

# Additional CCAFS Target Regions: Recommendations to the ISP



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1 October 2011

## 1 Introduction

In 2012, CCAFS plans to add two additional target regions to its portfolio, in order to make the program truly global. This document outlines the process for the selection of the two new regions, presents some analysis, and provides recommendations to the ISP.

## 2 Background

The original choice of the current three target regions for CCAFS (East Africa, West Africa and the Indo-Gangetic Plains) started from the understanding that South Asia and Sub-Saharan Africa are already affected by food insecurity and particularly vulnerable to climate change; thus deserving of priority attention (Förch et al., 2011). To summarise, of the various candidates in these two parts of the world, the decision to select three reflected a balance between two competing considerations: (i) working across contexts that are sufficiently heterogeneous to ensure that outputs and outcomes of place-based research have global relevance, and (ii) ensuring that sufficient resources are brought to bear to address the deliberately complex problems that CCAFS seeks to address. The initial region selection process sought to sample across the challenges of major hydro-meteorological shocks, significant climate-related environmental problems, and high rural poverty rates coupled with large populations dependent on rain-fed subsistence agriculture. Other factors included were the strength of national and regional climate institutions and processes that can support climate information for adaptation, the degree of CGIAR presence, overall progress toward food security goals, and opportunities for synergistic research with the potential for both immediate regional benefits and transferability beyond the regions. For the future, similar

considerations could be applied. As before, projected future climate change is not likely to be a strong discriminator among candidate regions, as all regions are expected to warm, future rainfall trends are subject to considerable uncertainty, and changes in climatology in many places are not likely to be detectable for the next ten years at least.

### **3 The Process to Select Two Additional Regions**

A set of selection criteria for the two additional regions to be added to the portfolio was discussed at the CCAFS launch meeting in Nairobi in May 2010 and further deliberated upon by the Management Team and Steering Committee of CCAFS. The following criteria were selected for ranking potential new regions (they are listed in order of priority):

1. Regions that complement the current regions in order to ensure that CCAFS is a global program (complementarities could relate to geographical spread, agricultural potential, and nature of the adaptation challenges, for example);
2. Regions with high potential for pro-poor mitigation; the justification for this criterion is that there is only limited potential for dealing with the full gamut of pro-poor mitigation opportunities (unlike adaptation opportunities) in the current three CCAFS regions;
3. Regions that are hotspots of vulnerability of the food system coupled with susceptibility of these systems to climate change; this criterion speaks directly to at least three of the four system-level outcomes of the CGIAR's Strategy and Results Framework: reducing rural poverty, improving food security, and improving nutrition and health.
4. Regions with high potential for innovation, adoption and impact; this criterion addresses the need for CCAFS to produce tangible development outcomes in the regions in which it will be working.

5. Regions in which there is sufficient institutional support at regional and national levels to implement a regional research-for-development program.

The nine candidates for additional CCAFS regions, on the basis of geographical groupings of countries according to FAOSTAT, are shown in Table 1. The table shows some example countries in each region in three of the four quartiles of the 2010 Human Development Index (HDI). These possibilities essentially cover the mandate regions of the CGIAR.

**Table 1.** Candidate CCAFS geographical regions and some of the countries within each region (countries with a “high” (normal), “medium” (italic) and “low” (bold) Human Development Index (HDI) in 2010 <sup>a</sup>).

	<b>Region <sup>b</sup></b>	<b>Sample Countries</b>
1	Middle Africa	<b>Angola</b> , <i>Cameroon</i> , <b>Central African Republic</b> , <b>Chad</b> , <i>Congo</i> , <b>DR Congo</b> , <i>Equatorial Guinea</i> , <i>Gabon</i> , <i>Sao Tome &amp; Principe</i>
2	West Asia – North Africa	<i>Algeria</i> , <i>Egypt</i> , <i>Morocco</i> , <b>Sudan</b> , <i>Syria</i> , <i>Tunisia</i> , <i>Yemen</i>
3	Southern Africa	<i>Botswana</i> , <b>Lesotho</b> , <b>Malawi</b> <sup>c</sup> , <b>Mozambique</b> <sup>c</sup> , <i>Namibia</i> , <i>South Africa</i> , <i>Swaziland</i> , <b>Zambia</b> <sup>c</sup> , <b>Zimbabwe</b> <sup>c</sup>
4	Central America and the Caribbean	<i>El Salvador</i> , <i>Guatemala</i> , <i>Honduras</i> , <i>Mexico</i> , <i>Nicaragua</i> , <i>Dominican Republic</i> , <b>Haiti</b>
5	South America	<i>Bolivia</i> , <i>Brazil</i> , <i>Colombia</i> , <i>Guyana</i> , <i>Paraguay</i> , <i>Peru</i> , <i>Suriname</i>
6	Central Asia	<i>Kazakhstan</i> , <i>Kyrgyzstan</i> , <i>Tajikistan</i> , <i>Turkmenistan</i> , <i>Uzbekistan</i>
7	East Asia	<i>China</i> , <i>Mongolia</i>
8	South-East Asia	<i>Cambodia</i> , <i>Indonesia</i> , <i>Lao</i> , <b>Myanmar</b> , <i>Philippines</i> , <i>Thailand</i> , <i>Timor-Leste</i> , <i>Viet Nam</i>
9	Oceania	<i>Fiji</i> , <b>Papua New Guinea</b> , <i>Solomon Islands</i> , <i>Federated Micronesia</i> , <i>Samoa</i>

a. Human Development Report 2010, [hdr.undp.org/en/statistics/data/](http://hdr.undp.org/en/statistics/data/)

b. Regional groupings as in “Composition of macro-geographical (continental) regions, geographical sub-regions, and selected economic and other groupings” ([unstats.un.org/unsd/methods/m49/m49regin.htm](http://unstats.un.org/unsd/methods/m49/m49regin.htm))

c. The FAOSTAT grouping puts Malawi, Mozambique, Zambia and Zimbabwe in Eastern Africa. For consistency with regional organisations such as ASARECA and SADC, and with decisions already made within CCAFS, here they are assigned to Southern Africa.

Three groups of stakeholders were asked to rank the candidate regions against each criterion: the CCAFS Management Team, the CGIAR CRP7 Contact Points, and members of the Global

Change community (partners, donors and colleagues) external to the CGIAR. This last group included the members of the Commission on Sustainable Agriculture and Climate Change. The number of people and organisations solicited for their input, and the number of responses, are shown in Table 2 (a full list of organisations solicited is shown in Appendix 1). The overall response rate was 51%. Respondents were also asked to provide short justifications for their ranking scores, where possible.

**Table 2.** Summary of people solicited for their input and responses received

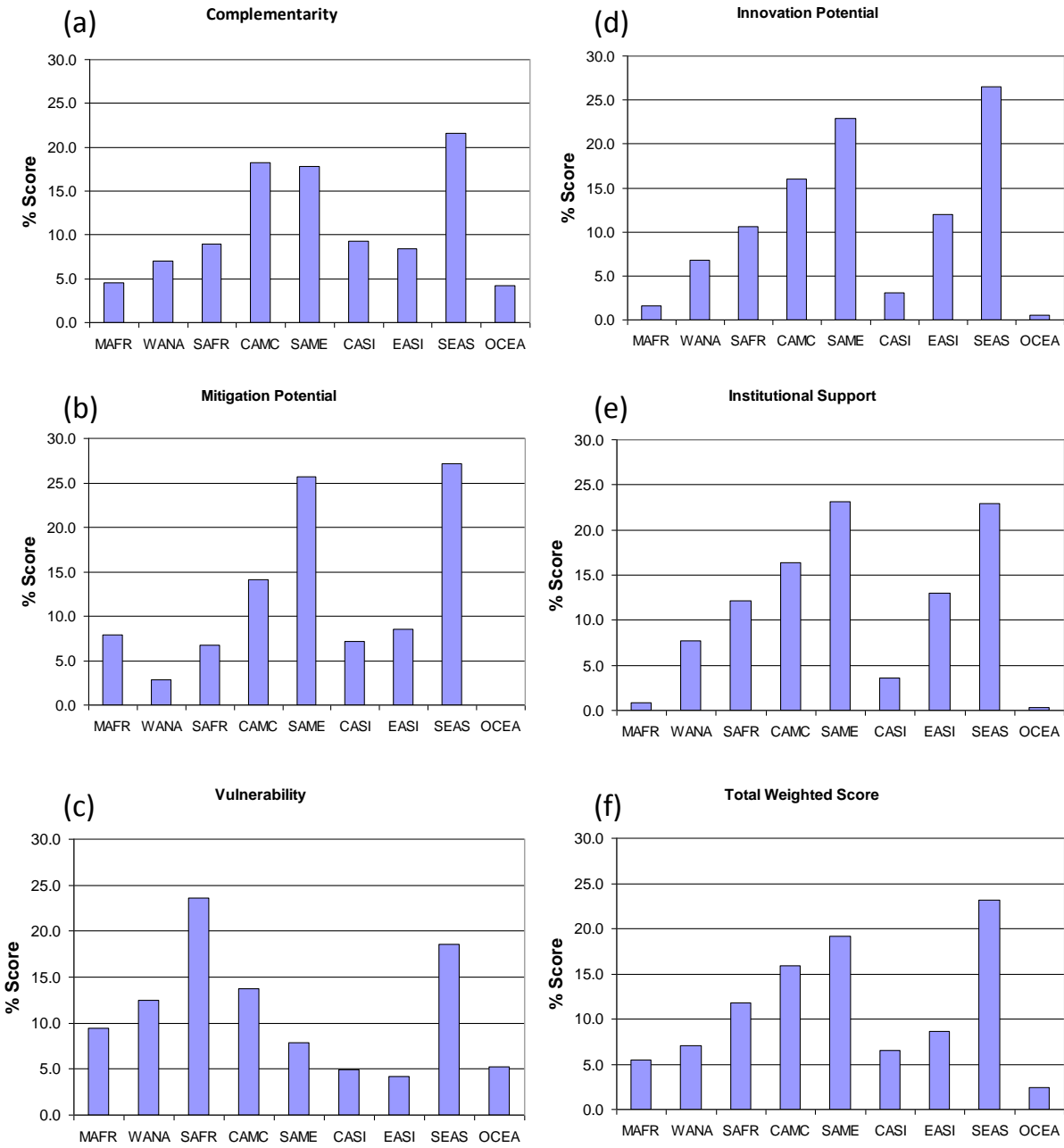
	<b>Respondent Group</b>	<b>Number solicited</b>	<b>Number of responses received</b>
1	CCAFS Management Team (including Theme Leaders, Regional Program Leaders, Science Officers)	20	17
2	CGIAR Centre Contact Points (CG centres and challenge programmes)	19	9
3	Commissioners on Sustainable Agriculture and Climate Change	13	4
4	CRP7 Global Partners	24	9
	<b>Total</b>	<b>76</b>	<b>39</b>

#### 4 Results of the Ranking Exercise

The overall scores for the nine candidate regions for each criterion are shown in Figures 1 (a)-(e), for the entire sample of 39 responses, expressed as a percentage so that all nine scores for each criterion sum to 100. The total weighted score is shown in Figure 1 (f), using a “standard” set of weights to reflect the importance of each criterion in the ranking exercise (Table 3, column 2). So, for example, the “mitigation potential” criterion has twice the weight of the “innovation potential” criterion. These weights were selected on an ad-hoc basis, and sensitivity analysis was carried out to assess the robustness of the rankings in the light of different sets of weights (Table 3, columns 3 and 4) – results are discussed below.

**Complementarity:** As shown in Figure 1 (a), South-East Asia (SEAS) scored highest for complementarity in relation to the existing CCAFS regions, followed by Central America and

the Caribbean (CAMC) and South America (SAME). Many respondents ranked regions on the basis of geographical spread as well as cultural, economic and agricultural systems



MAFR Middle Africa; WANA West Asia–North Africa; SAFR Southern Africa; CAMC Central America & the Caribbean; SAME South America; CASI Central Asia; EASI East Asia; SEAS South-East Asia; OCEA Oceania

**Figure 1.** Scores by region for five criteria and the total weighted score (standard weightings): all responses (n=39).

**Table 3.** Different sets of criterion weights used in the analysis.

Criterion	Standard set	Extreme set	Equally-weighted set
Complementarity	2.5	5.0	1.0
Mitigation potential	2.0	4.0	1.0
Vulnerability	1.5	3.0	1.0
Innovation potential	1.0	2.0	1.0
Institutional support	1.0	1.0	1.0

complementarity. There was a widespread feeling that South America (SAME) and/or Central America and the Caribbean (CAMC) would be highly complementary to the current CCAFS regions, through inclusion of farming systems that are considerably different from those currently covered, and thus including the Spanish-speaking world. Some voiced the view that in addition to being significantly different from existing CCAFS regions, CAMC would bring the potential for engaging in climate change issues in small island states. Oceania (OCEA) would certainly complement current regions in terms of geographical reach, although the climate change issues are likely to be very different. For some, Central Asia (CASI) would bring strong complementarity in terms of geographic spread and, being largely temperate, there would be strong farming system contrasts and different climate challenges to those in the tropical regions. East Asia (EASI) would bring strong contrasts and very large numbers of people, while the dry zones of West Asia-North Africa (WANA) would complement the current spread of farming systems in CCAFS.

**Mitigation potential:** SEAS and SAME were ranked the regions with the highest mitigation potential, with CAMC ranked a distant third. Respondents ranked regions in relation to various factors, including existing above-ground biomass, extent of irrigated areas, biofuel demand, and extent and potential for deforestation and land degradation. The high mitigation potential of SAME was widely justified by respondents in relation to the Amazon rainforest, and of SAME and CACM in relation to the forest margins. SEAS scored highly in relation to the prevalence of rice-based systems and large numbers of livestock, as well as the extent of community-managed forests at risk from the increasing pressures of crop agriculture. The considerable potential for nitrogen fertilizer efficiency increases was noted in

EASI, along with soil carbon enhancement and afforestation potential. Middle Africa (MAFR) ranked relatively high, largely because of the mitigation potential of its forest cover.

**Vulnerability:** Southern Africa (SAFR) was ranked the most vulnerable region, followed by SEAS and CAMC. Respondents generally ranked on the basis of each region's level of exposure and sensitivity to climate change and its capacity to cope. The vulnerability of SAFR to climate change impacts is well documented, and it is one of the few regions where there is reasonable consensus among the various climate models as to the direction and nature of change in the future (IPCC, 2007). The vulnerability of SEAS is associated with various factors, including the prospects of heat stress in rice, and sea-level rise and salination effects in agriculturally-important deltas that could affect large numbers of people. WANA will see dwindling water resources and increasing competition between agricultural and non-agricultural uses of water. In OCEA, low-lying island nations are highly vulnerable to sea level rise, and coastal communities will be at increasing risk from extreme events.

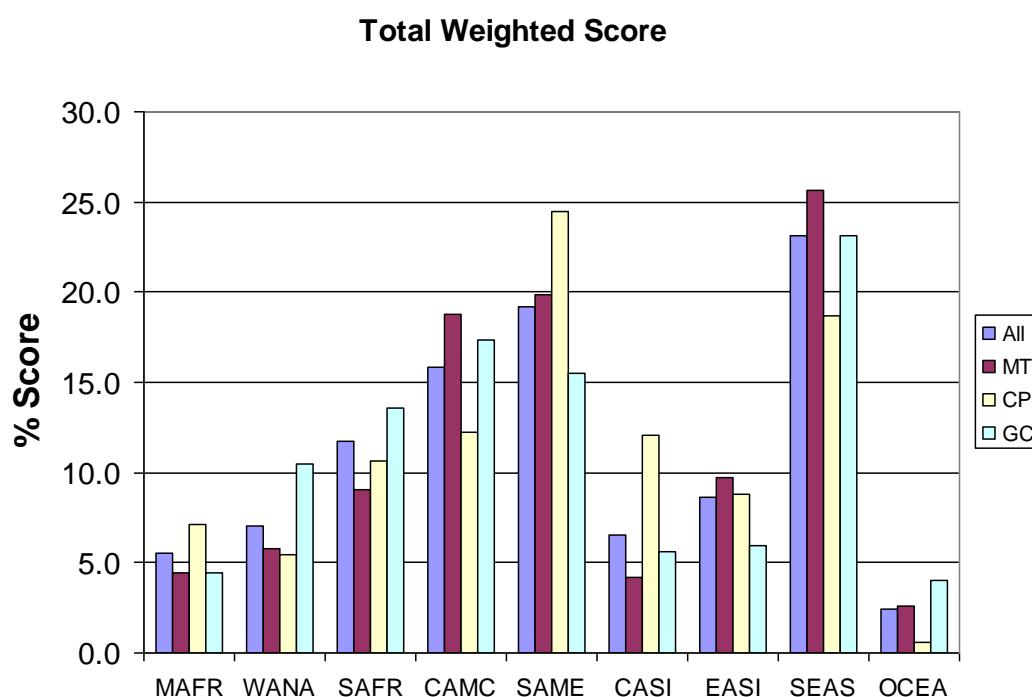
**Innovation potential:** SEAS and SAME were ranked highest for this criterion, followed by CAMC, EASI and SAFR. SEAS (and SAME) was seen as containing several middle-income countries with high capacity for innovation and strong institutions. For EASI, several respondents indicated that there could be very substantial potential for major impact if governments (particularly that of China) are fully engaged. In CAMC, target populations would be relatively small, but at the same time there would be good opportunities to work with policy makers. Several indicated that substantial potential exists in SAFR for innovation, given existing involvement of the private sector in regional food systems. Weak NARS were seen as affecting innovation potential in MAFR and CASI, in particular.

**Institutional support:** the pattern was similar to that for innovation potential: SAME and SEAS ranked highest, followed by CAMC and EASI. Such regions are host to one or more CGIAR centres; the private sector plays a key role in SAME and SAFR; and in SAFR, there are many other players currently. MAFR was seen as being a region where things are very difficult, institutionally.

For the total weighted score, SEAS was ranked highest, followed by SAME and CAMC. SAFR was ranked fourth, largely as a result of its high vulnerability to climate change, and EASI fifth owing to its innovation potential and institutional support.

**Rankings by different groups**

The scorings were broken down by respondent group and analysed separately, to see if there were substantial differences between the groups. Results are shown in Figure 2 for the total weighted scores for each region as ranked by the CCAFS Management Team (n=17), by the CGIAR climate change Contact Points (n=9), and by Global partners and colleagues (n=13). The top three ranked regions are the same for each of these groups (SEAS, SAME and CAMC), although there are some interesting differences. For example, Contact Points ranked SAME



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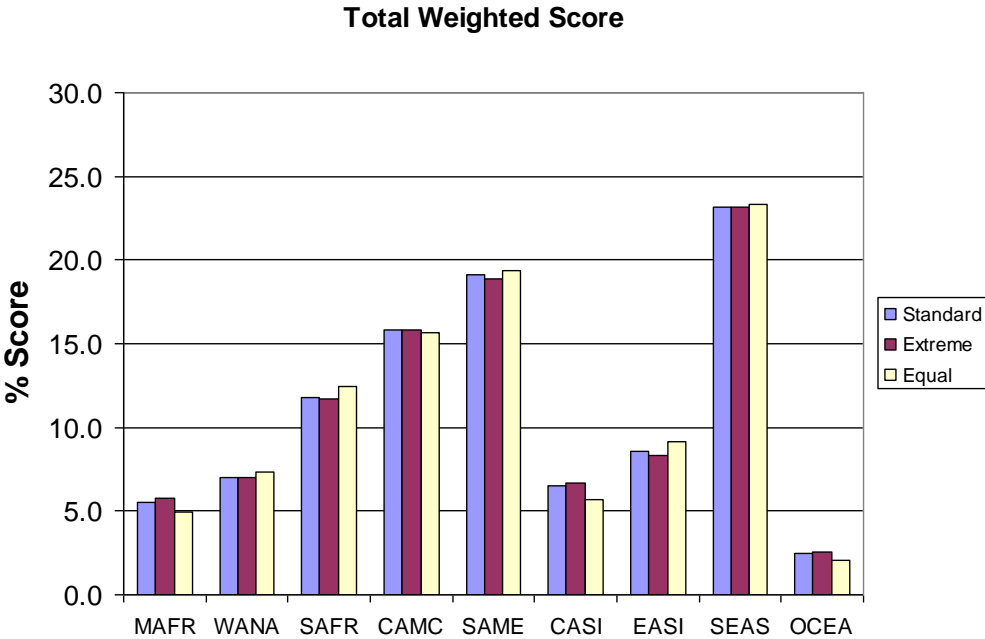
**Figure 2.** Total weighted scores by region for different stakeholder groups: the CCAFS Management Team (MT, n=17), CGIAR climate change Contact Points (CP, n=9), and global partners and colleagues (GC, n=13).



well ahead of SEAS (the only group to do so), and there was strong Contact Point ranking for Central Asia (CASI). Global partners ranked SAME not as highly as other groups, and ranked West Asia-North Africa (WANA) higher than the other groups. For completeness, the different group rankings for each criterion are shown in Appendix 2.

**Robustness of the rankings**

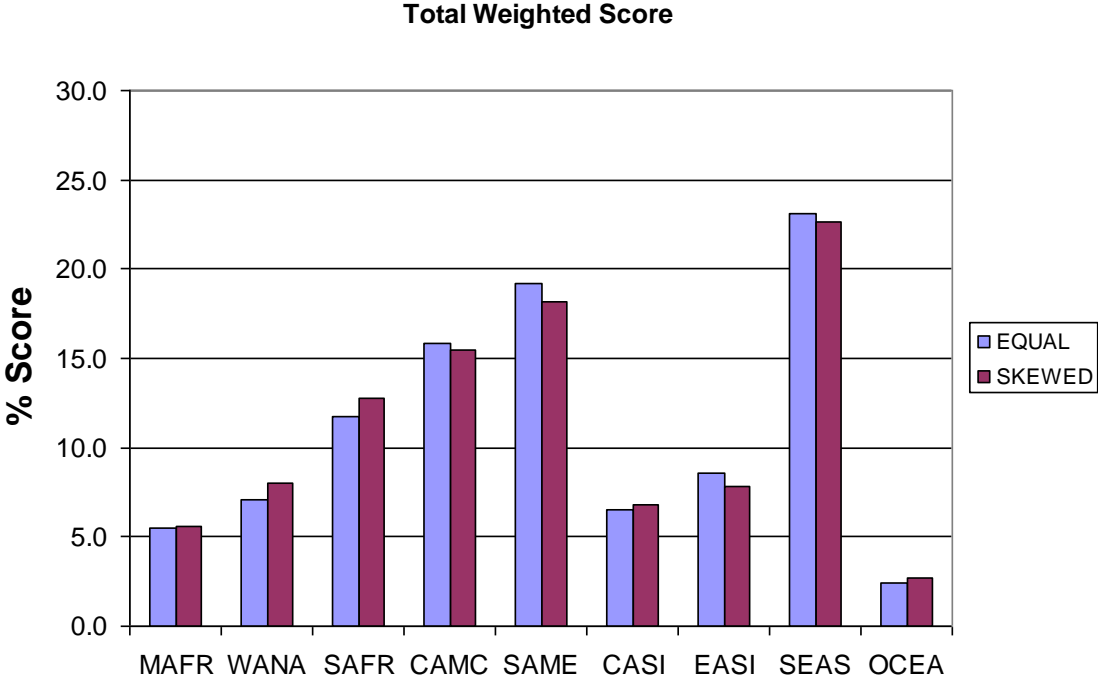
To investigate the robustness of the rankings, the analysis was rerun using two different sets of criterion weights (Table 3), one set that heightens the differences between the criteria and the second set that treats each criterion as of equal weight. The results of using these different sets of weights, compared with the standard set, are shown in Figure 3. The weights that are used in the analysis have little impact on the overall rankings, it appears, and so the results of the analysis can be said to be robust to these weights over a wide range.



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**Figure 3.** Total weighted scores by region for three different sets of criterion weights as shown in Table 3 (n=39).

The total weighted scores shown in Figure 1 (f) were calculated on the basis of equal weighting of the constituent stakeholder groups. To evaluate the impact of different group weights on the final rankings, the analysis was rerun using a set of group weights that gave double the prominence to the rankings of the Contact Points, and even greater prominence (treble) to the rankings of the global partners and colleagues, compared with the CCAFS Management Team. Results of this “skewed” set of weights are shown in Figure 4, compared with the case where each group of respondents had equal weight in the final analysis. As for the criterion weights, it appears that the results are relatively insensitive to higher weights being given to the non-CCAFS respondent groups, and again the results can be said to be robust.



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**Figure 4.** Total weighted scores by region for two sets of weights applied to the different respondent groups (equal weights, and then weights of 1:2:3, for the Management Team, Contact Points, and Global Partners).

## 5 Conclusions and Recommendations

Of the nine regions under consideration, Oceania (**OCEA**) ranked the lowest. Several respondents expressed the view that while there are areas of this region that are highly vulnerable, in general there may be only limited scope for research activities on the food systems in these places: for some small island states, the problems they face are fundamentally existential in nature. It was also pointed out that if CCAFS wants to work on some of the problems faced by island states, this could be done in other regions, most notably CAMC.

Next lowest ranked Middle Africa (**MAFR**). This region was felt to be highly vulnerable, but profound challenges related to institutions, policy, governance and access were identified, which accounted for its low ranking, compared with other regions.

Central Asia (**CASI**) ranked seventh overall. This region was not seen as being particularly vulnerable by most respondents, and its innovation potential and institutional support were both seen as being low by many. It ranked higher for complementarity to the existing CCAFS regions, however, and for mitigation potential related to livestock emissions and land degradation.

West Asia – North Africa (**WANA**) ranked sixth. Its selection would bring the dry subtopics into the CCAFS portfolio, and it was pointed out that the region as a whole is a major centre of biodiversity of crops of global importance, and these genes could be of considerable importance in adapting and mitigating the effects of climate change. WANA is a region of major concern, given the existing structural food deficits in some countries. For most respondents, WANA ranked moderately for many of the criteria, but it was noted that the region is likely to be quite volatile, politically speaking, over the next few years that constitute the time horizon of CCAFS.

East Asia (**EASI**) ranked fifth. Most respondents ranked this region relatively low in relation to complementarity, mitigation potential, and vulnerability, but relatively highly in relation to innovation potential and institutional support. The sheer size of China's population could

indicate enormous potential impact, although it was noted by several respondents that government engagement would be crucial if impacts were to be achieved. Some also indicated that defining an appropriate niche for CCAFS could be complicated.

The fourth-ranked region was Southern Africa (**SAFR**). This is a region where adaptation work is urgently required, given the consensus of impact studies that suggest clear and deleterious impacts of climate change on agricultural production. Several respondents felt that while the region was important from a food security perspective, a great deal of adaptation activity is already underway by a wide range of different organisations. It was noted that it would be relatively easy for CCAFS to initiate activities in the region that are linked to the existing CCAFS regions (particularly East Africa), but its inclusion in the portfolio would not do much towards making CCAFS a truly global program.

Central America and the Caribbean (**CAMC**) ranked third overall. It ranked in the top three for all criteria considered, and there was widespread agreement that although the region faces considerable future uncertainty and possible instability, there is high potential for pro-poor impacts. The region contains numerous small island states, some of which have high levels of poverty, and this would allow CCAFS the opportunity of working on fisheries and other issues associated with sea-level rise and climate change in an island context (although similar opportunities could doubtless be found in other regions as well).

South America (**SAME**) ranked second overall, and ranked highly for all criteria except vulnerability: there are no highly vulnerable domains in the region, according to the vulnerability mapping work of Ericksen et al. (2011). The region ranked highly in terms of mitigation potential, innovation potential and institutional support. Several respondents noted that care would be needed in selecting CCAFS's niche to ensure pro-poor impact.

South East Asia (**SEAS**) was ranked first overall, and for all criteria except vulnerability and institutional support, for which the region was ranked second. It was widely felt to be highly complementary to the existing CCAFS regions, particularly through adding an enormous diversity of farming systems to the portfolio, and to exhibit very high mitigation and innovation potential.

## ***Recommendations***

1. All stakeholder groups solicited rated South-East Asia (SEAS) as the first- or second-ranked region that should be added to the CCAFS portfolio of regions. For the great majority of respondents, SEAS fits the criteria set out very well. It is recommended that SEAS be selected as the fourth CCAFS region. With regard to potential sites in this region, there are important vulnerability hotspots in parts of Laos, Cambodia and Vietnam (Ericksen et al., 2011), and some of these could be considered as candidate benchmark sites in due course.

2. South America (SAME) and Central American and the Caribbean (CAMC) were ranked second and third, respectively. These two regions have somewhat different characteristics, however, and would offer different things to CCAFS, in terms of diversity of systems, possible impact, and mitigation potential. Given the relative proximity of these two regions and the fact that CAMC is a region with relatively low population, a pragmatic approach that would allow CCAFS to take advantage of the differences between SAME and CAMC would be to combine them into one Latin American region. This would allow a considerable diversity of sites to be selected (including one or more small island sites, if that was deemed appropriate). Furthermore, several of the countries in SAME have a relatively high Human Development Index, so CAMC would be a useful addition, from a pro-poor perspective. Accordingly, it is recommended that SAME/CAMC be selected as the fifth CCAFS region.

It should be noted that selection of SEAS and SAME/CAMC would be in accord with the rankings of the maximum number of respondents possible. Some 58% of respondents ranked SEAS and/or SAME in their top three regions; 47% ranked SEAS and CAMC in their top three regions; and 74% ranked SEAS together with either SAME or CAMC or both of them in their top three regions. In addition, 95% of respondents ranked one or more of these regions (SEAS, SAME and CAMC) in their top three. While democratic considerations are not necessarily the most appropriate when it comes to prioritising research decisions, the recommendations made above would appear to be largely in keeping with the views expressed by most people in the sample.

## References

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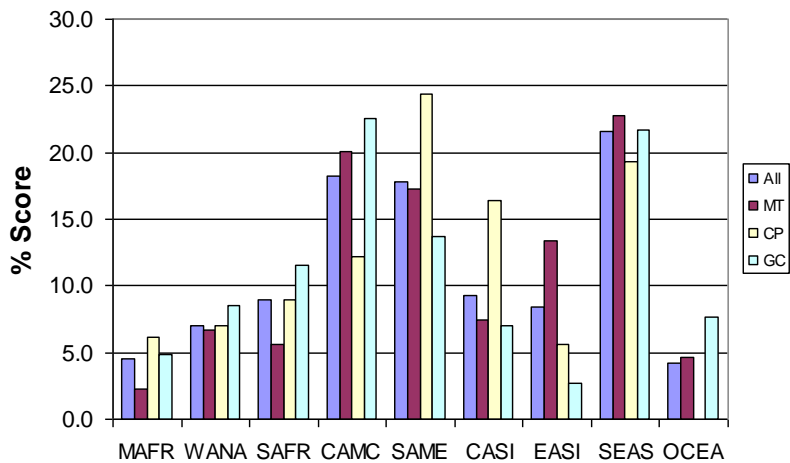
Thornton P K, Förch W (2011). Additional CCAFS Target Regions: Selection Survey Notes. 22 August 2011, 7 pp.

**Appendix 1.** Organisational affiliations of those solicited for input to the region selection process.

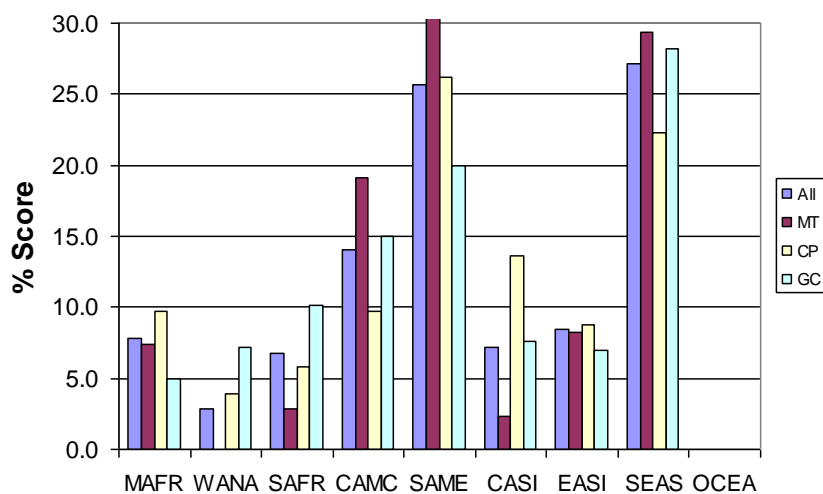
AfricaRice	University of Leeds
Bioversity	START
CIAT	CDKN
CIMMYT	ESSP
CIFOR	GEF Climate Change
CIP	ISEAL
ICARDA	Oxfam
ICRAF	GDPRD
ICRISAT	WMO
IFPRI	UNEP
IITA	Terrestrial Carbon Group
ILRI	SAI Platform
IRRI	FCRN
IWMI	Vietnamese Academy of Agricultural Sciences
WorldFish	National Institute of Ecology (INE)
	Bangladesh Institute of Development Studies
CPWF	Ministry of Agriculture Ethiopia
FARA	CSIR
GCP	Centro de Previsao de Tempo e Estudos Climaticos
HarvestPlus	(CPTEC)
	Commonwealth Scientific and Industrial Research
CARE	Organisation (CSIRO)
FAO	African Centre for Technology Studies
World Bank	Research Centre of Agriculture and Climate Change
WFO	(CAAS)
Global Alliance	University of Wisconsin, Madison
DFID	INRA
IFAD	University of Reading
EU	IIASA

**Appendix 2.** Criterion scores by region as given by different stakeholder groups: the CCAFS Management Team (MT, n=17), CGIAR climate change Contact Points (CP, n=9), and global partners and colleagues (GC, n=13).

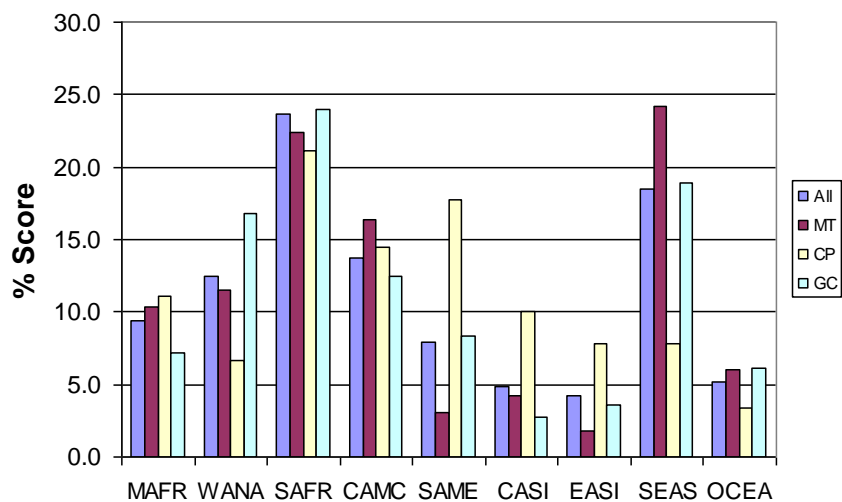
**Complementarity**



**Mitigation Potential**

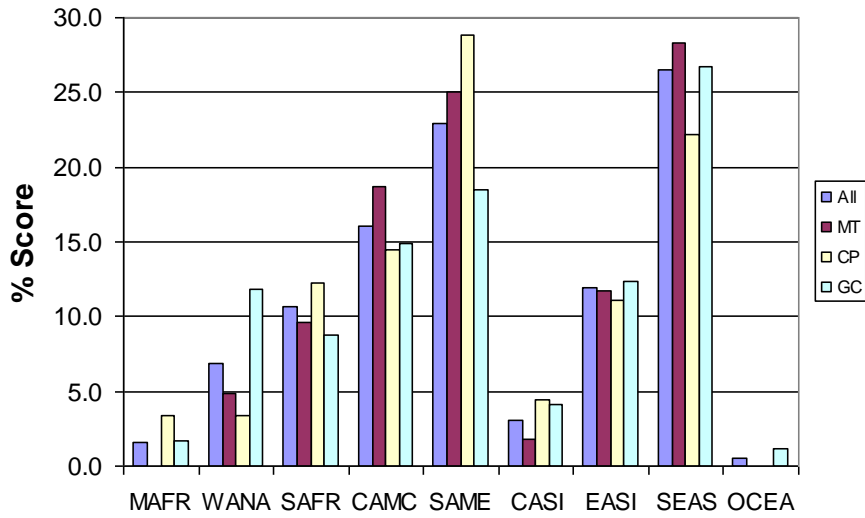


**Vulnerability**

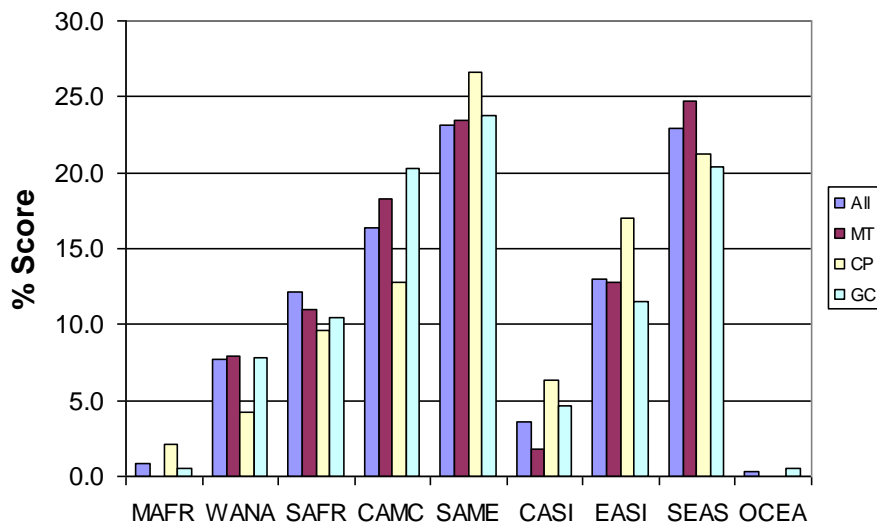




### Innovation Potential



### Institutional Support



MAFR Middle Africa; WANA West Asia–North Africa; SAFR Southern Africa; CAMC Central America & the Caribbean; SAME South America; CASI Central Asia; EASI East Asia; SEAS South-East Asia; OCEA Oceania