



**The GCARD Process in West Asia
and North Africa
Final Synthesis
March 2010**



**Global Conference on Agricultural
Research for Development (GCARD)**

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Annexes (on www.aarinena.org and www.egfar.org)

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List of abbreviations

AARINENA:	Association of Agriculture Research Institutions in the Near East and North Africa
AR4D:	Agricultural Research for Development
ARC:	Agricultural Research Centre
CBO:	Community-based Organization
CGIAR:	Consultative Group on International Agricultural Research
CSR:	Corporate Social Responsibility
FAO:	Food and Agricultural Organization
GCARD:	Global Conference on Agricultural Research for Development
GFAR:	Global Forum on Agricultural Research
IAASTD:	International Assessment of Agricultural Knowledge, Science and Technology for Development
ICARDA:	International Center for Agricultural Research in the Dry Areas
ICT:	Information and Communications Technology
KM:	Knowledge Management
MOA:	Ministry of Agriculture
MP:	Mega Programs
NARES:	National Agricultural Research and Extension Systems
NRM:	Natural Resource Management
NGO:	Non-Government Organization
NRM:	Natural Resource Management
PA:	Participatory Approach
PR:	Public Relations
SRF:	Strategic Results Framework
WANA:	West Asia and North Africa region
WUA:	Water Users Association

1. Introduction

The Global Forum on Agricultural Research (GFAR) has organized a series of global conferences in collaboration with its constituent agencies and networks, including the CGIAR, FAO and IFAD, the International Federation of Agricultural Producers (IFAP), the Regional Research Forums (FARA, EFARD, AARINENA, APAARI, CACAARI and FORAGRO) and representatives from civil society, the private sector and donor agencies.

The upcoming 2010 Global Conference on Agricultural Research for Development (GCARD) aims to ensure that:

- Research is focusing on the right approaches and questions to meet the needs of resource-poor farmers, as well as the needs of poor consumers for sufficient, affordable, healthy food;
- Research is embedded into development processes, with outputs easily accessible and relevant to the poor;
- Scientific knowledge and advances impact development thinking and practices;
- Research and development funding systems are aligned with each other to ensure effective investment in new forms of institutions and partnerships required for the delivery of development impacts at scale; and
- The international research system is effectively integrated with national partners (public, private and civil) and responds to national and sub-regional (or trans-national) demands to ensure development impact.

2. Methodology of regional review

The Regional Consultation was implemented through the following three steps:

- A. Regional Review of WANA agricultural research and research networks through a literature review and a survey in the WANA region;
- B. Regional E-consultation process for the WANA region; and
- C. Regional Face-to-Face consultation workshop to agree on prioritization of research themes and discuss innovative research mechanisms and partnerships.

A Regional Task Force was erected to manage and lead the preparation process for GCARD 2010. The WANA Task Force met several times under leadership of Dr. Kamal Shideed, Deputy DG of ICARDA. The Task Force provided valuable guidance and feedback to the regional consultants. Dr. Ibrahim Hamdan, Executive Secretary of AARINENA, was instrumental in ensuring that momentum was maintained towards GCARD 2010 and all logistical arrangements were carried out smoothly. Dr. Ajit Maru provided essential inputs in the preparation process from the GFAR-perspective.

The final report of the regional review for the WANA region, prepared by Dr. Mohammed Samir El Habbab (*Regional Review: towards the Global Conference on Agricultural Research for Development in WANA Region*); the summary of the results of the E-consultation, prepared by Dr. Mohammed Majdalawi (*Summary of E-Consultation of West Asia and North Africa (WANA) Region*); and the proceedings of the Face-2-Face consultation workshop, prepared by Susanna Smets are available on the AARINENA and GFAR websites.

3. Regional Review for the WANA region

3.1 Characteristics of the WANA region

The economic situation and poverty incidence in the region is very diverse, ranging from the wealthy Gulf States to extremely poor countries such as Yemen, with more than 45% of the population living on less than 2 USD/day. In addition, around 5-15% of the population lives just above the poverty threshold and hence is vulnerable to environmental and economic shocks.

In the WANA region, 70% of the poor population can be found in rural areas even though only approximately 40% of the total population lives in rural areas. Despite the dependence of the rural population on agriculture, many national plans show a declining emphasis on agriculture and rural development. In addition the region is facing a number of converging trends that threaten the future livelihoods of the poorest communities in society, such as high population growth rates, water scarcity, land degradation, and global climate change.

The region is characterized by the second highest population growth rate in the world, with some countries in the region growing at 3.5% per year. The WANA region features an arid and semi-arid climate and is already one of the most water scarce in the world. The situation of water scarcity is predicted to worsen significantly over the next 25 years. As a consequence of climate change, the region is projected to become warmer and drier with reduced crop productivity. The region is already a large net importer of grains and in the future it will become increasingly dependent on food imports, worsening the regional food security situation.

Being at a junction between three continents, encompassing various marine ecosystems, and comprising large variations in altitude, the region has a high terrestrial and marine biodiversity, including hotspots of endemic species. Managing its natural resources in an efficient and sustainable manner is now one of the most critical issues for food production in the region. As much as 45% of the total land area dedicated to agriculture and rangeland is experiencing some form of land degradation, thus reducing the already low productive potential of the land.

Most countries have invested heavily in irrigation over the past half century. Wherever land and water are available, large and medium irrigation schemes have

been established requiring large public investments. However, recent assessments show that water productivity and irrigation efficiency are low. Traditional surface irrigation methods prevail, often complemented with unsustainable groundwater irrigation, with the exception of large-scale application of modern irrigation methods in the Gulf countries, Cyprus and Jordan. The common practice of over-irrigation has led to large-scale soil and water quality degradation and decreasing profits for farmers. The issue of sustainable water management to achieve higher water productivity and stop further environmental degradation is crucial for the region's agricultural and economic development.

3.2 Desk review and survey

The literature review focused on extracting lessons learnt from previous research strategies and assessments, such as the study "*Setting Agricultural Research Priorities for the Central and West Asia and North Africa Region*", conducted in 2002, as well as the "*International Assessment of Agricultural Knowledge Science and Technology for Development*" conducted in 2009. Additional national and/or institutional agricultural strategies and reports were used in this desk review. A better understanding was obtained on the evolution of agricultural research in the region, and the complementary roles of different research partners, such as the National Agricultural Research and Extension Systems (NARS), Agricultural Research Institutes (ARIs) and the CG-centers operating in the region.

A survey was designed to better understand ongoing research programs and current collaborative practices of knowledge sharing in the agricultural and social sectors. Questionnaires were sent out to all major research institutes, agricultural centers and universities and in total over 1,400 research projects were reviewed¹. The regional review was lead by a senior regional consultant, support by coordinators for the four sub-regions.

Based on the survey and desk review, actual research priorities emerged and were evaluated based on the following criteria: productivity, poverty alleviation, resource conservation, food security, and contribution to development. Moreover, the evaluation considered different agro-ecological systems, such as arid zones, irrigated lands, rangelands and forests.

This analysis resulted in the formulation of 7 themes with *key researchable issues*, which would require further public consultation to determine if their focus is right and if they are relevant to the reality of resource-poor farmers (see Table 1).

¹ It should be mentioned that the data collection faced major constraints in terms of timing (summer period) and in terms of the weak response from participants. The only two countries with more or less complete information were Egypt and Sudan, where the focal points themselves collected the information personally from the concerned institutions.

Table 1. Themes and issues identified by the regional review (August 2009).

1	Food security
1.1	Need for research on the comparative and competitive advantage of regional products
1.2	Need for effective financing of agriculture to support small-scale farmers in the region
1.3	Enhance the sustainable productivity of agriculture in irrigated and rain fed areas, which are “lagging behind” in terms of productivity, while protecting the natural resource-base
1.4	Need to explore the full potential of the livestock sector in the region
1.5	Need to emphasize research on fisheries and aquatic production systems
1.6	Need to pay attention to trans-boundary animal and plant diseases and pests
2	Improvement of the livelihoods of farmers (poverty reduction)
2.1	Analyze the declining living standards in rural areas and develop opportunities for household income generation
2.2	Organize and promote the role of rural women in agriculture, and agricultural research for development
3	Protection of the Environment
3.1	Enhancing efforts on protecting land and water resources
3.2	Protecting forests and rangeland from degradation
3.3	Enhance efforts on protecting the natural biodiversity in the region
4	Meeting the special challenges of climate change
4.1	Align agriculture research and development to meet the challenges of global warming.
4.2	Need to address the issue of desertification
5	Technology, information, knowledge and innovations
5.1	Enhance investment in and strengthen agricultural research, innovation, extension and education systems, related institutions and research processes
5.2	Revitalize, strengthen and reorient agricultural extension systems
5.3	Improve quality of agricultural education and employability of agricultural graduates and increase availability of appropriately trained human resources at different levels
6	Market and marketing
6.1	Effectively link small and marginal farmers with markets, including the fast emerging large (multi-national) retailers and super markets
6.2	Benefit small farmers and protect consumer from food price rise and fluctuation
7	Energy
7.1	Develop bio-fuels as a complement to fossil fuel, but not at the cost of food security
7.2	Enhance energy security compatible with economics and ecology

4. The WANA regional E-Consultation

The regional e-consultation was held in September 2009. Dr. M. Majdalawi operated as the lead-moderator, supported by three sub-regional moderators. The consultation aimed at soliciting opinions from all those involved in agricultural research for development on the following issues:

- To what extent do the priorities identified from the regional review capture the key regional needs for delivering greatest development impacts?
- In relation to “researchable themes”, what mechanisms and partnerships are required in innovation pathways turning research into development impacts at scale?

- What are the key blockages, barriers and bottlenecks that prevent research from benefiting the poor? How best should these be resolved and what enabling investments, policies and capacities are most needed?

The key researchable themes identified in the regional review were used as an input to start the discussion in the e-consultation. Around 180 persons participated in the e-consultation from Bahrain, Cyprus, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Morocco, Oman, Pakistan, Palestine, Sudan, Syria, Tunisia, Turkey, United Arab of Emirates and Yemen in addition to some guests of WANA region. About 150 messages were received from about 85 participants. The language of this e-conference was English. The participating institutions working on agricultural research for development in WANA region were mainly ICARDA, FAO Regional Office, ACSAD, AOAD, IDRC, and USAID. Moreover, universities, Ministries, Research Centers, NGOs and private sectors from different countries participated in this event.

In general, the e-consultation confirmed the key researchable issues as summarized in Table 1. However, new issues were identified such as:

- Poor linkages between research, extension and farming communities;
- Improving and adopting innovative ways of knowledge sharing;
- Implications of water scarcity and its impact on regional food security;
- Adopting a strategic approach towards agricultural research; and
- The need to better integrate policy and institutional issues into research programs.

Table 2 provides an overview of the key issues in AR4D for the WANA region, including the comments of the e-consultation.

Table 2. New themes and issues identified by the e-consultation (Nov 2009)

1	Water Scarcity
1.1	New crop varieties and management practices for better water use efficiency
1.2	Improve management of water resources and water conservation and harvesting
1.3	Improve on-farm water-use efficiency
1.4	Rationalize use of ground water and decrease the depletion shallow aquifers
1.5	Policies and institutional arrangements related to the optimization of the use of scarce water resources and enhancing the adoption of improved irrigation technologies
2	Food security and poverty situation
2.1	Need to emphasize environmental poverty
2.2	Need to develop accurate, and efficient economic surveillance and monitoring systems to help in managing the impact of plant and animal diseases
2.3	Need to improve high yielding crop varieties using traditional and advanced tools
2.4	Need to use nuclear techniques to improve crops yields
2.5	Improve productivities of local breeds
2.6	Research in the field of medicinal, herbal and aromatic plants
2.7	The impact of political conflicts and war on the management of natural resources
3	Protection of the Environment

3.1	Protecting water resources from all types of pollution
3.2	Finding suitable alternative environment friendly crops that are tolerant to drought and saltiness/salinity
3.3	Utilization of indigenous rangeland grass species to grow commercially for replacing high water consuming exotic grass species
3.4	To protect the land from salinization and sustain it for the coming generations
3.5	Conservation of local plant and animal genetic resources by establishing "Gene Banks"
4	Meeting the special challenges of climate change
4.1	Address the issue of over grazing in the context of desertification
5	Policy and institutional research
5.1	Need to support research and development in all nationally needed fields of agriculture by local, regional and international funding agencies
5.2	Need to identify policies and improve decision makers and politician awareness on the importance and role of agricultural research and innovation
5.3	Building Impact-oriented Research, Knowledge and Development Institutions
6	Technology, Information, Knowledge and Innovations
6.1	Need to enhance monitoring and evaluation systems
6.2	Set-up communication networks for mutual coordination and sharing of expertise
6.3	Strengthen linkages between NARS, International R&D Centers, local extension services and between extension services and farmers
6.4	Participatory approach should take priority in the transfer of technology.
6.5	Need to adopt methods for disseminating and scaling out improved technologies under rain fed conditions.
6.6	Need for "Knowledge Management" experts and "implementation of the science"
7	Improvement of livelihoods of farmers
7.1	The need for research that benefits the resource-poor farmers and producers
8	Market and marketing systems
8.1	Enhance socially based economic agro-enterprises through farmers' cooperatives economic and marketing activities
8.2	Long-term relationships, planning, technical cooperation and transparency are necessary throughout the supply chain between all the market participants
8.3	Developing a Geographic Identification system (GIS) and remote sensing (RS) for agro-food products
9	Energy
9.1	Enhance the utilization of renewable energy resources for agricultural practices to reduce the utilization of chemicals and reduce polluting practices

5 Face-2-Face regional consultation workshop

A regional Face-2-Face workshop was held in Alexandria, Egypt from 10-12 November 2009, the objectives of which were to identify:

- Prioritized agricultural researchable issues to achieve development impact at scale; and
- Improved research processes and mechanisms and partnerships that will ensure greater development impact and poverty reduction.

The workshop was attended by 54 participants, representing 18 countries in the WANA region, including 29 participants from NARES, 10 participants from NGOs,

farmer organizations and the private sector, 15 participants from regional and international organizations and 3 observers from GFAR. The regional workshop was also used to solicit feedback on the ongoing strategizing exercise of the CGIAR in terms of the new Strategic Results Framework (SRF) and proposed Mega Programmes (MP). The participants of the workshop generally felt that the proposed MPs are in line with the region's needs, however the MP on climate change and agriculture has a much higher relevance for the WANA region due to its high vulnerability to climate change. Concerns and advice are summarized in Table 3.

Table 3. Concerns and advice to CGIAR for development of SRF and MPs

Concerns	Advice to CGIAR
<ul style="list-style-type: none"> -Limited national research capacity -Ownership of the mega programs -Stakeholder involvement -Governance structure of the MPs -Implementation mechanisms -Transparent M&E system -Knowledge sharing and links with -- education systems -Integration / linkages among MPs -Insufficient funding for MPs 	<ul style="list-style-type: none"> -Capacity development is key! Platform needs to be functional and well linked to MPs. -MPs need to build on a strong national system to ensure links with all stakeholders and ownership -Research management experience needs to be shared with national systems for large MPs -Ensure equal partnerships -Involve national and regional centers and centers outside of CGIAR -MPs need to be designed flexibly to allow for emerging needs -Establish links among MPs -Establish learning networks

The Face-2-Face meeting included ample space for group work, organized as follows:

Thematic working groups	Cross-cutting working groups
<ul style="list-style-type: none"> -Food security and productivity -Natural resources management -Livestock, rangelands and fisheries -Markets and value chain development 	<ul style="list-style-type: none"> -Poverty and socio-economic policy -Research management and capacity development -Dissemination and scaling-up -Climate change

The working groups were asked to carry out the following three tasks:

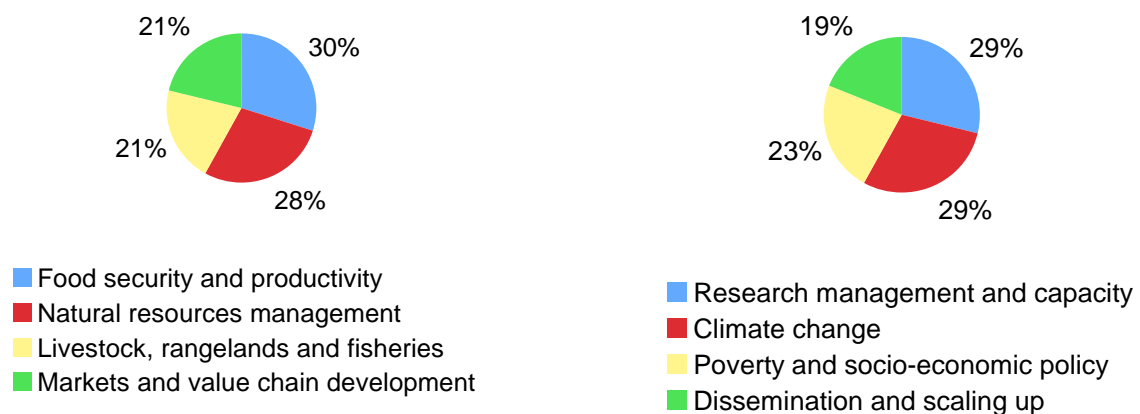
- 1) Review and modify the list of key-researchable issues;
- 2) Prioritization based on their potential to achieve development impact at scale; and
- 3) Identify constraints in research systems, solutions and (new) partnerships.

In order to allow *all* participants to give their opinion, a voting exercise was carried out for the thematic issues and the cross cutting issues.

For the thematic issues the distribution of votes over the four thematic groups is indicated in Figure 1a. Food security and productivity, followed by natural resources management were deemed to be the most important thematic areas. However, it was felt that fishery and aquatic ecosystem issues were not very well addressed due to lack of participants with such a specialization. Obviously, there are overlapping issues and clear linkages between the various thematic groups due to the complexity and holistic nature of farming systems.

The distribution of votes over the four cross-cutting groups is indicated in Figure 1b. Climate change and research management and capacity building were seen to be the most critical cross-cutting themes. Although the group on *Research management and capacity development* was focusing mainly on scientific interests and goals, it should be noted that the demands and relevance of research to achieve development impact would be center stage.

Figure 1. Distribution of votes over thematic (a left) and cross-cutting issues (b right).



5.1 Priority setting for thematic areas²

The tables below illustrate the above-mentioned voting results, contrasted with the qualitative ranking exercise of the working groups³. The detailed results of the working group discussions can be found in the workshop proceedings. In the qualitative ranking exercise, the groups were asked to consider:

- The potential impact of the research on development and poverty reduction for both the urban and rural poor;
- The time-scale for achieving impact, balancing priorities between long-term impacts, while also addressing short and medium term needs; and

² Green color indicates a good correspondence between the plenary vote and the group ranking; yellow for moderate correspondence and red for a quite different priority setting between the plenary vote and the qualitative group rank.

³ Such differences can be attributed to real differences between the groups view and the plenary view on priorities. However, other factors might also be responsible, such as time-constraints in the group work, different understanding of key-headings in the plenary voting, composition and size of the group.

- The target group or kind of farmers that would be benefiting most from the research, aiming to orientate research towards the resource poor farmers and smallholders.

The working groups presented their results, followed by a feedback session in plenary, where if needed additional issues were added to the groups work. It should be noted that this exercise aimed to provide a shared sense of direction in terms of priorities, rather than a scientific approach to ranking.

The tables below list the most important key-researchable issues for four thematic areas.

Table 4. Priority setting for key issues on food security and productivity

Food security and productivity	no. votes	group rank
1. Improve varieties to increase yield & cope with drought or other environmental stress (breeding technologies.)	37	1
2. Increase productivity for plant, animal and fisheries systems	23	2
3. Monitoring and management of plant and animal diseases	19	4
4. Conserve plant and animal genetics (gene banks)	16	5
5. Generation of alternative income for small farmers	15	3
6. Improve nutritional value of crop	13	6
7. International trade agreements and policies	11	8
8. Food security and vulnerability mapping	10	added
9. Position of agriculture in WANA region within the global context	6	7

The plenary discussion emphasized the following issues:

- Medicinal/aromatic and alternative food crops (e.g. algae) should be included under productivity increases;
- Regional dimensions of food security policy need to be better understood, hence food security and vulnerability mapping is necessary;
- Bridging the current yield gap is very important to ensure food security; and
- Plant breeding in order to adapt to droughts, salinity and other stressors is important.

Table 5. Priority setting for key issues on natural resources management

Natural resources management	no. votes	group rank
1. Preservation, conservation and utilization of biodiversity	45	1
2. Water management and optimization of water productivity	35	2
3. Preservation and use of soil, water, forestry and rangeland	24	4
4. Integrated management of plant-soil-water resources	21	3
5. Ecosystem services for environmental protection	18	5

The plenary discussion emphasized the following issues:

- The importance of water issue: water resources development e.g. through desalinization; water saving technologies and importance of crop choice and variety improvements;
- The focus on water quality as pollution of water bodies augments the scarcity situation and has high economic costs;
- The use of marginal lands and treated waste water needs further research;
- The focus should be on creating more value per drop for various climatic and physical conditions; optimization of water use to create highest value is a key-issue; and
- The recognition of virtual trade of water in this region and research is required regarding trade policies for crops.

Table 6. Priority setting for key issues on livestock and fisheries

Livestock, rangeland and fisheries	no. votes	group rank
1. Animal health and disease control	12	1
2. Conservation and utilization of animal genetic resources	11	9
3. Land property rights	11	10
4. Enhance feed base for livestock	9	2
5. Value addition (processing of dairy/poultry/fish)	9	3
6. Integrated crop and livestock systems	9	added
7. Range management and sustainable utilization	8	7
8. Improve productivity and production of fisheries	8	6
9. Development of native rangeland species (grass, shrub, trees)	8	8
10. Develop farmer and producer organizations	8	added
11. Animal nutrition	6	4
12. Improve productivity and production of livestock	6	5

The plenary discussion emphasized the following issues:

- Research into integrated crop-livestock system is missing;
- Aquatic production systems do not come through in the priorities, including inland and marine fisheries;
- Technologies for processing of dairy/poultry and fisheries products are important (are included in the issue “value addition”);
- Institutions and community based organizations are critical; and
- A general concern that this thematic group is neglected and under-represented in agricultural research.

Table 7. Priority setting for key issues on markets and value chain development

Markets and value chain development	no. votes	group rank
1. Geographic indicator system for (traditional) agri-food businesses	17	9
2. Comparative and competitive advantage analysis of regional products	16	1
3. Developing better post-harvest systems	14	4

Table 7. Priority setting for key issues on markets and value chain development (continued)

4. Food safety and tracing system	13	added
5. Innovation in marketing extension services	12	2
6. Market information systems and ICT	11	6
7. Agricultural market policies and regulation	7	5
8. Adding value processes on-farm	6	added
9. Improving access to markets for small farmers	5	3
10. Agro-enterprises and cooperatives	3	7
11. Establishing long-term relationships in supply-chain	0	8

The plenary discussion emphasized the following issues:

- Transparency on market information is a key-issue; more than just price information is required; potential of ICT technologies needs to be used;
- Constraints in market access need to be better understood;
- Post-harvest systems should research cold-chain issues and development of storage facilities;
- Adding value on-farm is another key-issue, e.g. through packaging;
- Food safety and hygiene improvement, as well as tracing systems need to be researched; and
- Potential of traditional food products needs to be investigated.

5.2 Priority setting for cross-cutting areas

The tables below list the most important key-researchable issues for four cross cutting areas.

Table 8. Priority setting for research management and capacity development

Research management and capacity development	no. votes	group rank
1. Align research with development needs; restructure research system towards development objectives	28	1
2. Support R&D at local, regional, global level with increased funding	28	2
3. Set-up incentive system for NARS to be attractive and creative centers and attract young scientists	22	6
4. Awareness on value of AR4D and innovation	16	3
5. Farmer engagement in setting agricultural research priorities	12	added
6. System for impact assessments of agriculture research	10	4
7. Network for regional centers of excellence	10	7
8. Improve agricultural education system	9	5

The plenary emphasized the following:

- More attention should be given to young scientist; many of them are marginalized and not given appropriate career perspectives; CGIAR should set an example and focus on young scientists for training programs;

- It was felt that publishing of research results (in scientific journals but also in other ways) did not feature clearly in the prioritized list; it is very important to revive scientific societies and create incentives for higher quality scientific outputs;
- Partners for agricultural research should not just be the ministry of Agriculture but also spread out to other ministries, such as ministry of Science and Technology;
- More funds are required or regional exchange; not doing so leads to scientific isolation with poor results; and
- Participants from the non-research community felt that the focus of the group was too inward-looking; the difficulties to satisfy both interests of scientific and non-scientific communities (policy, adoption by farmers) were discussed.

Table 9. Priority setting for key issues on poverty and socio-economic policy

Poverty and socio-economic policy	no. votes	group rank
1. Risk and vulnerability mapping and risk mitigation strategies	25	1
2. Food security and trade-policies	25	3
3. Role of women in agriculture	14	4
4. Social policies and safety nets	12	2
5. Opportunities and challenges for poverty reduction	11	8
6. Local governance and institutions targeting the poor	10	7
7. Promotion of agricultural growth	8	5
8. Conflict / post conflict resolution and reconstruction after emergencies	4	6

The plenary emphasized the following issues:

- Debate on the issue of land fragmentation and the huge social costs of land consolidation; research in South Asia and Latin America shows that smallholders achieve similar levels of productivity as large landholdings, however research has mostly been directed to the larger farmers;
- Debate on existing attitudes and bias of directing research towards larger, educated farmers, rather than smallholder focus; even larger farmers felt that research is not reaching them easily;
- Generally, smaller farmers are quite efficient in production, however this is not the case for post-harvest and marketing. Improvements in post-harvest and marketing will have positive spin-offs for non-farm income and employment. Although farmers do get their produce to the market, problems exist because of market “invasion” from large international producers, which relates to trade policies; these interactions need to be better understood and researched;
- The need of researching social capital and related indicators is not well addressed in the priority issues; and
- Regional collaboration is crucial; CAADP was mentioned as an example and FARA has a supportive role; WANA region could strengthen its existing organizations such as AARINENA; since WANA region, unlike Africa has

many poor which are NOT small holders, AARINENA's scope could be broadened to rural development, food security and non-farm income issues.

Table 10. Priority setting for key issues on climate change.

Climate change	no. votes	group rank*
1. Adaptation: salinity & drought tolerant crops, conservation agriculture	28	
2. Data management capabilities, analysis and climate modeling	25	
3. Impact assessments of climate change	17	
4. Climate forecasts, early warning, land use planning and hazard zoning	15	
5. Advocacy on importance of CC to policy makers and politicians	12	
6. Use of local community-based knowledge in adaptation	10	
7. Develop climate change policies and sector action plans	10	
8. Energy efficiency in agricultural production and use of renewable energy	6	
9. Risk management and developing options for increased resilience	4	
10. Promote carbon sequestration	4	
11. Feasibility and opportunities for non-food bio-fuels	2	
12. Collective action of farmers to achieve scale to access carbon credits	1	

No ranking exercise done in the group.

The plenary emphasized the following issues:

- The role of extension did not come through very strongly in the prioritized list, while this is actually the weakest point in the chain towards scaling-up;
- It was mentioned that the extension system has not well understood the issues around using opinion leaders to facilitate quick adoption of new technologies and the role of ICT to support the scaling-up of innovations; the role of the private sector and of farmer organizations in scaling-up needs to be more appreciated;
- Recognizing that organizing farmers is crucial, more research is required into legislation and framework conditions which are required;
- Research is needed to understand the incentive systems for farmers to adopt new technologies; and
- Adoption of new practices and technologies will only work if extension and research communities are able to communicate in a language that farmers understand and triggers behavior change; field days and simple farmer-to-farmer meetings were suggested.

Table 11. Priority setting for dissemination, knowledge management and scaling-up

Dissemination, knowledge management and scaling-up	no. votes	group rank*
1. National/regional networks on knowledge sharing and exchange	20	
2. Improve availability & accessibility of information (incl. publications)	19	
3. M&E to ensure learning and better knowledge sharing	15	
4. Use farmers, opinion leaders, private sector, etc. in scaling-up	15	
5. Advocacy for policy support for technology transfer and dissemination	13	
6. Revitalize and develop new models for extension service	7	

* No ranking exercise done in the group.

The plenary emphasized the following:

- A suggestion was made if a separate Climate Change center under CGIAR would be an appropriate solution to ensure linkages and inter-disciplinary research;
- Capacity development on climate change issues is very important. There are not yet many education programs in the WANA region that offer inter-disciplinary graduate programs on climate change; linking existing departments in a center could be a possible way rather than creating new departments;
- The agricultural dimensions of climate change (both adaptation and mitigation) need to be covered well in the future MPs. For WANA region this issue would deserve more than 7% of total research funding due to its high vulnerability;
- Adaptation research should have priority over mitigation, since WANA region is a low per capita emitter of GHG;
- Debate over the need to prioritize climate modeling and data-collection for the region; although it might not be an immediate need, it is crucial to start with building capacity for modeling; regional climate models are required to carry out impact assessments, which form a basis for planned adaptation;
- Farmer and producer organizations are not sufficiently involved in the emerging climate debate in the region. At global level IFAP is lobbying for more involvement;
- Virtual climate centers and networks were proposed to stimulate learning and exchange on climate change issues; and
- Unlike forestry, agriculture is not featuring strongly on the international stage, especially on the mitigation side. There is huge potential for agriculture to contribute to GHG reductions, e.g. through conservation farming and soil management techniques. However it would require around 250,000 smallholders to cooperate to achieve a relevant scale and to the benefit from carbon credits. How to organize and implement such collective action needs to be a key-researchable issue.

6. Constraints and solutions in current AR4D

6.1 Constraints

In terms of existing constraints in the research systems, the groups identified similar barriers and hindering factors to achieve development impact:

- Mistrust between farmers and extension workers and researchers;
- Different “languages” and worldviews of stakeholders;
- Communication is poor, not enough attention is paid to communication issues;
- Institutional weaknesses of many organizations;
- Coordination capacity is weak (national, regional, global);

- Funding and human resources are not at all sufficient, especially on national level;
- Lack of infrastructure and logistical capacity on national level;
- Low public awareness about importance of AR4D;
- Incentive systems are not geared towards collaboration and development impact;
- Too much focus on scientific publications, rather than development impact;
- Policy makers and politicians are not on board; and
- Individualism and illiteracy of farmers.

6.2 Solutions and innovative partnerships

Although it was found “easy” to diagnose the obstacles, it appeared to be much harder to think out of the box and come-up with innovative mechanisms and partnerships to reform the way agricultural research is carried out to ensure development impact at scale. The following measures were proposed:

- Public awareness campaigns are required on all fronts;
- Make an evidence-based case to politicians and policy makers;
- Invest in communicating results and impacts and crossing barriers between farmers, researchers, policy makers and others;
- Redefine extension and find new models including use of new technologies;
- Attract private sector funds and use Corporate Social Responsibility agenda;
- Participatory approach to be applied in all AR4D;
- Capacity development on all levels, tailored to needs of different groups;
- Building national alliances to convince policy makers;
- Use (social) networking for scaling-up; and
- Organize farmers, CBOs, WUAs, producer groups, etc. involve them in all aspects of AR4D.

In terms of new partnerships and mechanisms the working groups came up with the following innovative ideas:

- *Really* work more with farmers and grass-root organizations;
- Identify opinion leaders, tribal leaders to facilitate scaling-up and adoption of results;
- Work more with women and their (in)formal networks;
- Work together with policy makers, go beyond the Ministry of Agriculture;
- Tap experience from new-media firms, Public Relations advisors, ICT firms;
- Explore public-private partnerships and corporations interested in CSR;
- Use and mobilize public figures and celebrities as champions;
- Revitalize relationships with existing research and extension partners;
- Strengthen AARINEA as a regional platform.

7. Key-messages to GCARD 2010

On finance:

- The WANA region should be given adequate funding for research and development; scaling up funding for applied research is urgently required, especially at national level.

On priorities and focus:

- Climate change is crucial for the WANA region; WANA needs an above average share of the global MP on climate change and agriculture;
- Emphasis on the resource-poor people in *both* urban and rural communities, with special attention to smallholders and resource-poor farmers;
- Priority research on water, natural resources management and food security; and
- Facilitate technology transfer in adaptation to climate change impacts.

On capacity building and regional cooperation

- More cooperation is necessary between developed countries and the WANA region for capacity development in participatory research and extension;
- Support and strengthen AARINENA and intensify links with GFAR process; and
- Implementation of Mega Programs needs ICARDA as a strong focal point for CGIAR in the WANA region.

On policy and scaling up impact

- Emphasize agricultural sector in national development and poverty reduction strategies and policies;
- Work with new partners for scaling-up impact; and
- Explore new technologies for scaling-up.