Young Professionals' Platform for Agricultural Research for Development

Working towards a new generation of Young Professionals in ARD

Final report

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Cover Page:

Students in Uganda are learning in the greenhouse: an authentic way of learning close to an actual work situation.

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Abbreviations

ACP	African, Caribbean and Pacific
AfDB	African Development Bank
AR	Agricultural Research
ARD	Agricultural Research for Development
AR4D	Agricultural Research for Development
ARDYIS	Agriculture, Rural Development and Youth in the Information Society
ASARECA	Association for Strengthening Agricultural Research in East and Central Africa
CSO	Civil Society Organisation
CSR	Corporate Social Responsibility
EIARD	European Initiative for Agricultural Research for Development
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GCHERA	Global Consortium of Higher Education and Research for Agriculture
GFAR	Global Forum on Agricultural Research
HR	Human Resource
IAAS	International Association of Agricultural Students
ICT	Information and Communication Technology
IPR	Intellectual Property Rights
M&E	Monitoring and Evaluation
NGO	Non- Governmental Organisation
RUFORUM	Regional Universities Forum for Capacity Building in Agriculture
ToR	Terms of Reference
YPARD	Young Professionals' Platform for Agricultural Research for Development

Summary

The Young Professionals' Platform in Agricultural Research for Development (**YPARD**) wishes to contribute to the debate on change in formal higher agricultural education with the views of young professionals and has hired two consultants to carry out a study entitled **"Working towards a new generation of Young Professionals in ARD"**.

The views of young professionals have not previously been included in discussions on curricula development. This is the niche of this study. The study activities includes a brief literature review; a questionnaire targeting primarily young professionals to get their views; an analysis of results and comparison with information available in the literature; a gathering of comments directly from young professionals in the form of short stories and finally preparing this report including a Key Message Brief aiming at emphasising key elements emerging from this study and upon which YPARD could build in follow up actions.

Within the limitations of this study, **no major differences between specific countries or regions** in their perception of ARD curricula were found. The study showed that **Research and Communication are the two most important Competence groups.** Some specific competencies within these groups were valued very highly and should be of special interest for curriculum developers. For Research competencies, **Analytical skills, Research Methodology and Proposal Writing skills** were ranked as most important, and for Communication competencies the skills were ranked in order of importance as **Use of the Internet, Scientific Writing and Oral presentation skills.** In the Business and Economic competence group, **Entrepreneurship skills** were considered to be very important. In terms of general higher education experience, this study indicates that it is very important to **develop language abilities** and **gain experience from on-the-job training** possibly through internships.

In general, there are **minor differences between the perceptions of young professionals and employers** on the needs for ARD curricula. However, the stories gathered show that there certainly is **a very serious gap between what is taught and the actual needs** of young professionals entering into a career in ARD.

The team wishes to point towards three main areas of further work: **Linking up with relevant actors** including YPARD establishing a "Curriculum Development Working Group" to unite and mobile relevant actors; **dissemination of relevant information** to ensure that the observations and results of this study are shared broadly with relevant actors and **further activities** for immediate initiation of a revision of curricula. It is widely accepted that curriculum development is only one aspect of changes that need to bring higher agricultural education more in line with current needs. In addition, to the urgent need for revision of curricula, aspects such as overcrowded classrooms; lack of placement for internships; transport problems for field trips and lack of access to information including library facilities should also be addressed. National Governments and international donors should take responsibility for overcoming those shortcomings.

1. Introduction

The Young Professionals' Platform in Agricultural Research for Development (**YPARD**) wishes to contribute to the debate on change in formal higher agricultural education with the views of young professionals and has hired two consultants to carry out a study entitled **"Working towards a new generation of Young Professionals in ARD"**. The results of the study will be used to support the discussion about the changes needed for curricula development that will enable young professionals to acquire skills that are relevant to perceived future needs within the ARD sector. The team is supported by the Coordinator of YPARD.

The main output of the study is this report. The study is described in this report and conclusions and recommendations are presented. Various annexes with information about references and results from the questionnaire are included in order to increase the degree of availability of information and outputs from the study.

Agriculture has changed in recent years and Agricultural Research for Development (ARD) is, in turn, adapting to reflect these changes; it has become multi-dimensional and has converged with Agricultural Research (AR) in the global issues that it addresses. Whilst AR is driven by scientific relevance, ARD is driven more by development relevance for low income countries especially, but also countries with emerging economies. However, development issues are slowly being integrated into the global AR agenda. The Millennium Development Goals are being integrated into both the AR and the ARD agendas. Curricula development must also reflect these changes.

At the same time agricultural research is a key element of the "Agricultural Knowledge System" and together with Education and Innovation creates the "Knowledge Triangle"[2] in the area of agriculture and related sectors. One of the seven flagship initiatives is "Youth on the move", although this initiative is primarily focused on youth in Europe. Beyond Europe several other strategies are in place to improve agricultural research as part of strategies for growth and food security. The objective for the African Development Bank's (AfDB) Education Sector and 'Higher Educations, Science and Technology', for example, is *"to assist Regional Member Countries in developing the necessary science and technology oriented skills to increase economic competitiveness and sustain growth".*

However, literature and experience point to universities producing graduates that are not in possession of the necessary competencies and skills required for the wide range of career opportunities that exist today in the broad agricultural sector. A revised set of skills is needed to address new challenges in agriculture. The 'new professional' should, for example, be better able to work across different disciplines and in partnership with different stakeholders. Current university curricula do not meet these needs.

[2] *The Knowledge System & the Knowledge Triangle are key concepts of the EU 2000 and 2005 Lisbon Agenda which "aim is to make the EU the most dynamic and competitive knowledge-based economy in the world promoting growth and jobs in a manner that is fully consistent with the objective of sustainable development".*

The need to produce graduates with a new set of competencies is not disputed; however, young professionals are rarely consulted in curricula improvement. Whilst several studies have been carried out targeting the views of academia and of the agricultural industry in broad terms, the views of young professionals have not been studied to any great extent.

The GCARD Road Map (*GFAR, 2011*) points to the importance of young people themselves expressing what changes are needed in agricultural education and the incentives needed to make careers more attractive and valued and better recognize the range of roles now required in AR4D.

Young professionals' perception of the competencies and skills to be better equipped to enter into a career in ARD need to be compiled as these would provide an added dimension to the current debate on curriculum development. This is the niche of this study which became much clearer as a result of the literature review. Gathering the views of young professionals is the focus in this study and the value the study can add to the debate on change in formal higher agricultural education.

Profiles

Some studies have attempted to describe a profile for a young graduate in a certain country or discipline, but not a worldwide study for graduates within the ARD sector specifically. As ARD is such a broad field and profiles need to be fairly specific, there seems little value in making general ARD profiles.

Activities in this study

The study was divided into various activities and tasks. The methodology used is described in **chapter 2**.

A ***fact-finding phase*** aimed at obtaining insight into the current situation and predictions of job profiles, by collecting and reviewing literature in order to find gaps in ARD profiles for young professionals. Literature collected was reviewed and results presented in **chapter 3** with a supporting literature list presented at the end of the report.

The data generated by responses to a ***questionnaire*** **(see Annex 1)** was analysed. Respondents are described in **chapter 4** and the main results summarised in **chapter 5**.

A **Discussion** of results is presented in **chapter 6** and **Conclusions and Recommendations** presented in **chapter 7**.

Respondents to the questionnaire were invited to write a very ***short story*** to address the questions that might demonstrate the views of young professionals. These resulting stories are presented in **Annex 4**.

In **Annex 5** a short **Key Message Brief** is included upon which it is the intention that YPARD may build for further work.

In **Annex 6**, **Comments and reflections on the Terms of Reference** as well as a few limitations to this study are mentioned.

Definitions used in this study

Several attempts have been made to define **Young Professionals**. Some studies have related the definition of youth to age. Generally it would seem prudent to use the term to mean young people with less than 5 years' experience within their respective field without limiting the definition to age. However, YPARD generally refers to Young Professionals as being under 40 years of age knowing that there are some limitations. As this has been a YPARD study with contact to YPARD members it has been practical in this study to use the YPARD standard. Undergraduate and post-graduate students are included, but high school students excluded.

This study deals with **higher agricultural education** which is defined to include all tertiary level agricultural education at B.Sc.; M.Sc., and Ph.D. levels or comparable degrees. It, thus, embraces education at universities, colleges or departments of agriculture at more general universities and other institutions that issue various forms of degrees or diplomas. It also includes both traditional and distance learning programs as well as courses and programs of various lengths. This is not, however, to reduce the importance of primary, secondary and vocational education within agriculture, but necessary in order to maintain a focus for this assignment.

Professionals: To YPARD this is someone who is serious about the field of agriculture and who wants to make a career in this field.

Agriculture is used in the broad sense of the word covering a very wide range of sub-sectors including crop production, animal husbandry, agro-forestry, fisheries and aquaculture, food, agribusiness and related enterprises, as well as the sustainable management of the natural resources on which farming depends, the animal and human health related issues, and the socio-cultural and bio-diverse landscapes, food systems and ecologies in which it is embedded (*definition from the EIARD Strategy*).

Competence is used in this report as the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development.

Skills mean the ability to apply knowledge and use know-how to complete tasks and solve problems. Skills can be described as cognitive, involving the use of logical, intuitive and creative thinking, or practical, involving manual dexterity and the use of methods, materials, tools and instruments.[3]

[3] http://europa.eu/legislation_summaries/education_training_youth/vocational_training/c11104_en.htm#KEY

2. Methodology for the study

The study was divided into a ***fact-finding phase*** followed by a ***questionnaire phase*** aimed at gathering data. After the ensuing ***analytical phase*** including statistical analysis, the ***reporting phase*** completed the study.

Fact-finding phase

The literature study was conducted to become more familiar with the subject matter and to find relevant studies to compare the outcomes from this study with similar work. A "Literature List" was compiled and submitted to the YPARD Steering Committee along with the team's "Notes from the Literature Review". Whilst this was basically an internal working document, it was felt that the information should be made more widely available in this report and is attached at the end of the report.

Early in the project, at the end of June 2011, the YPARD Coordinator and the Team Leader participated actively in the Conference held by the Global Consortium of Higher Education and Research for Agriculture (GCHERA) in Beauvais near Paris. A paper was presented and various discussions were held. This provided a chance to meet relevant persons who had undertaken related studies and make a broad group of people aware of the study and extend the knowledge about YPARD itself.

Questionnaire phase

In order to generate data it was decided to run a digital questionnaire. A "Test phase" for a small group of active YPARD members was used as a basis for testing the draft questionnaire prior to sending it to a broad range of YPARD members in a so-called "Quantitative phase". An online tool - "NETQuestionnaires" - was used for the questionnaire. In addition, a statistician was commissioned in order to test the validity of the responses and provide guidance on interpretation of the results. All statistical tests were carried out using the software called "R" version 2.14. R is a free software environment for statistical computing and graphics.

The questionnaire was divided into a section describing the respondent (questions 1-13) and a section with the "actual" questions (questions 14-23). Questions 24 and 25 provided information about employers which they felt might be relevant to this study and about the respondents' e-mail address for contact. Respondents were further asked to answer questions 14 – 23 both "At present" and "In 5 years' time and beyond" with a view to investigating possible differences in the respondents' perception of the situation now and the situation they expect in the future. A copy of the Questionnaire is included in Annex 1.

Test phase

The draft questionnaire was sent directly to 21 active YPARD members selected by the YPARD Coordinator; 8 of them responded by completing the questionnaire, including adding relevant contacts and providing general feedback on the questionnaire. As a result of this test phase, the questionnaire was slightly adapted. Although only about 40% responded in this phase, it is not felt that a larger response would have increased the value in terms of improvement of the questionnaire.

Quantitative phase
The questionnaire was sent to 1829 YPARD members and forwarded to the IAAS and RUFORUM Network. The survey targeted young professionals (under 40 – see definition in chapter 1) with at least a B.Sc. or equivalent diploma who are studying or working on the subject of ARD. The team initially received 172 responses, which were reviewed in order to identify mistakes. Responses with only a start number (9 entries) and responses with only a description of the respondent (35 entries) were of no value and were deleted. In addition, 14 entries by persons who were born before 1970 were deleted as they did not fit the target group of "young" professionals. The final number of useable responses was 140.

Out of those data sets, specific countries were selected for further analysis: India, Kenya, Sub-Saharan Africa, Nigeria and 'the West' (Europe, Australia and North America).

Quantitative phase - employers
Besides researching the ideas of young professionals, an analysis of the perception of employers was also proposed, in order to see whether there are significant differences between the two groups. The steering committee agreed and extra resources were granted for each of the consultants to carry out this additional part to the study.

The employers mentioned by the young professional respondents were contacted to complete a slightly adapted version of the questionnaire. This was done to be able to compare the perspectives of young professionals versus employers. The team received 16 responses. Two included errors so 14 were useable. The hypothesis of an employers' questionnaire was that this group has a different view on the needs of the labour market compared with the views of recently-graduated young professionals.

Analysis phase

Comparisons of responses among all respondents
The questions considered were numbers 14 to 18 – five questions. In addition, due to the nature of the way they were organised, questions 19 to 23 were regarded as one question with 5 answers. All questions included "required fields" for answers for two situations: "At present" and "In 5 years' time and beyond". Thus, a total of (5+1)*2 = 12 questions were included in the analyses. For each question, the zero hypothesis was that the answers were random, i.e. that there are no patterns to the answers. This was tested with a Kruskal-Wallis test ($\alpha=0.05$).

In the cases where patterns were detected, subsequent tests comparing all answers pair-wise were carried out. Each of these tests would be significant, if the scoring of the two answers compared were different. A Wilcoxon test was applied for each of these pair-wise comparisons with a Bonferroni correction of the significance level to adjust for the many comparisons, $\alpha=0.05/n/(n+1)*2$, where n is the number of answers to the question (i.e. $n=9$ for pair-wise comparisons for question 14 which asked about nine competencies).

Comparisons of responses between regions
The 140 respondents were divided into 5 groups: India (16), Kenya (14), Nigeria (12), Europe, Australia and North America (29) and Others (69). For each answer it was tested whether the scores differed among the regions. Thus, the total number of tests was n = 9+6+5+6+5+5 = 36 i.e. the numbers of answers for each of the six questions. A Wilcoxon test was applied for each with a Bonferroni-corrected α=0.05/36=0.0014. The whole procedure was carried out twice, once for the "At present" group and once for the "In 5 years' time and beyond" group.

Reporting phase

The primary aim of the reporting phase was to report on the results and analysis of the questionnaire and provide some conclusions and recommendation that YPARD may use in the continued work in contributing to the debate on curriculum development. It was also considered important that as much information as possible is made available for YPARD and, therefore, this information is included in various annexes to the report. Annex 4 is specially mentioned below and is a result of part of the amended activities of this study.

Story-telling
It was decided to invite the respondents to the questionnaire to write a very ***short story,*** in order to give the study a more personal flavour and provide more qualitative information, in addition to the quantitative information. They were asked to address the following questions:

1. Which **competencies that you use in your current job were not covered by your education**? *(*Briefly give an example of the job you are doing and why you need these particular competencies.)
2. Which **changes are needed to enable ARD higher education institutions to meet the competencies needed on the labour market**?
3. How do you think **curricula** should become **more relevant and of greater interest to young people today**?

Please, tell us more if you think it is relevant to this study!

The responses are presented in Annex 4, and several quotes have been used at relevant places in the text of the report.

3. Results of Literature Review

In the literature there is evidence that curricula do not live up to the needs of the labour market at present and there is a need for change. In addition, the voice of young professionals has not been heard when developing curricula for ARD related education.

Urutyan & Litzenberg, 2010, noted that *"It is widely recognized that academia must prepare students for the job market as well as providing a general education".* However, curriculum development must not be carried out by academics alone. This YPARD study targets a stakeholder group – young professionals - to specifically elicit their own views. Young professionals are generally not targeted in the literature and certainly not in survey work. Advantages of including young professionals' perceptions, is that they can be enthusiastic, open and frank, at ease with change and complexity, often have good computer literacy, build collaboration and partnerships and tend to reject traditional hierarchical and inter-institutional relationships (*Kruijssen, 2009*).

One of the strategic elements of the GCARD Road Map (*GFAR, 2011*) that is viewed as essential for a well-functioning AR4D system is the development of institutional capacities for generation, access and effective use of agricultural knowledge in development. The Road Map points to better career incentives, including financial reward systems, infrastructure/facilities and societal worth need to be provided to attract the best talent at all levels and to retain trained researchers and advisers. Furthermore, it points to the importance of young professionals identifying what changes are needed in agricultural education to satisfy the needs of the labour market.

There is generally poor feedback from industry to curricula developers regarding current needs and trends. In most countries, there are weak linkages between educational institutions and the labour market: involvement of employers in defining the learning contents and quality standards are very limited (*Urutyan & Litzenberg, 2010; Blackie et al, 2009; Maredia, 2007*).

Mulder et al (2011) show good practices in developing labour market responsive curricula for B.Sc. horticulture in Ethiopia and a certificate and diploma course for floriculture in Uganda. Data was collected about labour market needs, tasks of workers, labour market entry of graduates, the perceptions of the various stakeholders with the training programs, the workplace learning component and its effects, and the sustainability of the workplace learning approach. Curricula of those three educational institutions were developed and implemented based on labour market research and task analysis.

A previous study, which focuses on Armenia, (*Urutyan & Litzenberg, 2010*) ranked skills needed in agribusiness using 78 parameters grouped in 7 categories. The study quantifies the agribusiness industry preferences for agribusiness education and identifies the skills, capabilities and experiences that food and agribusiness companies in Armenia look for in their new employees with the potential to become future leaders in their firms.

Figures in parenthesis in the list below indicate the ranking in this study.

- Interpersonal skills (1)
- Communication skills (2)
- General Higher Education experience (3)
- Business & Economic (4)
- Employment & work experience (5)
- Computer skills (6)
- Technical skills (7)

In this study, results were grouped into categories of firm types, but did not include research institutions. They also gathered information such as number of employees; number of years employed; volume of sales of the firm; level of higher education; gender; age etc.

A study by Blackie, Mutema and Ward, 2009, evaluated the demand for agricultural graduates in Kenya, Tanzania, Rwanda, Ethiopia, Malawi and Mozambique. In those countries, employment opportunities have shifted from public agencies to civil society and the private sector. Public sector employment is declining; growth areas are in civil society and, to a lesser extent, the private sector and NGOs. At the same time, self-employment is rare with the exception of farming. The new job profiles needed have implications for curricula development and priority setting. An example of good practice is the Stakeholders' Teaching Quality Validation Initiative at ISAE in Rwanda that allows stakeholders to validate the quality of its programmes through annual Stakeholders' Consultative Workshops (*Blackie et al, 2009*). Chakeredza et al. (2008) notes that the prime movers for sustainable agricultural production include availability of improved technologies, human capital, sustainable growth of biological and natural resource capital, improvement in performance of supporting institutions and favourable economic policy environment. Central to making these components operational is the production of suitable graduates, who are:

- Technologically competent and relevant;
- Equipped with the necessary "soft skills" and business skills; and,
- Able to work with local and especially rural communities.

The "*Agriculture, Rural Development and Youth in the Information Society*" (ARDYIS) brought together a group of young professionals from 18 African, Caribbean and Pacific countries in Ghana in March 2011 and developed a communiqué: "A Call for Stronger Support for Youth Involvement in Agriculture and ICT in which they recommended *"A thorough revision of curricula used across the ACP group of countries. This MUST reflect the dynamism of the agricultural sector by including courses and modules that equip students with the skills to write and implement business plans, appreciate, utilize and develop ICT tools." (ARDYIS, 2011)*

It is clear from the literature that curriculum development is only one aspect of changes that need to bring Higher Agricultural Education more in line with current needs. Others aspects include addressing the problems of overcrowded classrooms, a lack of placements for internships, transport problems for field trips and a lack of access to information including library facilities etc. (*Blackie et al, 2009*). However, covering these aspects was beyond the scope of this YPARD study.

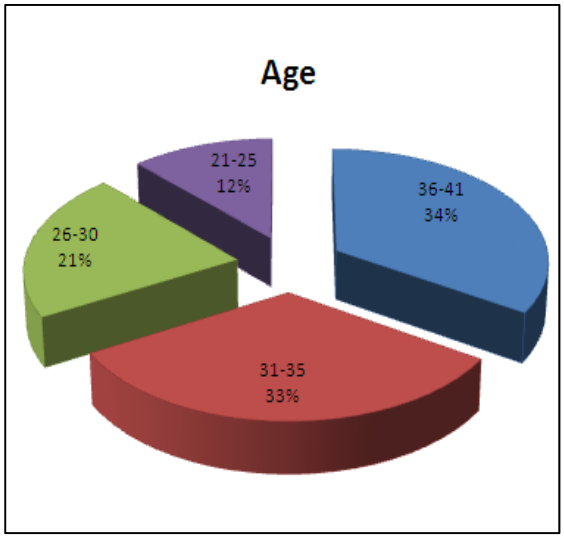
4. Description of respondents to questionnaire

Useable responses were gathered from 140 respondents, who were required to have at least a bachelor's degree in a subject related to ARD. The questionnaire was circulated to members of YPARD, IAAS and RUFORUM born between 1970 and 1990 which makes them a "young professional" in ARD, see definitions in chapter 1.

In this chapter the respondents are described - primarily visually – using the following seven parameters:

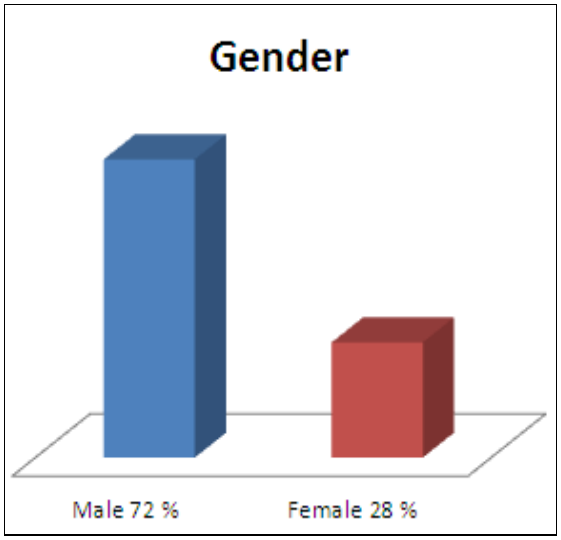
- Age
- Gender
- Country of Residence
- Highest Level of Education
- Years since Completion of Highest Level of Education
- % of people studying at present
- Employed by Sector

Age



There were no respondents born after 1990. This is not very surprising as respondents had to have at least a B.Sc. and, thereby, presumably be at least 22 years of age.

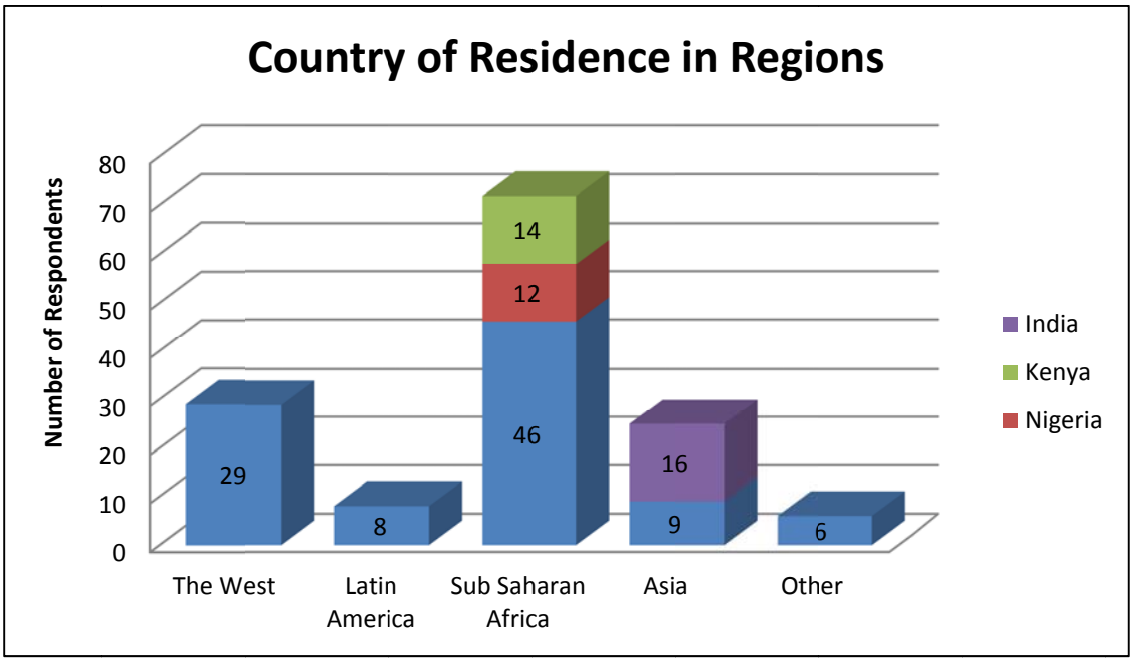
Gender



The gender division is unequal with a majority of respondents being male. This may reflect the reality of ARD which is usually considered a male dominated sector, especially in developing countries. In addition, this gender division may also reflect the gender division of YPARD members.

Country of Residence in Regions

The majority of the respondents (72) come from Sub-Saharan Africa, especially from Kenya (14) and Nigeria (12); second is Asia (25), with a majority coming from India (16). Please see Annex 7 for the grouping of countries in regions.

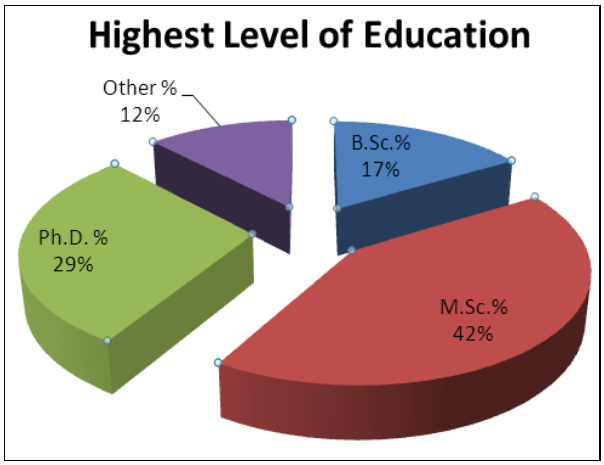


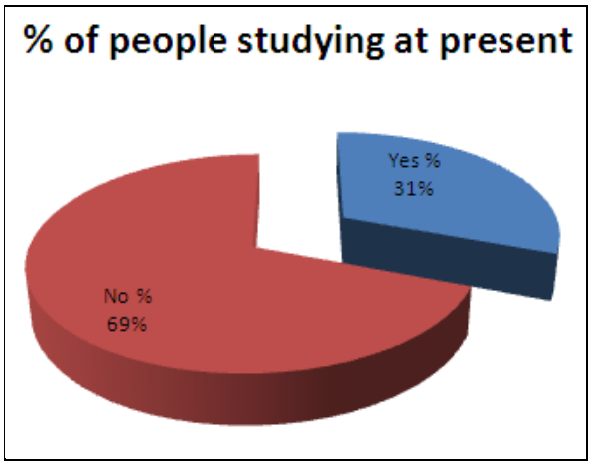
Highest Level of Education

The majority of the respondents hold a M.Sc. degree (42%), whereas a significant number has a Ph.D. (29%) and a smaller group hold a B.Sc. (16%). Those with other degrees or postgraduate certificates (12%) may be in the process of studying for a higher level education such as M.Sc. or Ph.D.

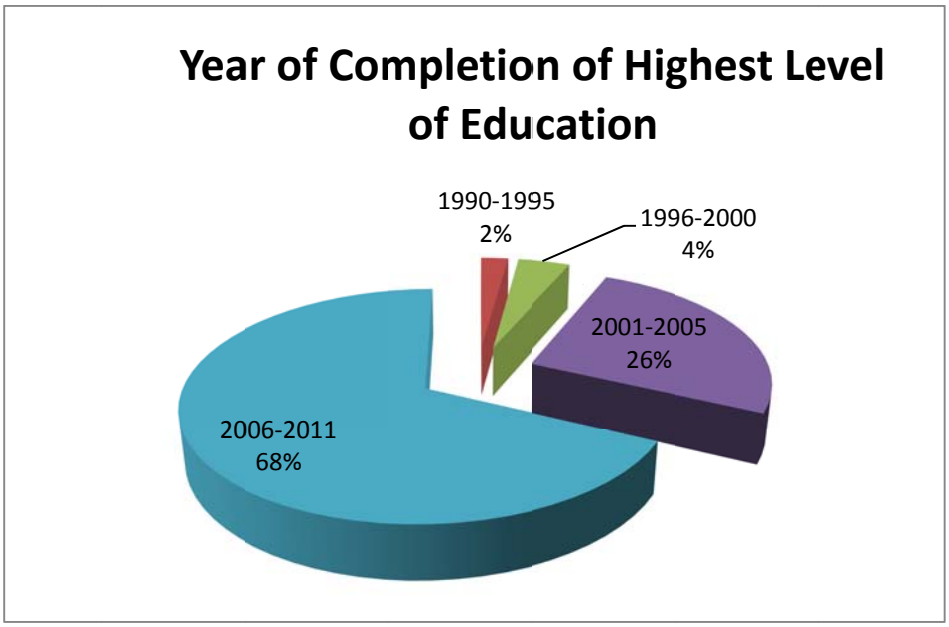
Respondents studying at present

Nearly one third of the respondents indicated that they are studying at present. Some are studying for a second degree.



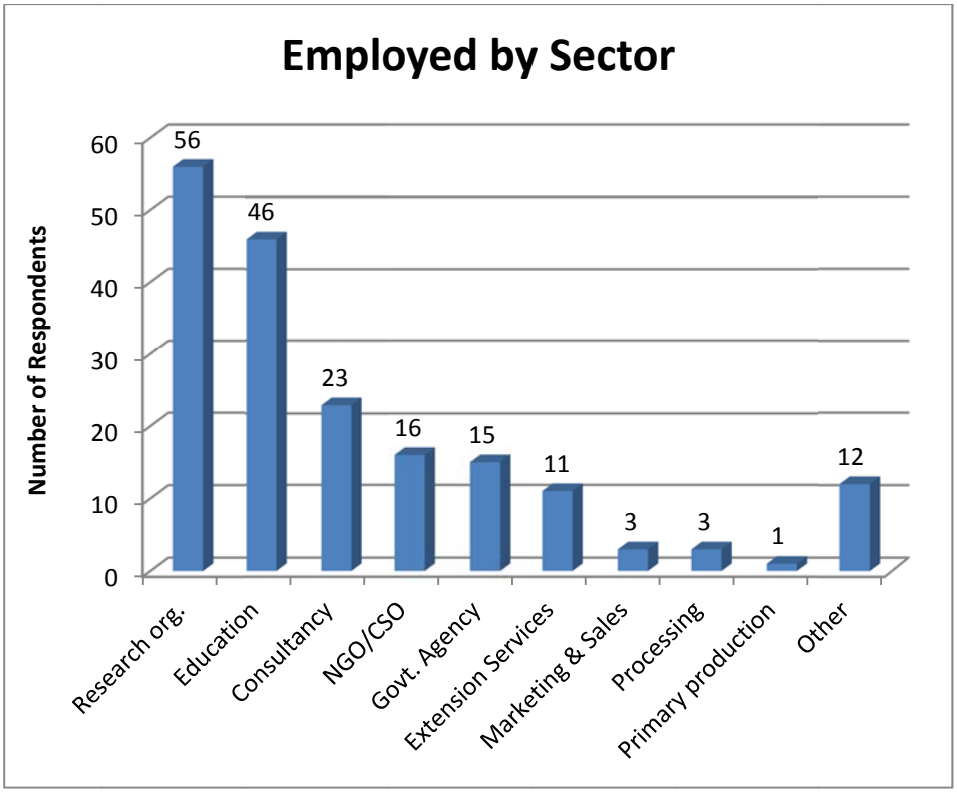


Year of Completion of Highest Level of Education



The majority of respondents (68%) graduated in the last 5 years, whereas one quarter (26%) graduated between 2001 and 2005.

Employment by Sector



The respondents work predominantly in Research (40) and Education (30). Some respondents indicated that their work covers more than one sector.

5. Results and Statistical analysis of questionnaire responses

In this chapter the main observations about the results of the questionnaire are presented in a summarised form. A full overview of results from the questionnaire is presented in **Annex 2** including results from young professionals as well as employers, both for the "At present" group and for the "In 5 years' time and beyond" group.

For all 6 questions in the "At present" group and in the "In 5 years' time and beyond" group" there were differences among the scores ($P < 0.001$ for all 12 Kruskal-Wallis test). Further analysis was made for the five country/region groups: India; Kenya; Nigeria; "Western" countries (Europe, Australia and North America) and "Other".

"At present" and "In 5 years' time and beyond"
In general, little difference was registered between the "At present" and the "In 5 years' time and beyond" groups and between the five country/region groups. Exceptions are mentioned in the relevant sections below.

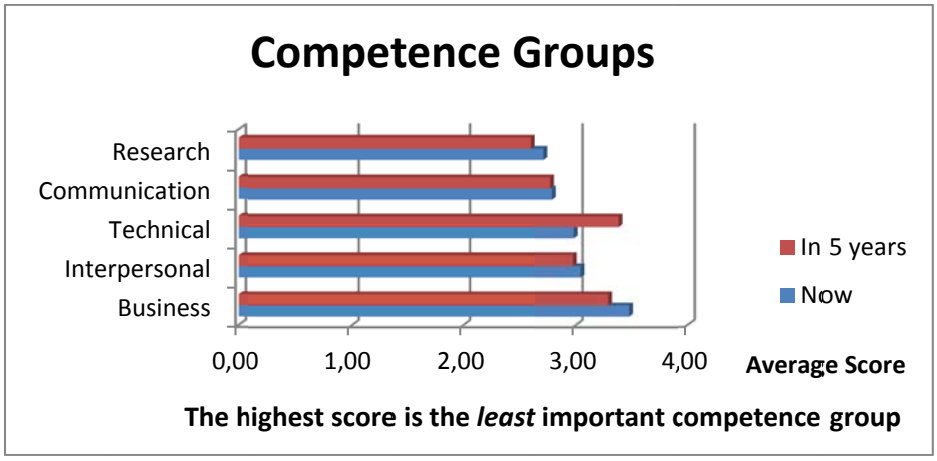
Competence Groups
This question covers a range of groups of five competencies: Interpersonal, Communication, Research, Business and Technical.

Communication and Research skills are considered more important than Business skills at present. In 5 years' time Communication and Research skills are also perceived as being more important than Technical skills.

Interestingly enough, Business skills are rated more important by young professionals than by employers, both now and in 5 years' time, perhaps indicating that they really feel inadequately trained in these skills.

At present, respondents from "Western" countries perceived Technical skills as being significantly less important (3.88 out of 5.00 – 5 being least important) than as perceived by "Other" respondents (3.25).

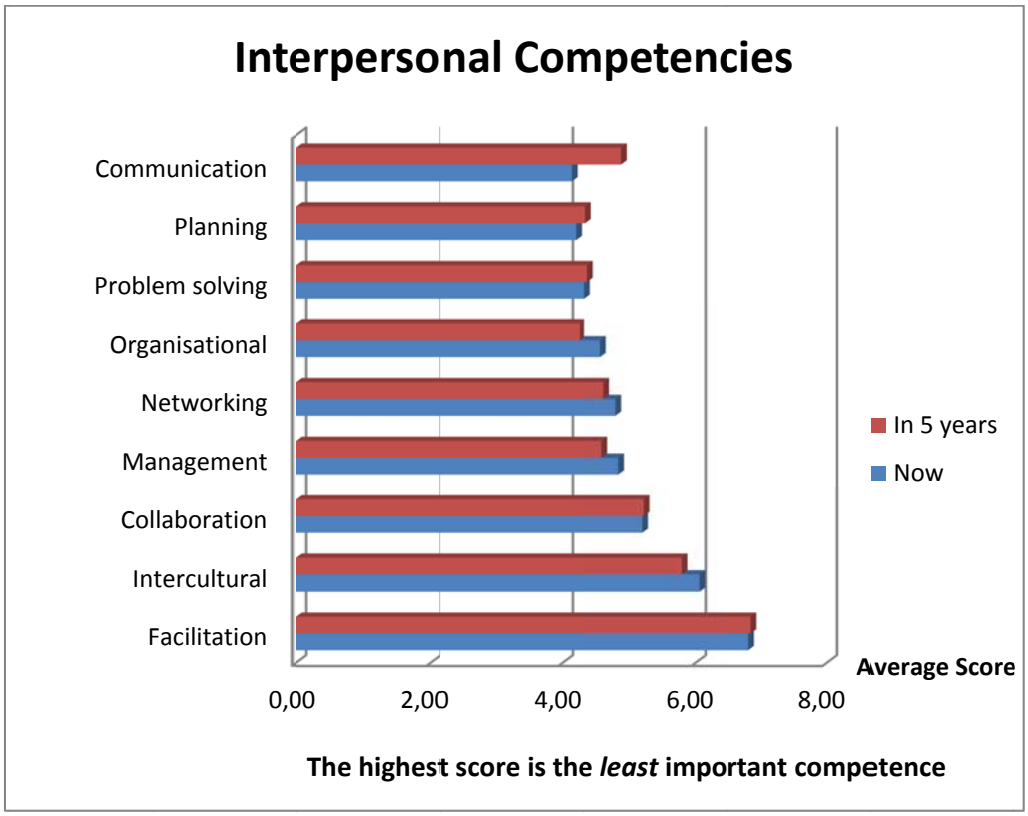
Interpersonal skills were, perhaps somewhat surprisingly, not ranked significantly different than other competence groups.



Interpersonal Competencies
This question covers nine skills: Management, Organisational, Networking, Collaboration, Intercultural, Planning, Problem Solving, Communication and Facilitation.

Facilitation skills were not highly valued. This is especially the case for "Western" countries (Europe, North America and Australia), where it was valued with an average ranking of 8.00 out of 9.00 – 9 being the least important - versus a score of 6.51 for the "Other" respondents.

At present, Organisational skills are perceived as being considerably more important by young professionals than by employers. Employers perceive Networking as becoming more important in 5 years' time and somewhat more important than as perceived by young professionals.

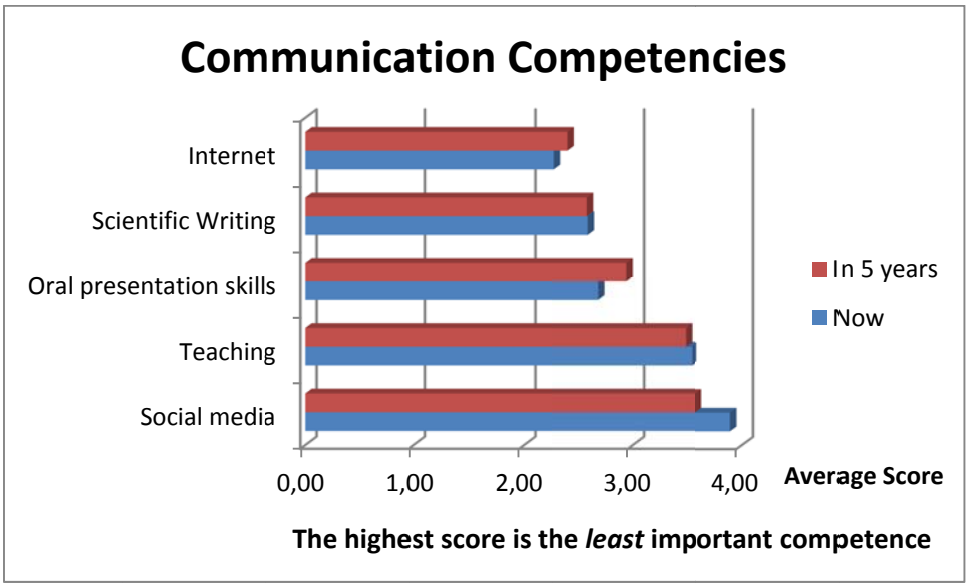


Communication Competencies
This question covers five skills: Internet, Teaching, Scientific Writing, Oral Presentation skills and Social Media.

For young professionals, Social Media and Teaching are less important than Internet skills, Oral Presentation skills and Scientific Writing.

Employers, however, do value Social Media skills in 5 years' time, ranking it number 2. However, it is likely that training in the use of Social Media and even use of the Internet is not part of curricula, but something that is "just" learnt outside the education system as needed. Nevertheless these skills could be built into parts of curricula.

At present, Teaching was valued as significantly less important by respondents from "Western" countries (4.17 out of 5.00 – 5 being least important) versus "Other" respondents (3.37). Oral Presentation skills are considered less important by respondents from Sub Saharan Africa (2.93) compared with "Other" respondents (2.44).

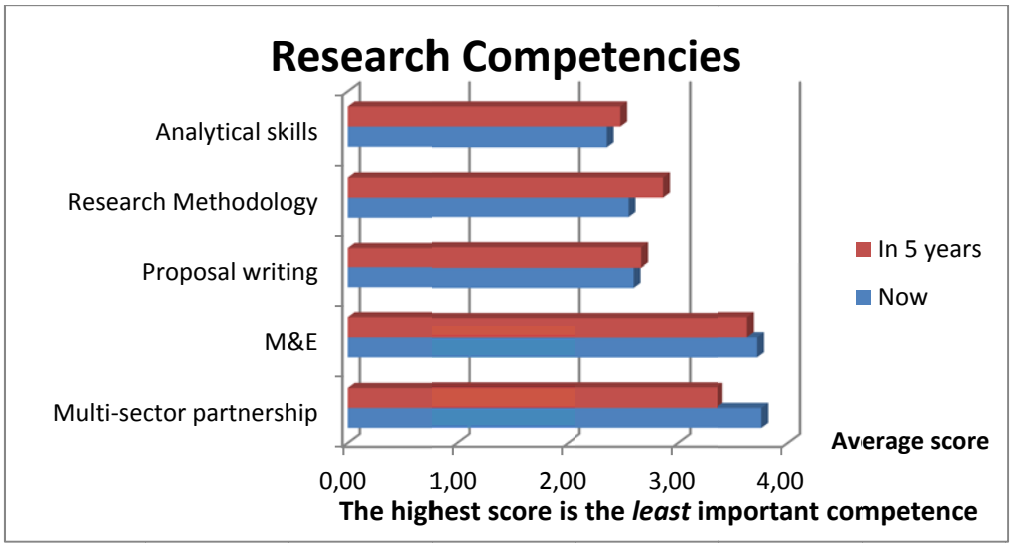


Research Competencies
This question asks for ranking of five skills: Analytical skills, Proposal writing, Monitoring & Evaluation, Multi-sectorial skills and skills in Research Methodology.

At present, Analytical skills, Research Methodology and Proposal writing (in order of importance), are significantly more important than skills related to Multi-sectorial partnerships and Monitoring & Evaluation.

Multi-sectorial partnerships are considered significantly more important by employers than by young professionals, whereas employers do not consider Monitoring & Evaluation as being as important as young professionals do.

Respondents from Sub Saharan Africa scored Proposal writing skills significantly higher (2.31 out of 5.00 - 5 being least important) than “Other” respondents (2.89).

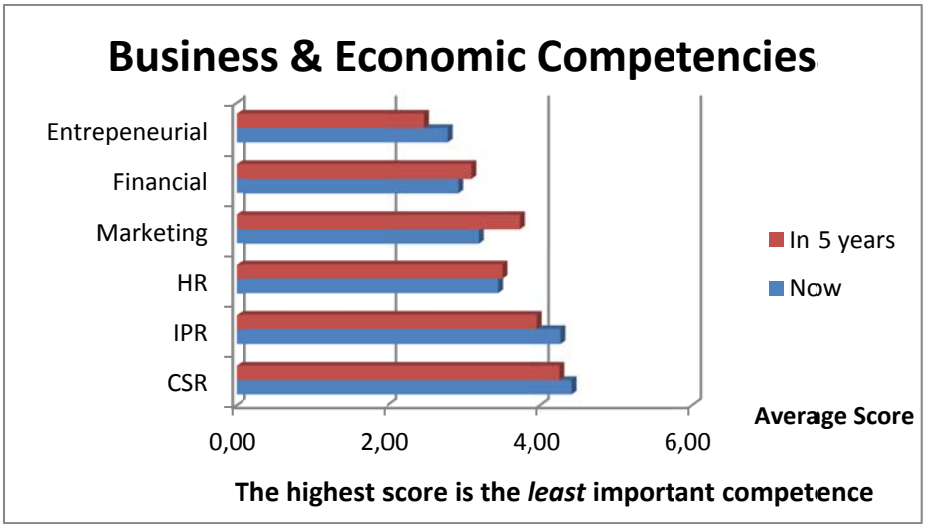


Business and Economic Competencies

This question includes six skills: Financial Skills, Marketing, Entrepreneurial Skills, Intellectual Property Rights (IPR), Human Resource Management and Corporate Social Responsibility (CSR).

At present, Entrepreneurial, Financial and Marketing skills (in order of importance), are considered more important than CSR and IPR by young professionals. CSR and IPR may not be considered as relevant for researchers.

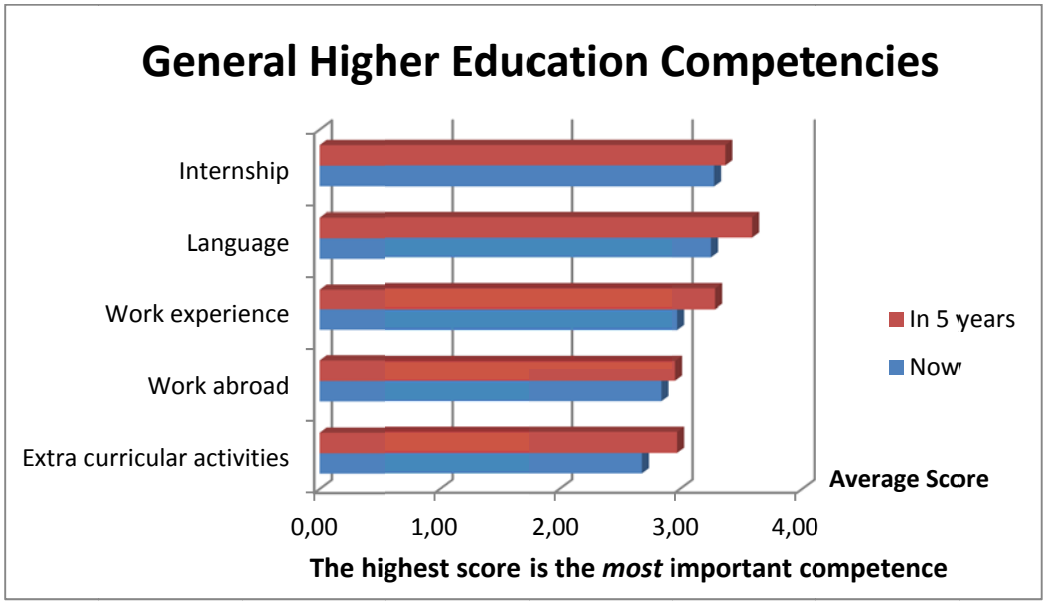
Entrepreneurial skills are considered as clearly being top priority by young professionals. Employers rated Entrepreneurship at present at number 2, but in 5 years’ time they consider it as more important than everything else as well, and score it even significantly higher than the young professionals.



General Higher Education Experiences

This group of questions covers young professionals' experiences that are of greater or lesser value to an employer and not formal qualifications. They include five aspects: Internship, Work experience, Work and study abroad, Extra Curricula activities and Language abilities.

Internship and Language abilities are considered to be significantly more important than Extra Curricula Activities and Experience from Work and Study Abroad.



6. Discussion

The need to produce graduates with a new set of competencies is not disputed, the exact profile of a 'competent' graduate, however, is more complicated and subject to rapid change. This chapter discusses the outcomes of the YPARD study, making use of literature, results from the questionnaire and short excerpts from stories written by respondents to the questionnaire who were invited to reflect on a few questions sent to them by the study-team. These are presented in small boxes.

Interpersonal competencies

All respondents indicate that Facilitation skills are not considered to be very important. However, in this YPARD study no skills were perceived as significantly *more* important than others.

In the literature it seems there is a widespread perception by employers that agricultural graduates are weak in problem analysis and problem solving skills (*Blackie, Mutema and Ward, 2009*). In this YPARD study, problem solving is indeed valued higher by employers than by young professionals. Planning, on the other hand, is valued higher by young professionals than by employers.

> *"In my background I was missing competences in project planning. Currently I work as project assistant so most of my tasks include a big part of planning and organizing other peoples' work. When I first had to set the planning for a project I was totally lost since I didn't know how this should be done, and how much time a specific task takes. Usually at university we see tasks (reports, exams, presentations) but we are not trained to see those tasks integrated as a whole in the framework of an action."*
> Maya Hernando, Spain/Belgium

It is possible that young professionals, themselves, consider planning competencies as a skill they lack, whereas the employers do not actually see this as such. It is, therefore, questionable to which extent the opinion from young professionals alone, can be used for curriculum development. Both the opinion of the labour market (employers) as well as young professionals should, therefore, be considered together in curriculum development.

Communication competencies

Social Media and Teaching are perceived as less important than other Communication skills.

Social media is not considered to be important to learn as part of the curriculum. This does not necessarily undermine the importance of social media; it could also mean that using social media is not expected to be taught in school, but rather learnt in an informal way. At the same time, young professionals mention that applied ICT is not used enough in teaching methodologies.

> *"The use of ICT and e-learning in agriculture has not being properly exploited. Students require these skills to cope in the job market, to know of the different opportunities available, to learn beyond what the University offers and to improve their efficiency in doing work. Higher education should therefore incorporate use of internet though such media like a Moodle e-learning environment. Learning should also be stimulating by including other forms of delivery like Camtasia videos and games."*
> Maxwell Mkondiwa, Malawi

"With the little experience in teaching at higher level, I have realized that students develop greater interest in the courses that are practical and that provide them with problems and thought provoking challenges. Lecturing on how to plant a maize seed is rather ineffective as compared to allowing the student plant the seed. In the same way, lecturing to students the management of agricultural data is rather ineffective as compared to allowing them manage some agricultural dataset."
Maxwell Mkondiwa, Malawi

Teaching skills were not considered to be very important and graduates mention that teachers are very much theory-based and lack hands-on or student-centred teaching methodology.

Young professionals ranked Use of Internet, Scientific Writing and Oral Presentation Skills as being the most important Communication competencies necessary for new graduates. In the communiqué (*ARDYS, 2011)* produced by ARD youth from ACP countries, as a result of discussions at a meeting in Accra, Ghana, the youth underlined the importance of ICT and proposed the establishment of incubators for ICT training and experience. Scientific writing is probably considered very important in this study because of the fact that a majority of the respondents work in research.

Research competencies

Research skills were considered to be the most important Competence group for young professionals in ARD, which is not surprising since 102 out of 140 respondents, are directly involved in the research and education sector.

Within the Research Competence group, Analytical skills, Research Methodology skills and Proposal Writing skills were considered significantly more important than Multi sector Partnerships and M&E.

Proposal writing scored significantly higher in Sub Saharan Africa. This may be explained by the fact that within the countries in this region, applications usually have to be written by ARD staff to donors upon whom they are very dependent for their resources.

"I am a research scientist who as part of my duties develops winning proposals to attract funds for research. With good skills in proposal writing I will be in a better position to execute my job. Unfortunately this lacked in my education both in first and second degree."
Michael Osei, Ghana

"As a researcher in the university, calls for proposals for research grants are many. Most of them require a deep knowledge of management and social sciences as well as collaboration and networking skills. I often encounter the need for competencies from the social sciences to help in the design of these proposals. Proposals these days emphasize collaboration across disciplines, case studies, testing of research findings on people, involvement of social science research methodologies and strategies in order to give a holistic perspective to a solution for a research problem."
Julius Naligwu Ingweye, Nigeria

Business and Economic competencies

Entrepreneurial, Financial and Marketing skills are perceived as significantly more important that CSR and IPR skills and not surprisingly, Entrepreneurial skills are top priority within the competence group of Business and Economics.

The worldwide economic crisis and limited employment, in general, demands for competencies for self-employment, which are rare at present (*Blackie, Mutema and Ward, 2009).* This can be explained by the fact that students are not very exposed to self-employment, and it is not easy to access micro-credit or input for credit schedules. Therefore, educational institutes should take a role in the stimulation and supervision of potential (social) entrepreneurs, for example by offering business incubators.

"The ARD school curricula could become more relevant and of greater interest to young people by inclusion of entrepreneurship knowledge in the curriculum. This is important to at least arouse the desire for innovation, self-reliance and private practice of agricultural skills."

Julius Naligwu Ingweye, Nigeria

General Higher Education Experiences

Internship and Language abilities are considered to be significantly more important than Extra-Curricular Activities and Experience from Work and Study Abroad. It seems that it would be relevant to get experience from a place of work and to improve language abilities.

Internship is ranked as more important than Work Experience, whereas experience from Work & Study abroad is ranked lower. Language skills are considered as important and are ranked highest within General Higher Education Experiences in five years' time. It is surprising that Work & Study abroad as well as extra-curricular activities are not considered to be very important by young professionals or employers as gaining work experience from other countries is often highly valued. The study in Armenia reports that Foreign Internship and Foreign Study Experiences are the 3rd priority in competence groups. At the same time, young professionals from developing countries often claim that a degree from a Foreign University is valued higher.

Competence groups

Young professionals' perception of Competence groups was ranked and resulted in the following order of importance: Research, Communication, Technical, Interpersonal, and Business & Economics, the first being the most important.

The Technical competence group was ranked significantly lower by respondents in the "Western" group, perhaps indicating that in the West, greater importance is attached to non-technical competencies such as communication. In addition, other non-technical elements of the value chain are expected to become more important. *"The emphasis in recruitment in the immediate future will be in the areas of marketing, policy and post-harvest operations." (Blackie et al, 2009).*

As mentioned in chapter 3, a similar study was carried out in Armenia (*Urutyan & Litzenberg, 2010*), in which competence groups were compared and prioritised. What is especially noticeable if the two studies are compared is the high value of Interpersonal skills in the study in Armenia, while Interpersonal skills are considered to be less important (rank 3 of 5 “At present” and 4 of 5 “In 5 years’ time”) by the respondents in the YPARD study. Although computer, quantitative and management information skills are not a separate competence group in the YPARD study, within the Communication competence group internet skills were highly ranked.

It is clear why research ranks highest, taking into account the focus on research of many of the respondents to the questionnaire. However, it is surprising that although business and economic competencies ranked lower than other competence groups in this YPARD study, they are rated high in the Armenian study.

Several researchers describe the necessary competencies for graduates in agriculture in stories that have been submitted as can be seen in Annex 4 where there is a complete collection of the stories submitted. They do not go into detail about technical competencies, but focus rather on soft skills.

Blackie et al (2009) conducted research among graduates at B.Sc., M.Sc. and Ph.D. levels about demand, quality and job performance within selected ASARECA and RUFORUM countries in Eastern, Central and Southern Africa. Necessary competencies, indicated as important, were similar to the results of the YPARD study and included financial management, oral communication, problem solving, use of ICT, organisational skills and networking. Other necessary competencies identified in this study include general socio-economic aspects, new standards of morals, ethics and awareness.

Chakeredza et al. (2008) reviewed the current weaknesses in the tertiary agricultural education system and describe the need to educate graduates who are:

i) Technologically competent and relevant;
ii) Equipped with the necessary “Soft skills” and Business skills; and
iii) Able to work with local and especially rural communities.

Earth University (Escuela de Agricultura de la Región Tropical Húmeda) from Costa Rica developed a similar profile. An interesting difference with this study is specific emphasis on ‘positive values and ethical principles’, as well of the focus on lifelong learning. What is missing in those profiles compared to this YPARD study is the ‘ability to develop research proposals, collect and analyse data, taking into account social and ethical issues’.

Time dimension

Global developments technically and economically, are moving very rapidly. Whilst there can be no doubt that changes in competency and skills profiles will also have to change in the next 5 years, ranking the importance of competencies and skills “At present” and “In 5 years’ time and beyond” has not yielded great differences in the responses to the questionnaire. This may be due to a difficulty in distinguishing between the two periods or may be a real lack in ability to predict the changes. Changes may take several years to be implemented so “At present” will effectively

become “in 5 years’ time”. This indicates that the need for change is very urgent and needs to be addressed now.

After needs identification of the curricula based on labour market and graduate research, a curriculum development phase will start and, depending on the curriculum development process in each country, continuous updating should take place. Only after this process, will students start to learn within new curricula, and, depending on the duration of the programme, it will probably take at least five years until the effects of a revised curriculum are reflected in the competencies acquired by new graduates. As foresight in labour market needs is difficult, this increases the complexity of curriculum development.

7. Conclusions and Recommendations

The objective of this study is to contribute to the debate on change in formal higher agricultural education. This report presents the work done during the study and it aims at providing YPARD with data, information and ideas to be better able to be active in the debate. The main conclusions and recommendations are described below, and a “Key Message Brief” can be found in Annex 5.

Conclusions

In most countries, there are weak linkages between educational institutes and the labour market: employers are not involved in defining the learning contents and quality standards or at best only to a very limited degree. It can be concluded that it is crucial to involve representatives of the labour market, both young professionals and employers, in the development of new ARD curricula to make the curriculum relevant for the needs of the labour market, which is a requirement for employability, economic growth and agricultural development worldwide.

Within the limitations of this study, **no major differences between specific countries or regions** in their perception of ARD curricula were found. This indicates that the results of this study will be useful for curriculum developers all over the world and is especially relevant in a world where mobility of skilled labour force is becoming more important.

Research and Communication are the two most important competence groups. Some specific competencies within these groups were valued very highly and should be of special interest for curriculum developers. For Research competencies, **Analytical skills, Research Methodology and Proposal Writing skills** were ranked as most important, and for Communication competencies the skills were ranked in order of importance as **Use of the Internet, Scientific Writing and Oral presentation skills.**

In the Business and Economic competence group, **Entrepreneurship skills** were considered to be very important and need to be given a much more prominent position in curricula also for people preparing for the ARD sector as there is a need to develop skills such as value-chain analysis and improved understanding of marketing.

In terms of general higher education experience, this study indicates that it is very important to **develop language abilities** and **gain experience from on-the-job training** possibly through internships.

In general, there are **minor differences between the perceptions of young professionals and employers** on the needs for ARD curricula. However, the stories gathered show that there certainly is **a very serious gap between what is taught and the actual needs** of young professionals entering into a career in ARD.

Recommendations

The team wishes to point towards three main areas of further work: **Linking up with relevant actors**; **dissemination of relevant information** and **further activities** for immediate initiation of a revision of curricula.

Linkages
Attempts should be made to **establish collaboration between educational establishments and industry**, in order to mobilise the voice and experience of industry with a view to developing more relevant curricula.

Similarly, **collaboration between educational establishments and young professionals** who will be able to make valuable contributions to improving the relevance of curricula development is essential and could be through organisations such as YPARD, GCHERA, RUFORUM or IAAS.

It is recommended that YPARD **establishes a "Curriculum Development Working Group"** to unite and mobile relevant actors: such as YPARD members, alumni, representatives of Ministries of Education, consultants involved in curriculum development, teachers in Formal Higher Education and representatives of the Labour Market. The possibility of regional sub-groups should be considered.

YPARD should use this study to be in **contact with the IFAD and ILO regarding the initiative**: "Promoting decent and productive employment of young people in rural areas: a review of strategies and programmes" (see http://www.fao-ilo.org/ilo-dec-employ/en/?no_cache=1) and perhaps become an important partner in this initiative.

As ARD practitioners from the CSO stakeholder group are not strongly represented in this study, it is recommended that **links and collaboration to the CSO AR4D stakeholder group are strengthened** in order to mobilise their voice and active participation within the area of curricula development.

Dissemination
The study team suggests that YPARD uses resources to ensure that the **observations and results of the study are shared broadly with relevant actors** within the ARD sector and specifically withy curricula developers.

In order to support dissemination of the findings of this study, resources could be made available for **young professionals to develop short movies** providing testimonials that support their views about making curricula more appropriate and relevant to present needs of young graduates. This could be in the form of a small competition.

Further activities
Due to the time delay from using revised curricula to the emergence of graduates with new profiles, it is absolutely essential that **revision of curricula is initiated immediately** and that continuous updating takes place.

Although incentives for choosing a career in agriculture have not been a major topic in this study, it became clear from the stories and the literature that the image of the

agricultural sector is negative. Motivation to improve job performance and achieve objectives can be at different levels: individual, organisational and societal. Further **study of possible incentives** for young professionals to pursue a career in agriculture and more specifically ARD is recommended. As women comprise a small minority of agricultural students, all employers are seeking to increase the number of female graduates (*Blackie et al, 2009*). For obvious reasons, developing incentives for agriculture should take the gender component into account.

Some of the limitations of this study are commented in chapter 1, including the limitations of the **language used in the study**. A major concern is the lack of information of the perception of young professionals in countries and regions of French and Portuguese speaking Africa and Spanish/Portuguese speaking Latin America: YPARD is recommended to address this concern. In addition, the results of this study which covers many countries should not be directly transferred to single and specific countries. However, the methodology using a questionnaire and short testimonials could easily be used in a specific country analysis.

It is widely accepted that curriculum development is only one aspect of changes that need to bring higher agricultural education more in line with current needs. In addition, to the urgent need for revision of curricula, as several authors have commented, aspects such as overcrowded classrooms; lack of placement for internships; transport problems for field trips and lack of access to information including library facilities must also be addressed. YPARD must urge both national governments and international donors to take responsibility for overcoming those shortcomings.

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Annexes

Annex 1 Copy of Questionnaire

Personal Information

1. What is your name?

2. What is your year of birth?
- ○ Before 1970
- ○ 1970–1975
- ○ 1976–1980
- ○ 1981–1985
- ○ 1986–1990
- ○ After 1990

3. What is your gender?
- ○ Male
- ○ Female

4. What is your country of origin?

5. What is your country of residence?

6. How many years have you been on the labour market since your graduation?
- ☐ 0–2 years
- ☐ 2–5 years
- ☐ 5–8 years
- ☐ more than 8 years

7. How many years since you graduated have you actually been employed?
- ☐ 0–2 years
- ☐ 2–5 years
- ☐ 5–8 years
- ☐ more than 8 years

8. Are you an employer?
- ○ Yes, please indicate how many people you employ
- ○ No

9. Are you presently employed?
- ○ No
- ○ Yes, please specify company and job title

10. In which sub–sector are you working?
- ☐ Consultancy
- ☐ Governmental Agency
- ☐ Research Organisation
- ☐ Marketing and Sales
- ☐ Education
- ☐ NGO/CSO
- ☐ Primary Production
- ☐ Processing
- ☐ Extension Service
- ☐ Another kind of sub–sector, please specify
- ☐ Not relevant, I am not employed at this moment

11. What is your highest degree to date?

- BSc
- MSc
- PhD
- Other, please specify

12. What was the year of completion of your highest education?

- Before 1990
- 1990 – 1995
- 1996 – 2000
- 2001 – 2005
- 2006 – 2011

13. Are you studying at present?

- Yes, please specify study and institution
- No

14. Please rank the importance of these nine **Interpersonal competencies** for graduates leaving university at present and expectations for graduates leaving university in 5 years? time and beyond. Read all the competencies and give a value 1 to the most important competencies and value 9 for the least important competencies.

	At present	In 5 years time and beyond
Management		
Organisational skills		
Networking		
Collaboration		
Intercultural Understanding		
Planning		
Problem Solving		
Communication Skills		
Facilitation		

15. Please rank the importance of these six **Communication competencies** for graduates leaving university at present and expectations for graduates leaving university in 5 years? time and beyond. Read all the competencies and give a value 1 to the most important competencies and value 6 for the least important competencies.

	At present	In 5 years time and beyond
Use of internet		
Teaching		
Scientific writing		
Oral presentation techniques		
Use of Social Media		

16. Please rank the importance of these five **Research competencies** for graduates leaving university at present and expectations for graduates leaving university in 5 years? time and beyond. Read all the competencies and give a value 1 to the most important competencies and value 5 for the least important competencies.

	At present	In 5 years time and beyond
Analytical skills		
Proposal writing		
Monitoring and Evaluation		
Working in multi sectoral partnerships		
Research Methodology		

17. Please rank the importance of these six **Business and economic competencies** for graduates leaving university at present and expectations for graduates leaving university in 5 years? time and beyond. Read all the competencies and give a value 1 to the most important competencies and value 6 for the least important competencies.

	At present	In 5 years time and beyond
Financial Management		
Marketing		
Entrepreneurial skills and Enterprise Development		
Intellectual Property Rights		
Human Resource Management		
Corporate Social Responsibility		

18. Please rank the importance of these five **competence groups** for graduates leaving university at present and expectations for graduates leaving university in 5 years? time and beyond. Read all the competence groups and give a value 1 to the most important competence group and value 5 for the least important competence group.

	At present	In 5 years time and beyond
Interpersonal competencies		
Communication competencies		
Research competencies		
Business and economic competencies		
Technical skills		

Please rate the importance of these five General Higher Education experiences for graduates leaving university at present and expectations of new graduates? needs in 5 years? time and beyond.

19. Internship / On−the−job training

	Not Very Important	Slightly Important	Important	Very Important
Present	○	○	○	○
In 5 years time and beyond	○	○	○	○

20. Work Experience

	Not Very Important	Slightly Important	Important	Very Important
Present	○	○	○	○
In 5 years time and beyond	○	○	○	○

21. Work or Study Abroad

	Not Very Important	Slightly Important	Important	Very Important
Present	○	○	○	○
In 5 years time and beyond	○	○	○	○

22. Extra Curricula Activities
This might include leadership of student organisations or clubs, work in youth clubs etc.

	Not Very Important	Slightly Important	Important	Very Important
Present	○	○	○	○
In 5 years time and beyond	○	○	○	○

23. Language abilities

	Not Very Important	Slightly Important	Important	Very Important
Present	○	○	○	○
In 5 years time and beyond	○	○	○	○

24. Can you mention 3 employers in your discipline that can be relevant for this study? If possible, mention a contact person and his/her email address as well.

	Name of contact person	Email address contact person
Name of employer 1		
Name of employer 2		
Name of employer 3		

25. Can we have your email address for any further consultation?

Annex 2 Overview of results from questionnaire

A summary of the results of the young professional respondents is presented on the left hand side of the following pages. Similarly a summary of results from employers is presented on the right-hand side of the following pages.

The number connected with each title refers to the question number on the questionnaire.

Questions 1-13 target describing the respondents. These data are used in chapter 5 "Description of the respondents to the questionnaire".

Questions 14-23 are presented for young professional and for employers both for the "At present" group and for the "In 5 years' time and beyond" group.

2. What is your year of birth?

Young Professionals: n = 140

Before 1970	**0**
1970-1975	**34**
1976-1980	**33**
1981-1985	**21**
1986-1990	**12**
After 1990	**0**
	100

Employers: n = 14

Before 1970	**21,5**
1970-1975	**21,5**
1976-1980	**36**
1981-1985	**21**
1986-1990	**0**
After 1990	**0**
	100

3. What is your gender?

Young Professionals n = 140

Male %	**72**
Female %	**28**
	100

Employers: n = 14

Male %	**56**
Female %	**44**
	100

6. How many years have you been on the labour market since your graduation?

Young Professionals n = 140

Labour market 0-2 years	29
Labour market 2-5 years	25
Labour market 5-8 years	19
Labour market > 8 years	27
	100

7. How many years since you graduated have you actually been employed?

Young Professionals n = 140

Employed 0-2 years	28
Employed 2-5 years	22
Employed 5-8 years	24
Employed > 8 years	26
	100

8. Are you an employer?

Young Professionals n = 140

Yes %	**8**
No %	**92**
	100

Employers: n = 14

Yes %	**100**
No %	**0**
	100

9. Are you presently employed?

Young Professionals n = 140

Not Employed %	**16**
Employed %	**84**
	100

Employers: n = 14

Not Employed %	**29**
Employed %	**71**
	100

10. In which sub-sector are you working?

Young Professionals n = 140

Consultancy	**23**
Govt. Agency	**15**
Research org.	**56**
Marketing & Sales	**3**
Education	**46**
NGO/CSO	**16**
Primary production	**1**
Processing	**3**
Extension Services	**11**
Other	**12**
	196

Employers: n = 14

Consultancy	**4**
Govt. Agency	**0**
Research org.	**3**
Marketing & Sales	**1**
Education	**3**
NGO/CSO	**6**
Primary production	**0**
Processing	**1**
Extension Services	**1**
Other	**2**
	21

Some respondents indicated that their work is within more than one sector.

11. What is your highest degree to date?

Young Professionals n = 140

B.Sc.%	**16**
M.Sc.%	**42**
Ph.D. %	**29**
Other %	**12**
	100

Employers: n = 14

B.Sc.%	**6**
M.Sc.%	**50**
Ph.D. %	**31**
Other %	**13**
	100

12. What was the year of completion of your highest education?

Young Professionals n = 140

Before 1990	**0**
1990-1995	**2**
1996-2000	**4**
2001-2005	**26**
2006-2011	**68**
	100

Employers: n = 14

Before 1900	**7**
1990-1995	**14**
1996-2000	**7**
2001-2005	**29**
2006-2011	**43**
	100

13. Are you studying at present?

Young Professionals n = 140

Yes %	**31**
No %	**69**
	100

Employers: n = 14

Yes %	**21**
No %	**79**
	100

For each question 14 to 23 a set of ranked responses are presented for young professionals and for Employers both for the “At present” group and for the “In 5 years’ time and beyond” group.

14. Interpersonal competencies

In the table below blue indicates significantly less important than the pairwise comparison.

Q14 " At present "	
Planning	Facilitation
Communication	Facilitation
Organisational	Facilitation
Problem Solving	Facilitation
Networking	Facilitation
Management	Facilitation
Collaboration	Facilitation
Intercultural	Communication
Intercultural	Planning
Intercultural	Problem Solving
Organisational	Intercultural
Networking	Intercultural
Management	Intercultural
Collaboration	Communication

Q14 "In 5 years"	
Organisational	Facilitation
Planning	Facilitation
Problem Solving	Facilitation
Management	Facilitation
Networking	Facilitation
Communication	Facilitation
Collaboration	Facilitation
Organisational	Intercultural
Intercultural	Planning
Intercultural	Problem Solving
Management	Intercultural
Networking	Intercultural
Organisational	Collaboration
Intercultural	Facilitation

Young professionals

At present	**av. score**	**rank**	**In 5 years + beyond**	**av. Score**	**rank**
Management	4,85	6	Management	4,60	4
Organisational	4,58	4	Organisational	4,26	1
Networking	4,81	5	Networking	4,63	5
Collaboration	5,21	7	Collaboration	5,23	7
Intercultural	6,06	8	Intercultural	5,79	8
Planning	4,20	2	Planning	4,36	2
Problem solving	4,34	3	Problem solving	4,39	3
Communication	4,14	1	Communication	4,89	6
Facilitation	6,82	9	Facilitation	6,86	9

NB! Lowest average score equals most important
Lowest rank equals most important

Employers

At present	av. score	rank	In 5 years + beyond	av. Score	rank
Management	4,81	5	Management	4,75	4
Organisational	5,31	7	Organisational	4,19	3
Networking	4,50	4	Networking	3,69	1
Collaboration	5,19	6	Collaboration	5,06	5
Intercultural	6,81	9	Intercultural	5,44	6=
Planning	4,25	3	Planning	5,50	8
Problem solving	4,00	1	Problem solving	4,13	2
Communication	4,13	2	Communication	5,44	6=
Facilitation	6,00	8	Facilitation	6,81	9

NB! Lowest average score equals most important
Lowest rank equals most important

15. Communication competencies

In the table below blue indicates significantly less important than the pairwise comparison indicated in green.

Q15 "At present"	
Internet	Social Media
Oral Presentation	Social Media
Scientific Writing	Social Media
Internet	Teaching
Teaching	Scientific Writing
Teaching	Oral Presentation
Internet	Oral Presentation

Q15 "In 5 years"	
Internet	Social Media
Internet	Teaching
Scientific Writing	Social Media
Teaching	Scientific Writing
Oral Presentation	Social Media
Teaching	Oral Presentation
Internet	Oral Presentation

Young professionals

At present	av. score	rank	In 5 years + beyond	av. score	rank
Internet	2,28	1	Internet	2,41	1
Teaching	3,54	4	Teaching	3,48	4
Scientific Writing	2,59	2	Scientific Writing	2,58	2
Oral presentation skills	2,69	3	Oral presentation skills	2,94	3
Social media	3,90	5	Social media	3,58	5

NB! Lowest average score equals most important
Lowest rank equals most important

Employers

At present	av. score	rank	In 5 years + beyond	av. score	rank
Internet	2,13	1	Internet	2,63	1
Teaching	3,19	4	Teaching	3,50	5
Scientific Writing	2,88	2	Scientific Writing	3,06	3=
Oral presentation skills	2,94	3	Oral presentation skills	3,06	3=
Social media	3,88	5	Social media	2,75	2

NB! Lowest average score equals most important
Lowest rank equals most important

16. Research competencies

In the table below blue indicates significantly less important than the pairwise comparison indicated in green.

Q16 "At present"	
Analytical	M&E
Analytical	Multi sectorial
M&E	Research Methodology
Proposal	M&E
Proposal	Multi sectorial
Multi sectorial	Research Methodology

Q16 "In 5 years"	
Analytical	M&E
Proposal	M&E
Analytical	Multi sectorial
M&E	Research Methodology
Proposal	Multi sectorial

Young professionals

At present	av. score	rank	In 5 years + beyond	av. score	rank
Analytical	2,36	1	Analytical	2,48	1
Proposal	2,60	3	Proposal	2,67	2
Monitoring & Evaluation	3,73	4	Monitoring & Evaluation	3,64	5
Multi-sectorial	3,77	5	Multi-sectorial	3,36	4
Research Methodology	2,55	2	Research Methodology	2,86	3

Employers

At present	av. score	rank	In 5 years + beyond	av. score	rank
Analytical	2,56	2=	Analytical	2,31	1
Proposal	2,44	1	Proposal	2,75	2
Monitoring & Evaluation	4,19	5	Monitoring & Evaluation	3,63	5
Multi-sectorial	3,25	4	Multi-sectorial	3,06	3
Research Methodology	2,56	2=	Research Methodology	3,25	4

NB! Lowest average score equals most important
Lowest rank equals most important

17. Business and economic competencies

In the table below blue indicates significantly less important than the pairwise comparison indicated in green.

Q17 "At present"	
Entrepreneurial	CSR
Entrepreneurial	IPR
Financial	CSR
Financial	IPR
Marketing	CSR
Marketing	IPR
HR	CSR
IPR	HR
Entrepreneurial	HR

Q17 "In 5 years"	
Entrepreneurial	CSR
Entrepreneurial	IPR
Marketing	Entrepreneurial
Financial	CSR
Entrepreneurial	HR
Financial	IPR
HR	CSR
Financial	Entrepreneurial

Young professionals

At present	av. score	rank	In 5 years + beyond	av. score	rank
Financial	2,92	2	Financial	3,09	2
Marketing	3,19	3	Marketing	3,72	4
Entrepreneurial	2,78	1	Entrepreneurial	2,48	1
IPR	4,27	5	IPR	3,96	5
HR Management	3,44	4	HR Management	3,49	3
CSR	4,41	6	CSR	4,25	6

NB! Lowest average score equals most important
Lowest rank equals most important

Employers

At present	av. score	rank	In 5 years + beyond	av. score	rank
Financial	3,00	3	Financial	3,79	4
Marketing	2,14	1	Marketing	2,93	2
Entrepreneurial	2,79	2	Entrepreneurial	1,79	1
IPR	5,00	6	IPR	4,50	6
HR Management	3,71	4	HR Management	3,64	3
CSR	4,36	5	CSR	4,23	5

NB! Lowest average score equals most important
Lowest rank equals most important

18. Competence groups

In the table below blue indicates significantly less important than the pairwise comparison indicated in green.

Q18 "now"	
Communication	Business
Research	Business

Q18 "in 5 years"	
Research	Technical
Research	Business
Communication	Technical
Communication	Business

Young professionals

At present	av. score	rank	In 5 years + beyond	av. score	Rank
Interpersonal	3,04	4	Interpersonal	2,98	3
Communication	2,79	2	Communication	2,78	2
Research	2,72	1	Research	2,59	1
Business	3,47	5	Business	3,28	4
Technical	2,98	3	Technical	3,38	5

NB! Lowest average score equals most important
Lowest rank equals most important

Employers

At present	av. score	rank	In 5 years + beyond	av. score	Rank
Interpersonal	3,00	2	Interpersonal	3,36	4
Communication	3,14	4=	Communication	2,50	2
Research	3,07	3	Research	2,86	3
Business	2,64	1	Business	2,29	1
Technical	3,14	4=	Technical	4,00	5

NB! Lowest average score equals most important
Lowest rank equals most important

19-23. General Higher Education experiences

In the table below blue indicates significantly less important than the pairwise comparison indicated in green.

Q19-23 "now""	
Internship	Extra Curricular
Extra Curricular	Language
Internship	Work Abroad
Work Abroad	Language
Internship	Work Experience

Q19-23 "in 5 years"	
Internship	Extracurricular
Extracurricular	Language
Internship	International
International	Language
Internship	Work Experience

Young professionals

At present	av. score	rank	In 5 years + beyond	av. score	rank
Internship	3,28	1	Internship	3,37	2
Work experience	2,97	3	Work experience	3,29	3
Work abroad	2,83	4	Work abroad	2,96	5
Extra-Curricular activities	2,67	5	Extra-Curricular activities	2,97	4
Language abilities	3,25	2	Language abilities	3,59	1

NB! Highest average score equals most important
Highest rank equals most important

Employers

At present	av. score	rank	In 5 years + beyond	av. score	rank
Internship	3,50	1	Internship	3,43	2=
Work experience	3,21	2=	Work experience	3,43	2=
Work abroad	2,71	4	Work abroad	2,57	5
Extra-Curricular activities	2,64	5	Extra-Curricular activities	3,36	4
Language abilities	3,21	2=	Language abilities	3,86	1

NB! Highest average score equals most important
Highest rank equals most important

Region-wise comparisons

"Kenya"/"NotKenya"

Now
None significant

In 5 years
None significant

"India"/"NotIndia"

Now
None significant

In 5 years
None significant

"Western"/"NotWestern"

Now
Q14-Interpersonal--Category 9-Facilitation. The two regions scored significantly different.
Average scores for regions **"Western"/"NotWestern"** = (8.00, 6.51)
Q15-Communication--Category 2-Teaching. The two regions scored significantly different.
Average scores for regions **"Western"/"NotWestern"** = (4.17,3.37)

In 5 years
Q18-Group--Category 1-Technical. The two regions scored significantly different.
Average scores for regions **"Western"/"NotWestern"** = (3.88,3.25)

"SSA"/"NotSSA"

Now
Q15- Communication--Category 4-OralPres. The two regions scored significantly different
Average scores for regions5 = (2.93,2.44)
Q16-Research--Category 2-Proposal. The two regions scored significantly different.
Average scores for regions **"SSA"/"NotSSA"** = (2.31,2.89)

In 5 years
None significant

"Nigeria"/"NotNigeria"

Now
None significant

In 5 years
Q17-Economic--Category 5- HR: Significant. The two regions scored significantly different.
Average scores for regions **"Nigeria"/"NotNigeria"** = (2.09,3.63)

Annex 3 Incentives to choose a career in agriculture

The following presents a few initial ideas that YPARD may wish to use in future work.

Introduction

The Young Professionals' Platform in Agricultural Research for Development (YPARD) has commissioned a study, the objective of which is to contribute to the debate on change in formal higher agricultural education. This short brief is a comment to bring the question of incentives to choosing a career in agriculture into the debate.

Background

Agriculture is much more than farming. It commonly includes a range of activities from primary production to support services such as seed companies, agricultural machinery companies, research institutes and advisory services, to the processing industry as well as teaching at various levels. Indeed it is often necessary to extend the concept of agriculture to include other aspects of rural economy which are inextricably interwoven with agriculture.

The young people's generation is the largest in history, yet in many rural areas the population is aging, as young people leave rural areas and seek job opportunities elsewhere. This is especially prevalent in developing countries. Compared to the average percentage unemployed people in the world, the percentage of young people without employment is much higher. With the youth population increasing at a faster pace than employment, the result is a declining trend in the youth employment-to-population ratio. In 2008, 44.7 per cent of youth were working, compared to 47.9 per cent in 1998 (ILO, 2010).

Decent employment is targeted in the Millennium Development Goals (target 1b) especially for women and young people. The lack of investment in decent employment leads to migration from rural urban areas.

"Politics, the oil and banking industry careers are often the dreams of young Nigerians but rarely agriculture. Live in the village, battle with mosquitoes, sweat for a living instead of more lucrative jobs? They would often ask. And the answer certainly would be a no!
Young people in Nigeria often perceive agriculture as a profession of drudgery, not lucrative and unable to sustainably support their livelihoods compared to white collar jobs. They think agriculture would not take them to town or enable them to live normal modern lives like those in the town engaged in white collar jobs. In school, students in the faculty of agriculture are often slighted by others while those in the management sciences, law, and medical school are appreciated and held at high esteem. This, they complain, diminishes their morale to study agriculture, let alone practice it on graduation. Most of the students who found themselves in the faculty of agriculture never initially applied for the course when sitting for the entrance exams but only found their way in either as a last resort or were offered the option to take up agriculture or lose admission.
We need motivational speakers and counsellors right from early education to the university and the secular agribusiness sector. This means that the scope of agricultural extension work needed to be extended to these 'traditionally non extension coverage' areas like the university campus and other training institutions."
Julius Naligwu Ingweye, Nigeria

Young people in the rural economy

Young people have an important role to play in the rural economy. However, there are a series of overarching parameters that need to be addressed in order to respond to the challenge of making agriculture more attractive for young people and ultimately improving both agricultural and rural non-farm productivity. These include investment in social and economic infrastructure in rural areas; creation of opportunities including access to micro-credit, in agriculture and in the non-farm economy as well as ensuring relevant education and training is readily available to equip young people for a career in agriculture and the broader rural economy.

Whilst the first two parameters are outside the scope of this study a recommendation, to make young professionals' needs known, should be noted. The skill set of young people needs to be adapted and strengthened with relevant competencies and skills, so that it is more attractive for young people to stay in rural areas and there is an increase in the range of economically viable opportunities that are open to them.

It is also absolutely essential that a career in agriculture should be attractive to young people. The perception of agriculture, however, is that it is the occupation of those who have failed to achieve other careers. In addition, graduates do not like to work in remote areas (Blackie et al, 2009). This may be addressed by making education more relevant and providing incentives both to study and to pursue a career in the agriculture sector.

A range of incentives for young people

Motivation to improve job performance and achieve objectives can be at different levels: individual, organisational and societal. Individuals, however, are driven by their own desires and may be influenced to greater or lesser degrees by incentives such as salaries, other forms for remuneration, promotion etc. Responsiveness to incentives changes throughout one's career and is also likely to be gender sensitive.

Various considerations drive young people's choice when deciding on a career and include: the need for self-esteem; the wish for prestige and position; to receive remuneration commensurate with a desired living standard; a desire to improve the state of the world etc. What work incentives are relevant for young people when they set about choosing an education and career in agriculture?

Whilst there seems to be a greater awareness of the need for specific farmer training there does not seem to be similar initiatives targeting university students and graduates. More targeted education and training in itself could be an incentive for young people to enrol for a university education within the broad area of agriculture and aim at their remaining within this sector.

Various universities around the world are responding to the challenge of making the agricultural career pathway of more interest to young people. N.W. Missouri State University possess the question *"Why Should I Choose a Career in Agriculture?"* on their website (see http://www.nwmissouri.edu/dept/ag/career.htm), in an attempt to convince prospective students that this is not only the right university, but also the opening to the right career pathway. Careers New Zealand is a government agency responsible for leading career development and recently commissioned an

"Agribusiness report". The report concluded that New Zealand should look at *"providing preferential financial support for students looking to study economically critical subjects, like agricultural science"* as this will *"increase the number to take on this more challenging career path".* There is an over-supply of graduates in areas such as Arts, Accounting and Architecture, but an undersupply in agriculture, at least in countries such as New Zealand, Australia and the UK. However, the restructuring of student loans, so that support is only given to subjects that directly support the economy, is fraught with potential problems.

Educational establishments should prepare students for the job market as well as providing a general education. It is generally accepted that present curricula do not adequately provide young professionals with the skills they need when they start on a career in ARD. Agriculture has to become more innovative and more knowledge intensive in order to adequately address challenges of climate change, degradation of natural resources, improved productivity etc. Immediate changes to curricula are needed in the very short term i.e. within the next 3−5 years as well as in the mid−term of around 10 years, in order to prepare graduates for these challenges.

Universities in many countries are poorly equipped and staffed and do not live up to the standards that young people set for an educational institution to be of interest. Within the agricultural sector this is especially prevalent. By improving the standard of universities there would be increased incentives for young people to enrol for an agriculturally related education.

Young professionals are generally not involved at policy level and strategic decision making levels. But it is also widely accepted that it is critical to empower young scientists in order to accelerate innovation in food production and to move towards a greater level of food security. Young people should be more involved in identifying viable solutions that will provide incentives to choosing a career in agriculture.

In many countries there is a disparity between the public and private sectors which results in a disincentive for young people to embark on a career in the public sector. Incentives systems in the public sector, where a considerable amount of ARD is carried out, are often very limited and weak and salaries are often low. Donor support to supplementary salaries can further distort the picture. The obvious incentive here is an adjustment of salary scales and terms of employment, acknowledging that this is a political challenging topic that should be addressed nationally and not by international organisations.

The aim of agriculture being a career pathway that attracts young people and retains them within the sector is a considerable challenge. YPARD can play a role in stimulating this change by mobilising young people: both students and those recently started in agriculture. Young professionals must be encouraged to describe what incentives they consider to be necessary to achieve this goal both in terms of education and employment conditions.

Recommendations to YPARD

YPARD should encourage members to link up with sectors that aim at improving investment in social and economic infrastructure in rural areas. This would help to

ensure that the voice of young professionals is heard and their needs become known if they are to enter into a career in agriculture and then remain in the sector.

It would be useful for YPARD to link up both with young people who have chosen agriculture as a career pathway and those who did not. It is important to identify incentives for young people both to choose agriculture as a career pathway at the education stage and also at the career initiation phases.

YPARD should be in contact with the IFAD and ILO initiative: “Promoting decent and productive employment of young people in rural areas: a review of strategies and programmes” and perhaps become an important partner in this initiative.

Useful articles:
IFAD; 2011 Governing Council: “Feeding future generations: young people today – prosperous, productive farmers tomorrow” pp. 8.

UNDP Conference Paper #8, November 2006: “INCENTIVE SYSTEMS: INCENTIVES, MOTIVATION, AND DEVELOPMENT PERFORMANCE” pp. 25.

Global Employment Trends for Youth: Special issue on the impact of the global crisis on youth. ILO 2010. http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_elm/---trends/documents/publication/wcms_143349.pdf

Useful links:
The ILO and the FAO are partners in the promotion of decent and productive work of young people in rural areas. For more information, see the youth employment pages of the joint ILO/FAO website at http://www.fao-ilo.org/fao-ilo-youth/en/.

The Youth Employment Network (YEN) was established by the UN Secretary-General in 2001 through a partnership between ILO and the World Bank as core partners and works to engage, educate and motivate actors to provide improved employment opportunities for youth. It is a platform and service provider focusing on policy advice, innovative pilot projects, knowledge sharing, and brokering partnerships. YEN makes use of its core agency partners’ know how and resources and ensures youth participation in delivering its services. See the YEN website at: http://www.ilo.org/public/english/employment/yen/index.htm

Annex 4 Relevant stories

The following is a full collection of the stories which respondents submitted.

"I am a research scientist who as part of my duties develops winning proposals to attract funds for research. With good skills in proposal writing I will be in a better position to execute my job. Unfortunately this lacked in my education both in first and second degrees."
Michael Osei, Ghana

"A career in agriculture is a journey that requires hard work, rigorous teaching, adherence to basics, and connection with reality, and dealing effectively with challenges that present themselves. An effective and attractive career acknowledges and builds on the contributions from seniors, gurus, and experts."
Raymond Erick Zvavanyange, Zimbabwe
(about need for mentoring and 'real life' cases in education)

"One aspect that lacked during my undergraduate agricultural economics and MSc was the ability to appreciate other fields of study and build an interdisciplinarity in approaching agricultural problems. However, because of the nature of my work, I have come to realize that while specialization is necessary, students in higher education especially in developing countries require a systems level of thinking other than a more specialized approach."
Maxwell Mkondiwa, Malawi
(about interdisciplinary approaches)

With the little experience in teaching at higher level, I have realized that students develop greater interest in the courses that are practical and that provide them with problems and thought provoking challenges. Lecturing on how to plant a maize seed is rather ineffective as compared to allowing the student plant the seed. In the same way, lecturing to students the management of agricultural data is rather ineffective as compared to allowing them manage some agricultural dataset.
Maxwell Mkondiwa, Malawi
(about theory-practical)

"The use of ICT and e-learning in agriculture has not being properly exploited. Students require these skills to cope in the job market, to know of the different opportunities available, to learn beyond what the University offers and to improve their efficiency in doing work. Higher education should therefore incorporate use of internet though such media like a Moodle e-learning environment. Learning should also be stimulating by including other forms of delivery like Camtasia videos and games."
Maxwell Mkondiwa, Malawi
(about ICT in education)

"The curricula in most universities in developing countries is more less a copycat of the decade ago curricula of western countries."
Maxwell Mkondiwa, Malawi

"I chose for a career in agriculture because graduate unemployment was already on the rise and I wanted to study something I could practice on my own and earn a living even if there would be no government or company job. That self-employment aspiration which was a fall out of increasing unemployment would hardly be achieved if I studied any other course apart from agriculture.
I felt empty when I came to realize I had completed the training required of the holder of a Bachelor of Agriculture in Animal Science. I could hardly do the basic practical things required of an expert in my field like compounding a feed."
Julius Naligwu Ingweye, Nigeria
(about a lack of practical skills in education)

"Academic work at this level depended more on my seriousness to dig deeper into books and other learning materials to find out things for myself and satisfy my curiosity about certain things in the field. Therefore, I read more and was taught less. My inner satisfaction, I think, stemmed from a better learning outcome after the Masters programme. The better learning outcome I suppose was because I had to do up to 90% of the learning on my own; reading and researching more and being taught less."
Julius Naligwu Ingweye, Nigeria
(about student centred teaching methodologies)

"We are mainly exposed to the biology and chemistry of agriculture and a one year practical exposure. The practical exposure could not fully achieve its goal because the facilities were not there. We were slightly exposed to the social science of agriculture."
Julius Naligwu Ingweye, Nigeria
(about lack of facilities/opportunities)

"The competencies in agricultural education which graduates of agriculture lack include management, finance, entrepreneurship and other social science skills as well as ICT. In Nigeria, we also lack field practical competencies."
Julius Naligwu Ingweye, Nigeria

"Competences used in my present job that were not taught during my education but are very useful in my present job are competences in the analyses and research involving social science and management issues. As a researcher in the university, call for proposals for research grants are many. Most of them require a deep knowledge of management and social sciences as well as collaboration and networking skills. I often encounter the need for competencies from the social sciences to help in the design of these proposals. Proposals these days emphasize collaboration across disciplines, case studies, testing of research findings on people, involvement of social science research methodologies and strategies in order to give a holistic perspective to a solution for a research problem."
Julius Naligwu Ingweye, Nigeria
(about need for management issues, social science and collaboration)

"Social science skills for agriculture graduates are becoming increasingly needed to produce well rounded agriculture graduates that would work in the ARD sector. As far as advancement in agricultural science is for the good of man, there is now more

than ever before a need for better understanding of man in relation to agriculture or agriculture in relation to social man."
Julius Naligwu Ingweye, Nigeria

"The changes needed by ARD higher education institutions to meet the competencies needed in the labour market include review of the curriculum to include current realities in ARD. Injection of more practical training than theory into the curriculum of ARD institutions is needed. Creation of networking platforms for students from different schools, countries and continents to collaborate and help each other in the learning process in a virtual environment and educational institutions should be directly linked to research institutes."
Julius Naligwu Ingweye, Nigeria
(theory-practical, network platforms)

"The ARD school curricula could become more relevant and of greater interest to young people by inclusion of entrepreneurship knowledge in the curriculum. This is important to at least arouse the desire for innovation, self-reliance and private practice of agricultural skills."
Julius Naligwu Ingweye, Nigeria
(about the need for entrepreneurship education)

"The educational curriculum of today could become more relevant by the infusion of 60% practical classes and 40% theory."
Julius Naligwu Ingweye, Nigeria
(about theory-practical)

"Young people go to school not just to improve their knowledge but mainly to earn a living that is befitting. The career needs to be lucrative and competitive. Hence most of them go for careers in the oil & gas, banking and ICT. Agriculture has to be made lucrative and well paid like these other jobs. The curriculum has to be made to include more courses from the business management and entrepreneurship sciences as well as social sciences in general in order to expose them to the variety of opportunities that they could turn their agriculture career into. For agriculture career to be of greater interest to young people, current gadgets in ICT and engineering should be adapted for use in agriculture and included in their curriculum."
Julius Naligwu Ingweye, Nigeria
(about incentives for a career in agriculture)

"Politics, the oil and banking industry careers are often the dreams of young Nigerians but rarely agriculture. Live in the village, battle with mosquitoes, sweat for a living instead of more lucrative jobs? They would often ask. And the answer certainly would be a no!
Young people in Nigeria often perceive agriculture as a profession of drudgery, not lucrative and unable to sustainably support their livelihoods compared to white collar jobs. They think agriculture would not take them to town or enable them live normal modern lives like those in the town engaged in white collar jobs. These of course we know are the common features of hoe and machete agriculture. This is agriculture our forebears practiced, that would not easily adapt to change and is for subsistence living.

In school, students in the faculty of agriculture are often slighted by others while those in the management sciences, law, and medical school are appreciated and held at high esteem. This, they complain, diminishes their morale to study agriculture, let alone practice it on graduation. Most of the students who found themselves in the faculty of agriculture never initially applied for the course when sitting for the entrance exams but only found their way in either as a last resort or were offered the option to take up agriculture or lose admission.
We need motivational speakers and counsellors right from early education to the university and the secular agribusiness sector. This means that the scope of agricultural extension work needed to be extended to these 'traditionally non extension coverage' areas like the university campus and other training institutions. The farmer alone should not be the main focus of extension but even intending farmer and other youths who are yet to choose a career. The extension workers themselves need more training in counselling and motivational speaking. We need to tell them that it is not what they think."
Julius Naligwu Ingweye, Nigeria
(about incentives for a career in agriculture)

"In my background I was missing competences in project planning. Currently I work as project assistant so most of my tasks include a big part of planning and organizing other's people work. When I first had to set the planning for a project I was totally lost since I didn't know how this should be done, and how much time a specific task takes. Usually at university we see tasks (reports, exams, presentations…) but we are not trained to see those tasks integrated as a whole in the framework of an action."
Maya Hernando, Spain/Belgium
(about project planning skills)

"During my daily work as a project assistant everything has to be discussed and negotiated. To succeed in a negotiation a good strategy and negotiation skills are required. I had to learn that during the practice and after going through big failures due to my inexperience."
Maya Hernando, Spain/Belgium
(about negotiation skills)

"Continuous Monitoring and Evaluation (M&E) of the curricula relevance is hardly done apart from examining the students at the completion of a given module/course unit for purposes of grading. The examination of students is also very biased in that it mainly focuses on the theory taught."
David Kintu, Uganda
(about examinations/methodologies)

"There are many modules or course units included in new curricula that have been adopted from older curricula without reviewing them to meet today's challenges. Therefore, we need involvement of all stakeholders – students, peers, trainers, professionals, alumni and parents/guardians to update curricula."
David Kintu, Uganda
(about need for curriculum updates)

Annex 5 Key Message Brief

Agricultural Research for Development is a key to realising global food security and economic growth and thereby contributing the achievement of some of the Millennium Development Goals. A revised set of skills is needed by young graduates to address new challenges in agriculture.

The Young Professionals' Platform in Agricultural Research for Development (YPARD) wishes to contribute to the debate on change in formal higher agricultural education with the views of young professionals and has hired two consultants to carry out a study entitled **"Working towards a new generation of Young Professionals in ARD"** and get the perspective of the young professionals in ARD themselves on curriculum development in Agricultural Research for Development (ARD).

This is in line with the GCARD Road Map (*GFAR, 2011*) which points to the importance of young people themselves expressing what changes are needed in agricultural education and the incentives needed to make careers more attractive and valued and better recognize the range of roles now required in AR4D.

Graduates lacking in research and communication competencies or lacking in entrepreneurial and interpersonal skills should soon be a thing of the past. The 'new professional' should, for example, be better able to conduct research; to communicate results and advice, organise and plan, make effective use of the internet and to learn academic writing skills. Young professionals should develop entrepreneurial, marketing and financial skills. Curricula must be revised to provide students training for a career in ARD to acquire these 'soft skills' rather than technical skills and theory only. Curriculum developers must involve a range of stakeholders in rapid identification of relevant revision to curricula.

Agriculture and ARD must become more attractive and move away from being considered a low prestige career. Decent employment is targeted by Millennium Development Goal 1b especially for women and young people.

Action is needed now to support YPARD in establishing a "Curriculum Development Working Group" to unite and mobilise relevant actors within the ARD sector. Industry, alumni, students, teachers, consultants, Ministries of Education, international donors and research organisations should join hands in order to develop labour market responsive curricula for high quality relevant ARD education, which can be a key to employability, economic growth, food security, agricultural development worldwide thus contributing to the Millennium Development Goals. Young professionals, being open for change and new partnerships, should be consulted for curriculum development.

Labour market responsive curricula, however, do not guarantee competent graduates. Overcrowded classrooms, outdated books, limited access to practical training facilities and little exposure to authentic working situations are challenges that must also be addressed at the same time as a revision of curricula is taking place.

Annex 6 Comments and reflections on the Terms of Reference

The Terms of Reference (ToR) for this project did not provide a very clear view for the consultants on the specific objectives of the study and related activities, nor the exact expected outcomes. During an initiation meeting in Rome, from 30th May to 1st June, the ToR and YPARD's expectations were clarified by the consultants with the YPARD coordinator and resulted in a work plan for the project with clearly defined activities and outputs. It was agreed that the team would give regular updates to the YPARD steering committee. As the consultants have offices in different countries, work was carried out individually, but supported by regular skype discussions. These turned out to be invaluable and very effective.

After receiving responses to the questionnaires, the consultants expressed a need to have another face to face meeting in Rome for the analysis, which took place between 7th and 9th November. This provided a good chance to discuss ideas of analysing the data. In order to make conclusions and finalise the report the consultants met in the Netherlands between 29th and 31st January. The final product (output) of the project is this report.

The ToR included an activity aimed at addressing the waning interest of youth in agriculture as a career choice. However, it was agreed that this topic is too extensive to be covered thoroughly with the limited resources allocated to the study and only a very brief comment is made in **Annex 4** to this report.

It was not felt that the consultants are able to prepare a scientific article due to limited resources, although the need could be discussed by the YPARD Steering Committee at a future meeting.

Limitations of the study

This study has a focus on an English speaking audience since the questionnaire has been conducted in English and the YPARD network consists mainly of an English constituency due to communication in English. As we present this research as a world-wide study, it might miss out of for example French and Portuguese speaking Africa and Spanish/Portuguese speaking Latin America.

Whilst it was hoped that short films might be made to demonstrate the views of young professionals, it was realised that this would be beyond the resources of the study. As already explained, respondents to the questionnaire were invited to write a very ***short story*** to address the questions that might demonstrate the views of young professionals.

In this study, the questionnaire focused on soft skills rather than technical skills because the latter is very job specific.

It must be noted that the focus of the study has been on the content of the curricula rather than teaching methodology even though teaching methodology clearly also has a big influence on the outcomes of education.

Whilst it was felt that a comparison of views of young professionals with those of employers could have been interesting, unfortunately, the number of responses to

the questionnaire by employers was very low. Only 14 usable responses were received, so the value of this part of the study is limited.

The respondents to the questionnaire are not representative of all agricultural stakeholder groups as the people who received the questionnaire are mainly from Research and Education.

Annex 7 List of countries grouped in regions for comparison

Region: Latin America and Caribbean	
Country	Number of respondents = 8
Argentina	1
Bahamas	1
Bolivia	1
Brazil	1
Chile	1
Mexico	3

Region: Asia	
Country	Number of respondents = 25
Bangladesh	2
China	1
India	16
Myanmar	1
Nepal	1
Pakistan	1
Sri Lanka	1
Taiwan	2

Region: Sub Saharan Africa	
Country	Number of respondents = 72
Benin	2
Burkina Faso	2
Cameroun	4
Côte d'Ivoire	1
Ethiopia	1
Ghana	9
Kenya	14
Malawi	1
Mali	1
Nigeria	12
Rwanda	1
Sierra Leone	1
South Sudan	1
Sudan	2
Tanzania	2
Togo	2
Uganda	8
Vietnam	1
Zambia	1
Zimbabwe	6

Region: Europe + North America + Australia	
Country	Number of respondents = 29
Australia	3
Belgium	1
Denmark	1
France	4
Germany	5
Italy	3
Netherlands	5
Romania	1
Slovenia	1
Switzerland	1
UK	1
USA	3

Region: Others	
Country	Number of respondents = 6
Azerbaijan	1
Egypt	2
Mauritius	1
Morocco	1
Yemen	1