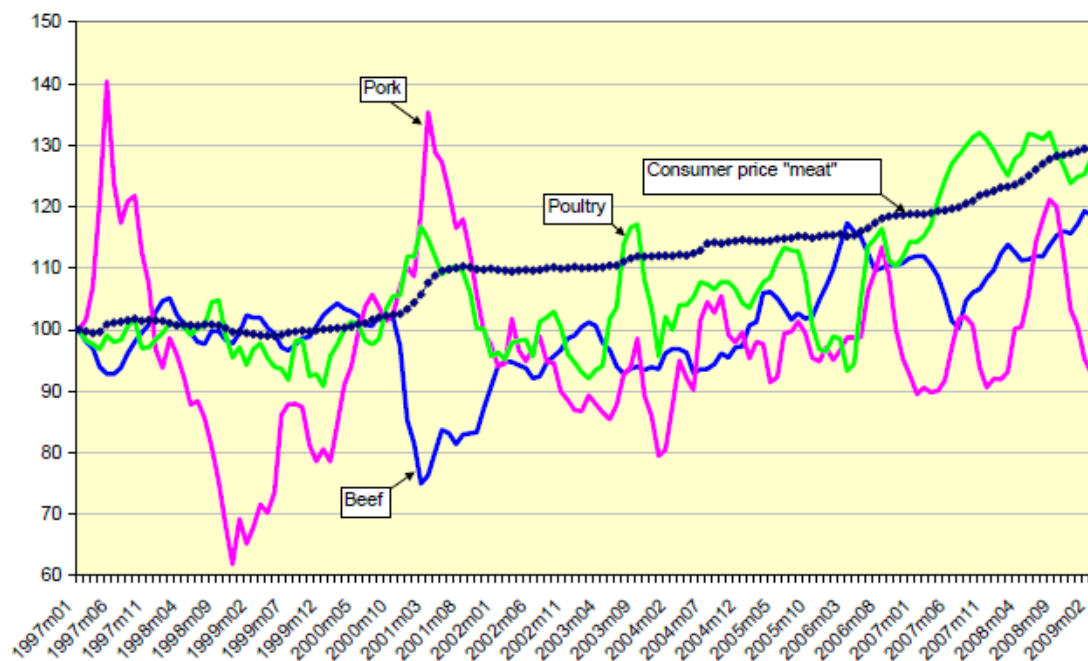
Food prices in Europe. The price of basic foods in Europe have been subject to a roller-coaster effect over the last 2 years as exemplified by the Graphs and Tables below (22)

Graph 1 Annual rate of change in EU overall and food consumer prices (%)



Source: Eurostat.

Graph A3 Meat: EU agricultural market and consumer price developments (Jan1997 until Feb2009, Jan 1997=100)



Source: AgriView, Eurostat.

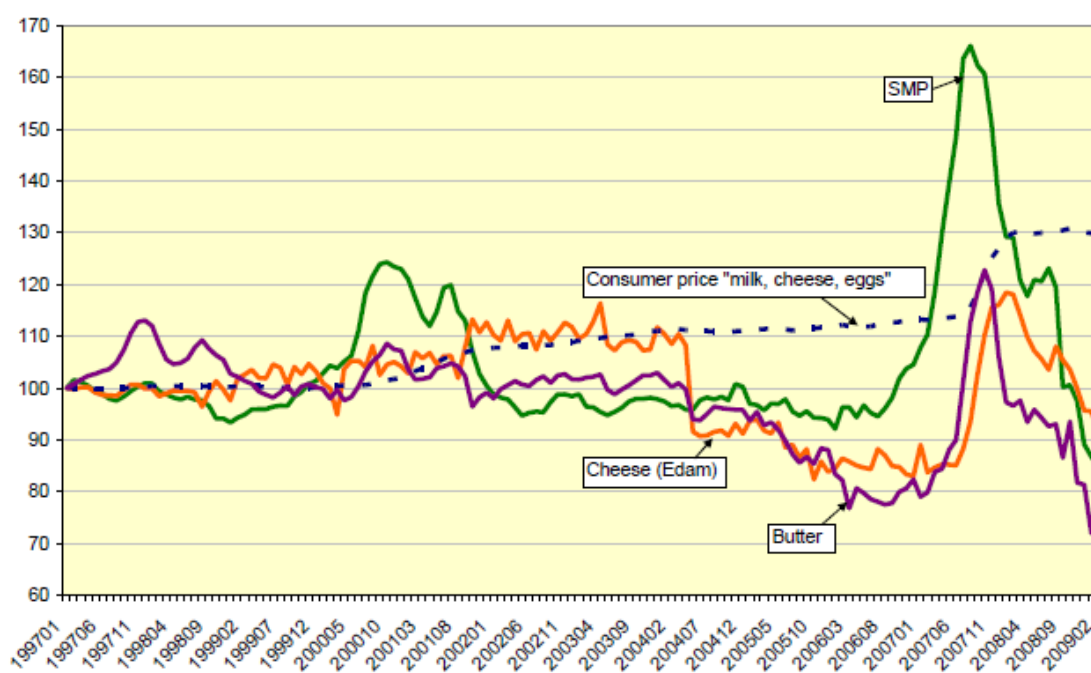
Price of Agricultural Commodities (22)

The continuous pronounced fall in the prices of major agricultural commodities decelerated in February 2009. While cereals, butter and poultry meat prices showed a slight increase in February 2009 as compared to January 2009, the quotations for skimmed milk powder, cheese

(Edam), beef, and pig meat decreased (cf. Table 1). For several products, February 2009 price levels were still considerably below the levels observed during February 2008 eg. soft wheat (-46%), durum wheat (-52%), maize (-44%), barley (-47%), skimmed milk powder (-32%), butter (-31%), and cheese (-23%) (cf. Table 2). For cereals and dairy products, prices have now come back to levels comparable to or even lower than those reached before the start of the price surge (cf. Graphs A2 and A4 in annex), triggering the uptake of certain market support measures in the framework of the Common Agricultural Policy (export refunds, private and public storage in the dairy sector).

Consumer prices for food on the other hand still remained at rather high levels (cf. Graph A1 in annex). Food prices in February 2009 were 10.4% higher than in February 2007 and 3.4% higher than one year ago. Although food price inflation was around twice as high as the overall consumer price inflation (+5.3%) over the last two years, it fell on a monthly basis by 0.1% in February 2009 – see Table 4.

Graph A4 Dairy: EU agricultural market and consumer price developments (Jan1997 until Feb2009, Jan 1997=100)

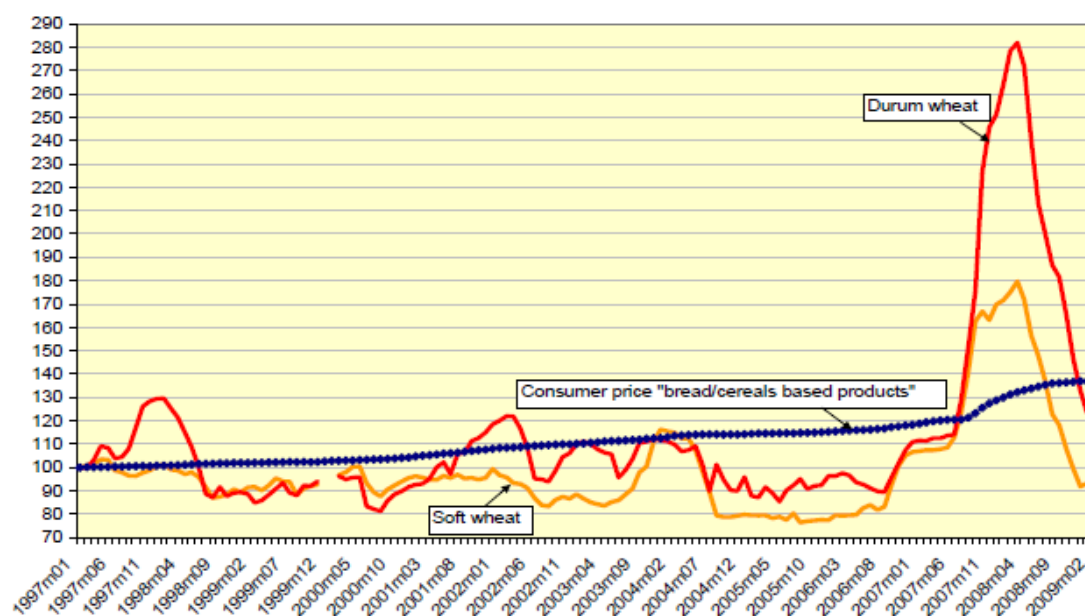


Source: AgriView, Eurostat.

Table 4 Change in EU consumer prices for food (% , February 2009 compared to February 2008)

	All items	Food	Bread/c.b.p.	Meat	Fish	Milk, cheese, eggs	Oils	Fruits	Vegetables	Sugar	Other food
EU	1,7	3,4	4	4,9	1,5	-0,3	0,4	0,3	8,1	3,9	4,2
Belgium	1,9	3,8	3,6	3,6	-1,3	0,3	6,4	1,7	12,3	5,4	5,7
Bulgaria	5,4	2,3	1,2	15,6	20,4	3	-20,4	-8,3	-2,5	5,1	9,1
Czech Republic	1,3	-1,6	-3,1	2	2,4	-8,2	-1,5	-9,8	8,8	1,5	6,2
Denmark	1,7	3,1	3	4,1	3,3	-1,2	2,8	-0,8	9	2,6	5,1
Germany	1	1,1	2,1	4,5	1,1	-7,6	-5	-4,2	10,1	3,6	2,9
Estonia	3,9	1,4	8,8	6,9	2,7	-8,1	8,1	-10,3	-3,1	4,5	6,8
Ireland	0,1	0,7	-1,2	1,6	2,7	1,5	8,6	0	-0,8	1,5	0,8
Greece	1,8	3,7	4,8	3,2	5,4	1,6	-2	9,1	7	2,5	2,3
Spain	0,7	1,4	2,8	3,1	-1,6	-1,6	-8,3	5,2	2,6	2	6,7
France	1	2,2	2,6	2,4	0,9	-0,2	0,6	-1,7	10,3	0,8	2,6
Italy	1,5	3,2	5,1	2,5	3,4	2,8	1,6	5,6	0,7	3,2	6,2
Cyprus	0,6	7,8	9	12,2	3,6	6	14,2	9,1	0,2	5,6	8,6
Latvia	9,4	8	11	14,4	14,6	-5,1	14,5	1,5	14,9	2,7	9,5
Lithuania	8,5	8,9	12,9	19,8	10,1	-5,1	4,4	-6,5	7,4	3,6	10,5
Luxembourg	0,7	2,8	1,8	3,7	-2,2	2,3	6,6	7,5	1,6	2,8	3,9
Hungary	2,9	3,9	2,6	9,1	6,6	-1,5	12,4	-11,1	3	4,1	9
Malta	3,5	11,6	10,6	6,3	9,7	7,5	9,4	12,5	27,8	12,1	3,4
Netherlands	1,9	4,4	3,5	4,7	2,7	1,7	5,7	3	12,6	4,6	1,6
Austria	1,4	2,4	2,6	3,3	5,3	-4,2	-2,6	-1,3	11,3	5,8	2,5
Poland	3,6	3,7	5,5	7	5,4	-2,8	2,4	-16,5	13,5	3,1	4,3
Portugal	0,1	1	4,5	1,2	-3,3	-1,6	0,2	1,7	6,8	1,5	-0,4
Romania	6,9	6,1	4,4	8,2	4,5	9,3	9,2	0,5	2,2	6,3	4
Slovenia	2,1	2,9	-0,5	3,4	11,7	-1,1	8,2	2,5	10,4	3,7	4,5
Slovakia	2,4	0	6,2	1	1,4	-5,6	8	-10,1	1,1	-0,1	6
Finland	2,7	8	5,2	7,4	4,1	10,3	6,6	4,4	19,1	3,7	7,2
Sweden	2,2	5,5	4,1	6,6	2,4	2,5	1,9	6,2	15,9	3,3	3,7
United Kingdom	:	:	:	:	:	:	:	:	:	:	:

Source: Eurostat. NB: The category "bread and cereals based products" includes rice in all forms, cereals in the form of grain, flour or meal, bread and other bakery products, pasta, couscous and other cereal preparations.

Graph A2 Cereals/bread and cereals based products: EU agricultural market and consumer price developments (Jan1997 until Feb2009, Jan 1997=100)

Source: AgriView, Eurostat.

Table 1 Change in EU agricultural commodity prices (% , February 2009 compared to January 2009)

	Soft wheat	Durum wheat	Maize	Barley	SMP	Butter	Cheese (Edam)	Beef	Pork	Poultry
EU	2%	8%	7%	1%	-2%	1%	-4%	-1%	-2%	2%
Austria	-3%		0%	-2%				-1%	-2%	1%
Belgium	1%		2%	-2%	-2%	-1%		0%	-1%	2%
Bulgaria	8%		9%	-1%				0%	0%	-1%
Cyprus		-1%		5%					0%	-2%
Czech Republic	-4%		7%	-3%	-3%	-3%	-4%	-1%	-7%	-3%
Germany	4%		3%	2%	2%	-2%	2%	-1%	-1%	0%
Denmark	0%			0%	1%	-8%		-1%	-4%	-3%
Estonia	23%			-9%			-1%	10%	-2%	1%
Spain	2%	4%	4%	1%		-4%	0%	0%	1%	3%
Finland				0%		1%	-2%	0%	-1%	1%
France	-4%	13%	1%	-1%	-2%	0%		-2%	2%	-2%
United Kingdom				4%				3%	8%	1%
Greece	7%	3%	1%	4%				1%	-3%	1%
Hungary	-7%		7%	-2%	-5%	35%			-7%	-8%
Ireland				1%	0%	0%		1%	-2%	0%
Italy	3%	12%	4%	2%				0%	-9%	-13%
Lithuania	18%		7%	-10%				4%	-1%	-3%
Luxembourg								0%	-2%	
Latvia	-2%			-13%	-13%	7%	-11%		-15%	-1%
Malta								0%	0%	0%
Netherlands				-2%	6%	2%	-5%	2%	-3%	0%
Poland	0%		4%	-2%	-2%	-7%	-9%	-4%	-8%	-4%
Portugal	1%		7%	1%		-2%		3%	0%	-15%
Romania	0%		13%	11%				3%	-4%	0%
Sweden	0%			0%				-4%	0%	-2%
Slovenia	-6%		3%				-5%	-2%	-1%	2%
Slovakia	-9%		7%	-6%	-15%	12%	-3%	6%	-11%	-5%

Source: AgriView.

Relative poverty index – an income poverty index

Poverty is measured by Eurostat (25) as a relative concept, with no reference to an EU benchmark. This is because minimal acceptable standards usually differ between societies according to their general level of prosperity - someone regarded as poor in a wealthy, developed country might be regarded as rich in a poor, developing country. Using this data from Eurostat, a first allocation of resources was carried out on the basis of the distribution of food aid to "poor people" in Europe, among the Member States that wanted to participate in the programme.

ii) Where are the poor in Europe?

a) Poverty in the EU

Income poverty The focus of policy attention across the EU so far as poverty and social exclusion are concerned tends to be on the relative number of people in each country with (equivalised) disposable income below 60% of the national median - the key Laeken indicator for the at-risk-of poverty rate. It is defined as “*the share of persons with an equivalised disposable income below the risk-of-poverty threshold, which is set at 60% of the national median equivalised disposable income*”). The rate of poverty varies between 10% and 23% in the countries of the European Union: with poverty being the lowest in the Czech Republic and the Netherlands, and the highest in Latvia (see Figure 1). Low levels of poverty characterize the Scandinavian countries, the so-called Corporatist countries (Austria, Germany), and the Czech Republic, Slovakia and Slovenia among the ex-Socialist countries. In contrast, the risk of poverty tends to be relatively high in the Mediterranean and the Baltic states. Two thirds of the total poor population in the European Union live in six countries: Germany, France, the United Kingdom, Italy, Poland and Spain. Among these, the rate of poverty is lower than the EU average in Germany and France..

Even if the "at risk of poverty rate" does not allow the most deprived people to be identified - but only the larger category of "income-poor people" –the EC considers that it currently represents the best way to allocate the available resources among Member States.

See Figures below for indicative poverty rates in Europe in 2006 (22).

Figure 1
At-risk-of-poverty rates
across European countries

Source:
own calculations based on
EU-SILC 2006

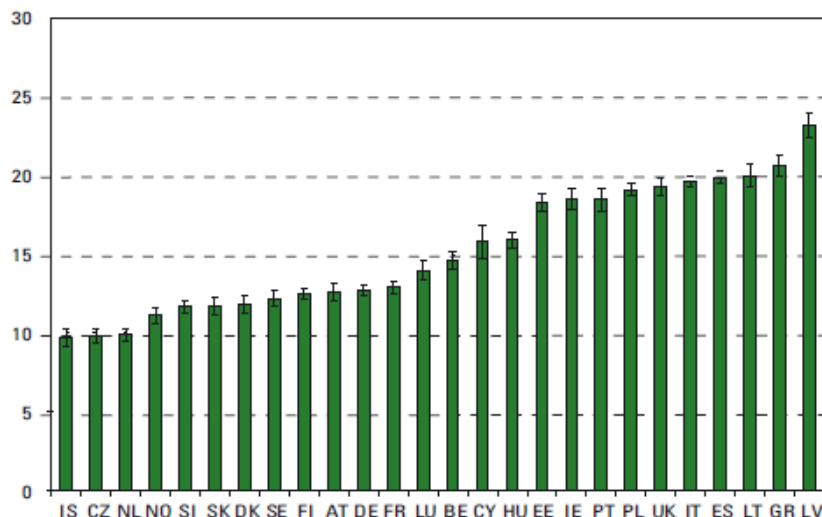
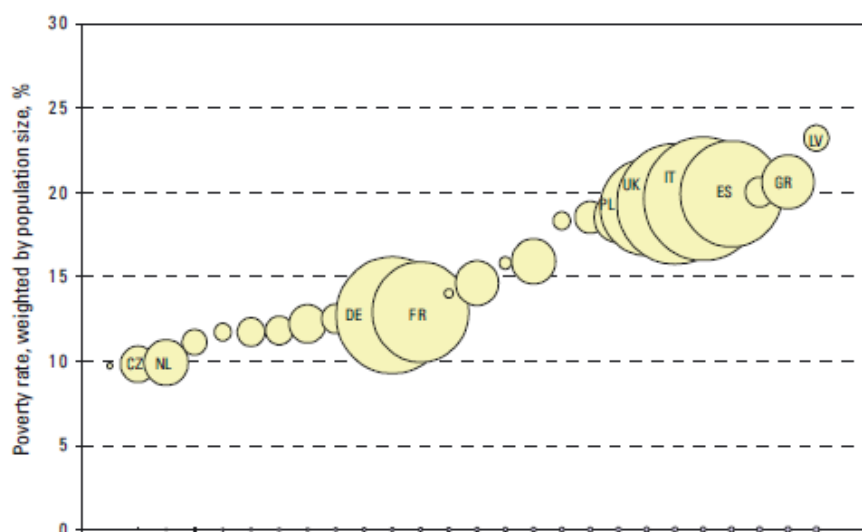


Figure 2
The size of the poor
population and the
poverty rate across
European countries
(bubbles showing the size
of the poor population)

Source:
own calculations based on
EU-SILC 2006



Rural and urban poverty The OECD (23) established a regional typology according to which regions have been classified as: Predominantly Rural (PR), Intermediate (IR) and Predominantly Urban (PU). This typology is based on a combination of three criteria: first, it identifies rural communities according to population density; second, it calculates the percentage of the population of a region living in rural communities; third, it takes into account the presence of large urban centres in such a region.

Approximately 59% of the EU27 population live in rural (IR or PR) regions (1). GDP per head, is generally lower in rural than in urban areas. Even taking all the limitations of the

GDP indicator into account, this evidence suggests the existence of a higher risk of poverty of rural areas as compared to urban ones. Data thus seem to show the presence of a phenomenon the authors call “poverty of rural areas”, i.e. people living in rural areas area at a disadvantage in comparison with those living in urban areas.

A survey of 8 different EU countries (24) indicated the following patterns: *rural areas are characterized by a higher degree of income poverty with respect to urban areas* in all countries for which such distinction is possible. The gap in poverty rates between rural and urban areas is larger in Eastern European countries than in Western countries. Moreover, in Eastern countries poverty is generally associated with difficulties in the agricultural sector. In Western countries, within rural areas, poverty is concentrated in remote regions and, in general, regions with accessibility problems.

Employment poverty The malaise of relative poverty is coupled with low employment in many EU countries, but particularly in some Mediterranean countries, where the level of unemployment benefits and social assistance are relatively low: in Greece, Italy, and Spain. It is less so in other countries like Portugal or Cyprus where the employment rates are above the EU average. Low employment, however, does not necessarily go together with high poverty levels. There is considerable variation among the New Member States which suffer from low employment: while poverty is high in Poland, it is at the EU average in Hungary, and it is low in Slovakia. Similarly, high levels of employment may go with either high or low levels of poverty. However, those countries which are “top performers” and have the highest levels of employment in the EU, tend to have low poverty levels as well, including Denmark, Netherlands and Sweden.

In all rural areas of NMS, the relevance of agriculture is still significant in terms of employment opportunities. Here, low incomes and seasonality of work represent important risks of poverty and social exclusion; moreover they are often important elements of intergenerational transmission of poverty, especially among farmers and agricultural workers. In perspective, seasonal workers may suffer exclusion because of the low pensions they receive when retiring eg in Greece, France, Italy, Spain (1)

In some Eastern countries (Poland, Bulgaria, Romania) the problem of farmers and agricultural workers is even more severe because of the transformation of agriculture from state to private farms. Problems of fragmentation of farms and small dimension of economic activities represent important determinants of poverty and exclusion for farmers and their families. However, in countries such as Bulgaria, the majority of very small-scale farmers are pensioners, or have other earning activity, and that may reduce their risk of poverty. Linked to the agricultural activity there is often, and especially in western countries, a large employment of immigrants. Mainly for seasonal workers, there is a risk of illegal immigration often associated with very poor living condition, low salaries, and absence of any kind of insurance. Those problems are more severe in Southern countries, where the production of fruits and legumes has a strong seasonal cycle that requires a large amount of seasonal workers (Italy, Spain, Greece).

Migration. In NMS countries the exodus from rural to urban areas (especially the capital city) is a current phenomenon; moreover, migration abroad – notably of young people and women – have led to a general impoverishment of rural areas. The latter phenomenon is particularly acute in Bulgaria, Lithuania, Poland and Romania. There are ageing and gender

disparities too. The feeling of remoteness in the rural areas is one of the drivers of urbanization since concentration of the main services in urban areas can impact on the quality of life of groups already at risk of social exclusion: health services for elderly or disabled, child care facilities for female workers, etc. The accessibility of schools is another important question for children and parents living in remote rural areas. Also poorer housing and access to transport –the latter increasing the distance from markets and, more generally, creating social isolation of some social groups. Access to quality ICT is also a concern of rural households: in most countries covered by the study, an important digital gap in rural areas is reported.

For example, in Spain only 30% of rural households own a PC and a scarce 16% have access to the internet. ICT usage is generally higher in northern Member States, such as Norway, Ireland and the UK, than in most southern and eastern countries (Slovenia being a notable exception) for two main reasons: better physical infrastructure (e.g. broadband connections) and better educational levels. The diffusion of ICT is in general considered as an important tool for stimulating economic development and improving the functioning of economic activity and labour market. In some countries (e.g. France), a specific effort is planned to facilitate the appropriation of and the access to ICT in rural areas,

In Western EU countries, two large scale processes of demographic change are taking place and these need to be understood if the social and economic parameters of poverty are to be addressed : a long established “urbanization” trend drawing population out of more remote rural areas into urban and accessible rural areas, and a more recent “counter-urbanization” flow out of urban areas into accessible rural areas (made possible by new transport and ICT infrastructure) increasingly under pressure from an urbanized lifestyle. The latter phenomenon is particularly evident in the case of France and the UK. Moreover, there is an increasing weight of the so-called returning migrations, i.e., people who return to their home villages after a previous migration to urban areas or abroad.

Poverty and Farmers (1) In Partly Rural (PR) and exclusively rural (IR areas), farms with very small economic size represent **more than a third of total farms** in most countries, the exceptions being Germany, France, Ireland, and Norway. Moreover, in Eastern countries semi-subsistence farms are predominant in Bulgaria, Hungary, Lithuania and Romania and very common in Poland. Economic farm sizes of < 2 ESU are common. (1 ESU (European Size Unit) = 1,200 € of Standard Gross Margin of the agricultural holding). The diffusion of very small or even semi-subsistence farms is a matter of serious concern because in most Eastern European and Mediterranean countries (Bulgaria, Lithuania, Romania, Greece, Italy, Portugal) less than 30% of farmers have other gainful activities which can top up the income received from agricultural activities (1). Diversified sources of income may indeed reduce the risk of poverty among farmers. Therefore small farmers appear to be a specific group at risk of poverty and social exclusion in rural areas. Some specificities characterize Western and Eastern EU countries. In Western Europe, the presence of farmers as a specific group at risk can be explained by a conjunction of factors such as: a) the structural decline in the price of agricultural goods; b) the fact that, in most cases, farming remains a lifetime job. The reason may be strong individual preference for the agricultural lifestyle, but also the guaranteed minimum income provided by agricultural policies.

In NMS however, overdependence of rural areas on agriculture and lack of alternative employment are reported. Moreover, in countries such as Poland, Bulgaria, Lithuania and Romania agricultural productivity is often low, because it is influenced by an unfavourable investment environment, limited agricultural land market, poor technical and environmental status of water management systems (canals, drainage systems, hydraulic structures).The

difficulties related to the process of economic transition still appear to be present. In Poland, the study (1) identified ex-workers of the former state farms and their families as a specific at-risk-of-poverty group among rural populations. In Bulgaria, agriculture continues to suffer from a past legacy of central planning and state-ownership. In Lithuania, some former state farms and villages are still enclaves of deep and chronic poverty, while the majority of farms are facing difficulties in meeting EU environmental, hygiene and animal welfare standards. Finally, in Romania it has been observed that the areas where the state cooperative system was implemented through the expropriation of land from private owners are more deprived than the ones where private ownership was resisted.

Education The data show that the only countries with the share of poorly educated adults above 50% in PR areas are those located in the Mediterranean region (Greece, Italy, Spain and Portugal) –(1)

b) Poverty in the Transition States

Many of the countries reviewed in this report are among those collectively known as the transition states. They were subject to the transition process that occurred in the former centrally planned economies of Central and Eastern Europe and the former Soviet Union at the turn of the 1990s. The economic collapse, privatization and the transformation processes in industry and services, the effects of EU accession, and the post-1998 recovery affected countries differently, and the poorest people were those who suffered most as a consequence. A relatively large literature has emerged on the changes and transformation of the agricultural sector and its consequences for output and productivity; see refs (26 - 34) for a survey of this literature. Interestingly however, little is reported about how all these changes have affected welfare, and in particular poverty, in rural areas. A large share of the population in transition countries lives and works in rural areas and the share is largest in the poorest countries. For example, in Central Asia and part of the Balkan countries, more than 50% of the people live in rural areas (eg in 2000, 58% of Albanians and 25% Czechs). In all transition countries, more than 25% of the population is rural; and an even larger share of the poor live in rural areas. Rural areas in the region, as in most of the rest of the world, have a disproportionate share of poor households. Only in a few countries is poverty risk less in rural areas than in urban areas.

The pre-1998 period was characterized by fundamental economic changes and a dramatic economic decline. In the rural areas, these were largely the result of reform policies such as agricultural price and trade liberalization, land privatization, and farm restructuring. After 1998, economies generally grew strongly in the region. While both rural and urban poverty declined significantly after 1998, rural poverty is not catching up and therefore grows in relative importance. Alam et al. (2005) analyzed the general poverty changes in the post-1998 period. They showed that poverty decreased after 1999 in almost all countries in the region and emphasized the crucial role of economic growth. The positive impact of growth on poverty reduction occurred through increases in wages, job creation, and both social and private transfers. Differences in land reform and farm restructuring, and the migration patterns triggered by those, can help explain why the rural-urban poverty gap is higher in some countries than in others. Differences in human capital and rural infrastructure and services also play a role. Headcount ratios based on 2000 PPP show that there is an enormous variation in rural poverty across the region, with rural headcounts ranging from 0.3% in Hungary to 27% in Albania. Absolute poverty levels largely correspond to differences in overall income levels between countries. Poverty is high in Central Asia and the Trans-Caucasus, and it is lowest in Central Europe. While comparative data are not available for the other higher-

income countries in Central Europe (Czech Republic, Slovakia and Slovenia) data from previous studies based on the national poverty lines show very low levels of poverty (less than 3%) as early as 1996 (World Bank, 2000).

Income poverty in rural areas is significantly higher than in urban areas in the vast majority of transition countries. Intriguingly, several of the countries with the most extreme differences are Eastern European EU accession countries. Romania, Latvia, Lithuania, and Bulgaria, have the highest differences between rural and urban poverty risks. In those countries the ratio of rural on urban headcount is higher than 1.5, meaning that poverty risk is more than 50% higher in rural than in urban areas. In contrast, poverty is significantly lower in rural areas in Belarus and in two Trans-Caucasian countries (Armenia and Azerbaijan), and this finding is consistent across years and indicators. Rural and urban poverty are about the same in Bosnia&Herzegovina, Macedonia, Tajikistan, Hungary and Estonia.

Agricultural reforms in the transition states -Agricultural reforms are key to understanding rural poverty for several reasons. First, agriculture is a major income source and employs a large share of the rural population in most transition countries, and especially so in the poorest countries. For example, agriculture accounts for more than 40% of rural income and employs 40% or more of the *total* work force – and a much higher share of the rural workforce – in several countries in South Eastern Europe, the Caucasus and Central Asia. These are countries with high rural poverty rates. Second, in the countries where the share of agriculture in employment is (much) lower, the poorest are usually either directly or indirectly linked to agriculture, either because they are involved in subsistence farming and/or because they have been laid off by large farms and have not been able to find alternative employment. Third, collective and state farms were historically the suppliers of social services in rural areas, and continue to do so in some countries. Access to rural services is related to the restructuring of the farms.

Reforms in agriculture include several factors, such as price and subsidy policy reforms, trade policy, land reforms, farm restructuring, privatization of agri-food companies, and liberalization of markets. These reforms have affected rural households in several ways: i) Agricultural production and food consumption were heavily subsidized under the communist system. Macroeconomic reforms coincided with price liberalization and subsidy cuts in the early years of transition. The result was major reductions in the support to agriculture and in food consumption subsidies. Reduced domestic demand with falling incomes and subsidy cuts was reinforced by falling foreign demand and increased import competition with trade liberalization.

c) *Poverty in Europe and Central Asia.*

This region has the highest income per capita among all developing regions. Levels of per capita income have been rising rapidly since 2004, and nearly doubled through 2004-2007. Since the beginning of the transition decade, when poverty rose in many countries in Europe and Central Asia, there has been a robust turn around with all countries having begun to experience positive economic growth. This is likely to continue but at a more moderate pace than in recent years. While growth is leading to poverty reduction in some countries, either growth will need to accelerate or the degree to which the poor benefit from the growth will need to rise to boost prospects for meeting poverty reduction goals region-wide.

HIV/AIDS is a significant issue for Europe and Central Asia which is experiencing the world's fastest growing HIV epidemic. HIV prevalence rate for population ages 15-49 has nearly doubled between 2001 and 2007. Denial, stigma, and the institutional challenges of providing services to marginalized and vulnerable sub-populations jeopardize progress to combating HIV/AIDS in this region.

iii) What are the specific needs of the poor in Europe?

Based on the texts referred to in the bibliography, these include:

Cost of basic foodstuffs - rising food prices have led to sharp increases in the number of families in need, but surplus stocks of farm produce used in the past are now at an all-time low – thanks to the ongoing reform of the common agricultural policy.

Migration and population decline – Growth rate in Europe's (including the CIS's) 800 million people is projected to decline between 2005 and 2015 to -0.2% - the lowest rate of growth in the world. Urban population will increase to 64% of total population, under 15s will decrease further to 17%, and total fertility (births/woman) will decline to 1.5% (cf 5.5% in Sub-Saharan Africa)

Social exclusion - Marginalisation of the elderly and the young is the result of the interplay of various factors, rather than any single primary cause. In rural areas it is primarily a reflection of poverty through lack of access to economic resources and services. Limited access can prevent the elderly and the young from participating fully in social life or even from reaping the benefits of living in economies with highly developed welfare systems. Low levels of community-based care and assistance, either from health care providers or from family members - due to the effects of out-migration – can make things much worse. Pensions and social benefits are not able to guarantee a standard of life comparable to the national average: the data for their incomes and expenditures, access to healthcare and services, etc. show a significant risk of social exclusion and lack of adequate social services in rural areas.

Unemployment - The malaise of high poverty is coupled with low employment in some Mediterranean countries, where the level of unemployment benefits and social assistance is relatively low: in Greece, Italy, and Spain. It is less so in others like Portugal or Cyprus where the employment rates are above the EU average. Employment opportunities in rural regions are becoming constantly and significantly worse than in urban regions. They show a clear improvement in PU regions, a weaker, but still positive effect on IR regions, and negative for the PR regions (1). The main risk to employment probably concerns labor market issues, namely the undeclared economy, which can be especially significant in areas where economic sectors characterized by strong seasonality and involving less qualified people are relevant. This is mainly the case of Mediterranean rural areas (Southern Italy, Spain, Greece), once traditional emigration areas, which have become a destination for a large number of immigrants during the last fifteen years.

iv) Which policies need to be put in place to address the needs of poor farmers?

Political irrelevance One of the main obstacles faced by a strategy against rural poverty is the political irrelevance of the rural poor. In many western European countries, the small number of people involved in agriculture (less than 2% on average) mean they have no political clout – and policies focus on rural *areas* as opposed to the rural **farmers**. However, in Eastern Europe, the percentage of national populations employed in agriculture is much higher (on average 31%) – and in some countries like Albania and Romania, the values are 58% and

32% respectively, and so their views need to be considered more by the governments of the day. Political irrelevance issues are also driven by the fact that the rural poor are less organized than the urban poor, because of their geographical dispersion and because of the remoteness from the political and economic centres of the country: this makes their *voice* much weaker than that expressed by other groups or categories at risk of poverty. Also because of the stronger community and social links and dependencies which exist in the rural areas, particularly among the farming communities, there is a perception that it makes public support for the poor less necessary. These factors determine a lack of public awareness around the real understanding of rural poverty and the need to intervene to address it. This, in turn, reduces the political support for policy measures which could imply a possible redistribution of resources in favour of the rural poor. **Unfortunately, in most European countries, the specific policies that can directly affect poverty do not have the rural poor as a target.**

Sector development policies These policies are aimed at improving the conditions of particular *sectors of the economy* or at reducing disparities between regions. The EU's Rural Development policy and those structural policies which promote regional development and cohesion are part of this framework. These policies can have important consequences for the economy of a rural area, and therefore in reducing the *poverty of a region*. They influence the general context within which the condition of the rural poor are defined.

Research policies There is also the issue of policies governing research process and targets. When conducting market research, researchers are encouraged to understand which human indicators the beneficiaries of such investments wish to improve – and not restrict the vision statement to commodity or productivity or income indicators ; these may not automatically be beneficial to poor farmers. In many western European countries, indicators of successful agricultural research at the project level are normally increased production per unit hectare or per investment basis - say for milk, meat. These indices are in common use and it is expected that many of the research benefits accrued will be marketed through national public/private extension systems to commercial farmers and the extra income earned will go to improving the livelihoods of the farming community. However in poorer regions with semi-subsistence farming enterprises, such indices may well be irrelevant. The key appears to be in understanding the farmer – not the farm commodities.

Barriers to inclusion Some successful EU policy interventions in remote rural areas involve specific measures that have been implemented to address the barriers to inclusion and job opportunities arising from lack of ICT in rural areas.

v) What is being done to address the concerns of the poor nationally and regionally?

EU food distribution scheme has been underway since 1987. The commission proposes to increase the budget for food aid by two-thirds to around €500m - starting in 2009 – so that it reaches even more of Europe's deprived families. Initially, the EU will meet 75% of costs (85% in poorer areas), but by 2015 costs will be split 50/50 between the EU and the member countries (and 75/25 in poorer areas). The new proposal will also allow countries to choose which foods they distribute – based on local needs and nutritional criteria. Three-year food distribution plans would ensure continuity and better management.

When EU farms were producing more food than the EU population could consume, giving surpluses to those in need was an obvious solution – especially in the harsh winter of 1987. Since then, surplus food has been given to charities and social schemes to distribute in each EU country. From the mid-1990s, shrinking agricultural stocks were supplemented with food purchased on the market.

In 2006, more than 13 million people in the EU benefited from the scheme. But some 43 million are thought to be at risk of food poverty; the EU admits that has inadequate data and analysis is difficult as the European rural poor are often invisible in official statistics and documents. Food Aid is typically distributed to a wide range of people, including families in difficulties, the elderly, the homeless, the disabled and asylum seekers.

vi) How does/can agricultural research and development address these concerns?

For the poorest people, GDP growth originating in agriculture is about four times more effective in raising incomes than GDP growth originating outside the sector.

“A dynamic ‘**agriculture for development**’ agenda can benefit the estimated 900 million rural people in the developing world who live on less than \$1 a day, most of whom are engaged in agriculture,” said **Robert B. Zoellick, World Bank Group President**. “We need to give agriculture more prominence across the board. At the global level, countries must deliver on vital reforms such as cutting distorting subsidies and opening markets, while civil society groups, especially farmer organizations, need more say in setting the agricultural agenda.”

A recent draft report by UN High Level Task Force on the Global Food Crisis (**13**) to examine the food crisis and its possible solutions proposes a Comprehensive Framework for Action to increase food production. It proposes a ‘menu of actions’ that need to be taken now or be scaled up at the global, regional and country-level so that they can yield immediate impacts to assist communities and Governments in need:

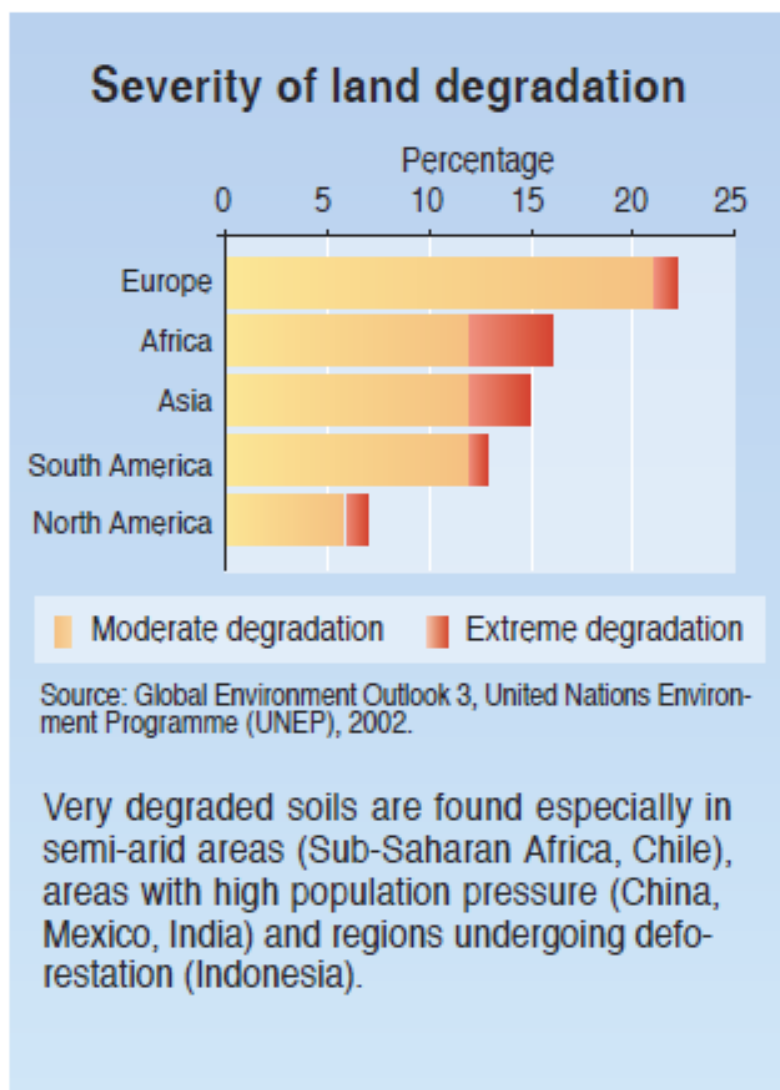
1. Better access of the vulnerable to emergency food assistance, nutrition interventions and other safety nets.
2. Boost to smallholder farmer food production.
3. Adjustment of trade and taxation policies to support immediate food availability.
4. Management of macroeconomic implications to avoid broader impacts on economic opportunities.
5. Improved assessment and monitoring systems.

It also foresees a need for both applied and adaptive research. Of more immediate value to poor smallholders, it proposes to boost their food production through

-Providing productivity enhancing safety nets to those who are net food buyers by providing critical inputs such as locally adapted quality seeds, fertilizer, animal feed, small irrigation pumps, and veterinary drugs and services, as well as technical advice. Modalities

may include vouchers for purchase from the private sector (where markets are working and inputs available). Where inputs are not adequately available, vouchers would likely contribute to inflation of input prices and make inputs less accessible to non-recipients of vouchers. Where input markets are not working, input distribution contracts with existing private dealers, NGOs, projects and government services are an alternative. To the extent feasible, provision of productivity enhancing safety nets should go hand in hand with emergency food assistance. This should help leverage participation in training and promotion of farmer organizations for collective marketing, in order to enhance farmers' share of the end market price

– **Intensify production systems** by rapidly scaling up seed production, fertilizer input schemes and adapting available technology to boost productivity of smallholder farmers. Many developing countries are facing a critical shortage of quality seed, combined with depleted soils.



– **Rehabilitate rural and agricultural infrastructure**, including by scaling up already ongoing rehabilitation efforts for small scale irrigation structures, market infrastructure, rural

roads, and soil conservation/restoration of fertility, through cash or food for work programmes

_ **Reduce crop and livestock losses** through pest and disease control and post harvest support for storage rehabilitation, supply of small scale silos, small processing equipment and improvement of storage techniques; and by reinforcing extension services with inputs, refresher training and logistics. There also needs to be a sufficient supply of high quality animal source foods and veterinary medicines and treatments.

_ **Increase rapid interventions to link small farmers to markets.** Interventions should rapidly target the constraints that rural food producers and sellers believe are hindering their ability to benefit from local, regional or global markets. Such interventions could address quality of produce; reliability of supply; efficiency improvements; waste reduction; collective marketing; investments in small-scale market infrastructure; value addition activities such as rural processing; and facilitation of contractual arrangements between smallholders and companies.

vii) Where are the gaps?

Contemporary data -A first set of actions in order to help national governments to address the problem of rural poverty includes the collection of adequate contemporary data at EU and national levels in order to study, on a comparative basis, the extent and the features of rural poverty; the promotion of research and data analyses focused on rural poverty; the promotion of campaigns, conferences and meetings in order to raise public opinion's awareness on the necessity of social inclusion; new policies directed towards the rural poor; change in national and regional agricultural policies to sustain and improve the livelihoods of poor European farming communities.

People centred policies as opposed to rural policies -The set of policies affecting rural poor which need to be addressed include the social security system (and the promotion of welfare benefits including health care), the labour market policies, the policies of education and training. In addition to these, there is a problem of governance and institutional design which need radical change.

Education - evidence suggests that dispersed delivery of education, at all levels of the school system, is likely to prove an important means of increasing the growth rate of rural and peripheral areas and of helping the poor and socially excluded in those areas.

Governance issues – bottom-up research. The heterogeneity in institutional capacity among local levels of government throughout the EU implies that where such capacity is weak, there may be difficulties in promoting a bottom-up approach. This problem may be more severe in the case of very small and dispersed communities. A possible solution could be the creation of networks of local communities in order to reach a critical mass of population and territory, and technical capacity required for a more effective bottom-up action.

Effective monitoring and evaluation of the policies implemented is crucial. To improve in this respect, it is necessary to develop a set of indicators measuring the performances of the policies implemented, as well as a systematic process for the exchange of good practices

Advocacy – at the European level, the problems faced by people living in rural areas have been neglected in their specific features in the analysis of poverty; indeed, the awareness of the European public opinion as well as the commitment of the public institutions, at different levels, with respect to the problems of rural poverty is extremely weak (Lanjouw 2007). Therefore need far greater advocacy.

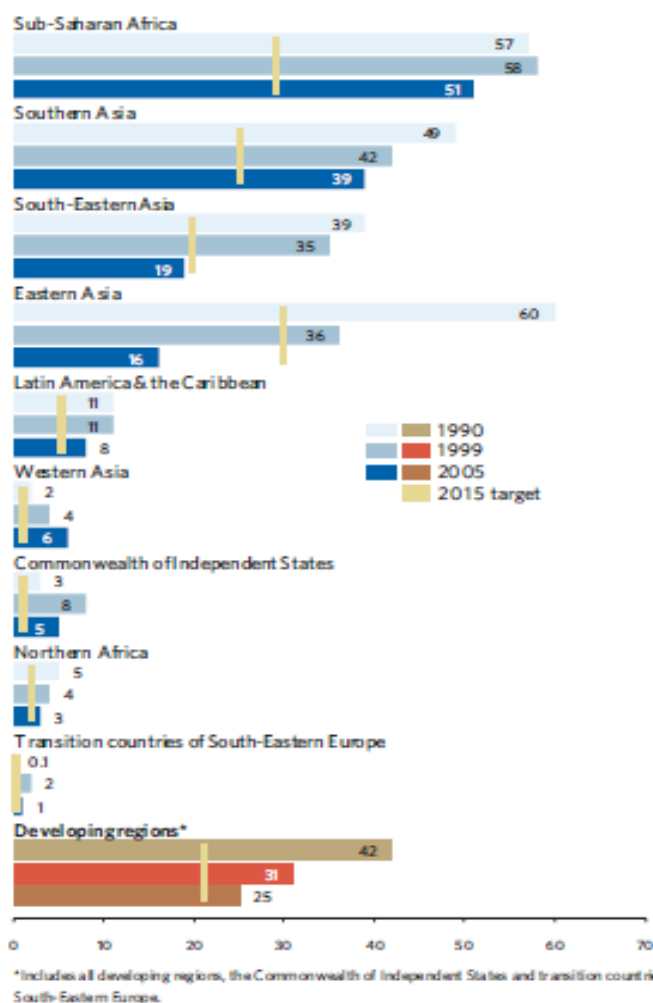
viii) What are the global research challenges?

Worldwide, the number of people living in extreme poverty in 2009 is expected to be 55 to 90 million higher than anticipated before the current global economic crisis, though the impact will vary across regions and countries. Likewise, the encouraging trend in the eradication of hunger since the early 1990s was reversed in 2008, largely due to higher food prices. The prevalence of hunger in the developing regions is now on the rise, from 16% in 2006 to 17% in 2008. A decrease in international food prices in the second half of 2008 failed to translate into more affordable food for most people around the world (39). Not surprisingly, children bear the brunt of the burden. More than one quarter of them in the developing regions are underweight for their age, stunting their prospects of survival, growth and long-term development. It is unlikely that the MDG on child nutrition, survival, growth and cognitive development will be met by its 2015 target, and will likely be eroded by higher food prices and economic turmoil.

Current projections suggest that **overall poverty rates** in the developing world will still fall in 2009, but at a much slower pace than before the downturn. In sub-Saharan Africa and Southern Asia, both the number of poor and the poverty rate are expected to increase further in some of the vulnerable and low-growth economies. Prior to the economic crisis and higher food prices, the number of people living in developing regions in extreme poverty – on less than \$1.25 a day in 2005 prices – fell from 1.8 billion in 1990 to 1.4 billion in 2005 (39). As a result, those considered extremely poor accounted for slightly more than a quarter of the developing world's population in 2005, compared to almost half in 1990. There was a dramatic fall in the poverty rate in Eastern Asia — thanks in large part to rapid economic growth in China, which helped lift 475 million people from extreme poverty. Elsewhere, progress has been slower and, in some regions, growing populations have caused the ranks of the destitute to swell. Sub-Saharan Africa counted 100 million more extremely poor people in 2005 than in 1990, and the poverty rate remained above 50 per cent (though it had begun to decline after 1999). Globally the target of reducing the poverty rate by half by 2015 seems likely to be achieved. However, some regions will fall far short, and as many as 1 billion people are likely to remain in extreme poverty by the target date.

The magnitude of the poverty eradication challenge is determined not only by the number of poor people worldwide, but also by how far they fall below the poverty line. The increase in average incomes since 2000 has enabled many people to lift themselves out of poverty and has reduced the depth of poverty of those who remain extremely poor. Against a poverty line of \$1.25 a day, the poverty gap fell between 1990 and 2005 in all regions except Western Asia. In 2005, the depth of poverty was greatest in sub-Saharan Africa, but has fallen since 1999 to reach the level that prevailed in Eastern Asia in 1990.

Proportion of people living on less than \$1.25 a day, 1990, 1999 and 2005
(Percentage)



(From MDG report July 2009)

The latest reports from FAO and other global contemporary information sources indicate that the number of hungry people in the world increased in the past 2 years by 75 million to 963 million and that issues such as decreasing area of farm land for food, higher input prices, greater demand for and increased price of food, and climate change are primary culprits for this (12-16). Consequently, every day, some 16,000 children die from hunger-related causes--one child every five seconds (17-19). In essence, hunger is the most extreme form of poverty, where individuals or families are unable to grow, do not have access to, or simply cannot afford to buy their most basic need for food. And the consequences are particularly disastrous in families suffering from HIV-AIDS, malaria, dysentery etc (20, 21).

Addressing the needs of the poor

The *Agrimonde 1* scenario (13) integrates a change of viewpoint on the **multi-functionality** of agriculture, assessed as essential both by the recommendations of the 2008 *International Assessment of Agricultural Knowledge, Science and Technology for Development* (IAASTD) (37) and by the *World Development Report 2008* on agricultural issues (38). One of the first tasks to make it meaningful would consist of producing performance criteria to evaluate the accomplishment of the different functions, not merely to remunerate them but to frame them politically and to administer them.

It would become evident that in such a scheme the different types of agriculture complement one another rather than having to fit into a single model (e.g. from commercial specialized to family multipurpose farming).

In both scenarios, the question remains as to the real capacity for emerging new technology options, which are affected also by other factors including social, economic and local development issues. It could prove difficult to break away from past choices that are embedded in current technical solutions (e.g. mechanization, fertilizer and pesticide use, or genetic engineering) as well as in cognitive systems (such as knowledge and know-how, representations of nature, pollution or landscapes) and in the values of the main actors involved. Are we not trapped in a technical rationalization? It is a sort of lock-in that other sectors have also experienced – except we cannot do without agriculture.

The CGIAR Science Forum (35) has provided some scenarios of the future of food for the mid-21st Century. This article has also briefly addressed the major developments in food production, especially the possible role of food technology, and based on this analysis, some issues for shaping a priority agri-food research agenda have been identified. Next to technological issues, it should be realized, however, that institutional barriers can be a major obstacle for the developing world to gain access to local, regional and global markets. At the same time, it is also clear that technology could help to overcome these institutional barriers by making it possible to produce high-quality, safe and nutritious food. If it is possible to realize such a development, it should also be possible to reduce poverty by linking urban food demand in the developing world to local food production. In summary, the key messages are:

1. Projections indicate a tightening of world food markets as resource scarcity increases, adversely affecting poor consumers. Real world prices of most cereals and meats are projected to increase in the coming decades, dramatically reversing trends from the past several decades. Price increases are driven by demand and supply factors. Rapid growth in meat and milk demand is projected to put pressure on prices for maize and other coarse grains and meals. Bioenergy demand is projected to compete for land and water resources. Growing water and land scarcity are projected to increasingly constrain food production growth, adversely impacting food security and human wellbeing goals. Higher prices can benefit surplus agricultural producers but can reduce poor consumers' access to food, including farmers who do not produce a net surplus for the market. As a result, progress in reducing malnutrition is projected to be slow.

2. Growing pressure on food supplies and natural resources requires new investments and policies for AKST. Tightening food markets indicate that a business-as-usual approach to financing and implementing AKST cannot meet the development and sustainability goals of reducing hunger and poverty, improving rural livelihoods and human health, and ensuring equitable, environmentally sustainable development.

Innovative AKST policies are essential to build natural, human, and physical capital for social and environmental sustainability, which will require more investment in AKST. Important investments that support increased food supply and access include those in agricultural research and development, irrigation, rural roads, secondary education for girls, and access to safe drinking water.

3. Continuing structural changes in the livestock sector, driven mainly by rapid growth in demand for livestock products, bring about profound changes in livestock production

systems. Structural changes in the livestock sector have significant implications for social equity, the environment, and public health. Projected increases in livestock numbers to 2050 vary by region and species, but substantial growth opportunities exist for livestock producers in the developing world. With rising prices of maize and soybeans, the cost and availability of animal feed will affect both the rate and extent of this growth. Moreover, declining resource availability could lead to degradation of land, water, and animal genetic resources in both intensive and extensive livestock systems. In grassland based systems, grazing intensity (number of animals per ha of grazing land) is projected to double globally and possibly quadruple in sub-Saharan Africa. In addition to the potential environmental impacts of more intensive livestock production systems, the sector faces major challenges in ensuring that livestock growth opportunities do not marginalize smallholder producers and other poor people who depend on livestock for their livelihoods.

4. Growing water constraints are a major future driver. Agriculture continues to be the largest user of freshwater resources in 2050 for all regions, although its share is expected to decline relative to industrial and domestic uses. Sectoral competition and water scarcity problems will intensify. Reliability of agricultural water supply is projected to decline without improved water management policies. However, AKST and supporting interventions geared towards water conservation and productivity enhancement in rainfed and irrigated agriculture can offset impacts of water scarcity on the environment and risks to farmers.

5. Agricultural research cannot ignore human nutrition issues as well as processing and distribution types. Food systems are no longer supply-driven but demand-driven. It has critical consequences on the processes of location or relocation of productions, on the technologies that can be implemented, on the priorities not only regarding products but also production patterns, on the way urban and rural areas are connected and the role a diversity of farming systems (commercial, familial, specialized or multipurpose) could play to satisfy a diversity of food demand, of spatial organisation regarding environmental issues as well as a frantic rural life. Feeding Planet Earth in 2050 is not impossible, but we should be aware that with the food habits and the types of productions being encouraged, we cannot expect “building” the same World!

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ANNEX 2: TORS FOR GCARD-EUROPE REVIEW

Specific requirements for the European review and consultations

Europe differs from the other five developing regions in that it includes (a) more developed countries, which are able to provide (and have provided in the past) substantial human and financial resources to global ARD in the form e.g. of technical expertise, capacity development and scientific facilities, and (b) less developed countries requiring ongoing support to develop sustainable and competitive agricultural production systems and markets. The European review therefore has to include both the ARD needs of less developed European countries, and the capacities and resources available throughout Europe in addressing global and regional ARD challenges and needs.

Implications for methodology

While the methodology outlined in section 6. applies to the European review as well, the specific European context will in addition require consulting documents on current and likely future ARD capacities in Europe, and for this purpose will involve interactions with the relevant European Forum (EFARD) and networks (ECART/NATURA).

Implications for report

In line with the above, the report to be delivered, in addition to the points outlined in section 7., should include a section on Europe's capacity and ability to contribute to global ARD challenges through existing (e.g. capacity development / training support, networking and participation in platforms such as PAEPARD – the Platform for African European Partnership on ARD – and technical, financial and political support to ARD) and potential future (e.g. increased e-learning and call-down support Southern-led ARD initiatives) mechanisms. On financial resources for Europe as a global ARD donor, the review should look at the ERA-ARD (<http://www.era-ard.org/>) mapping exercise of European ARD systems, and complement this with recent data from the EC. The deadline for the draft report is 1 July and for the final report 15 July.

Additional requirements:

Identification of stakeholders for e-consultations and regional face-to-face meetings As pointed out in sections 5. and 7.V of the generic TOR, the review will be followed by electronic consultations with ARD stakeholders, and a workshop / conference enabling face-to-face dialogue between key representatives. As the consultant(s) involved in the European regional review will have familiarised themselves with the ARD landscape in Europe, including key players to date and eventual gaps in representation of non-traditional research stakeholders (such as farmer organisations, the private sector and civil society), they will be in a good position to propose eventual participants to be invited to represent European ARD stakeholders.

Specifically, the consultants are expected to:

- Develop and agree with EFARD on a set of criteria to identify representative stakeholders (in terms of geographic location – different parts of Europe plus overseas, organisation type – research, private sector, civil society etc.). Specific attention should be paid to ensure a meaningful and legitimate representation of farmer organisations, civil society organisations and the private sector.
- Using these criteria, identify and agree with EFARD (by the end of July 2009) on a wider group of European ARD stakeholders to participate in the e-consultations scheduled for August/September 2009 and a core group to participate in the face-to-face meeting scheduled for October 2009.