

Climate information and agricultural advisory services:

A square peg in a round hole?

by Ian Christoplos¹

The new agenda for climate aware advisory services

Climate change will change the future role of advisory services. This article looks at how advisory services may respond to increased need and demand for climate information from farmers and other actors in the agriculture sector. This includes information about meteorological events, seasonal forecasts and information about predicted long-term trends.

To adapt to the changes that are already underway in the climate, farmers will need a range of advice regarding how to adapt their farming, and indeed their livelihoods, to reflect what is viable, profitable and what kinds of farming have manageable levels of risk. They need information about weather conditions in order to decide what to plant for the coming season. Climate information may help some farmers to make radical decisions about long-term changes to their production systems. Some may even realise that they should leave farming altogether. There are two interconnected sets of advice that are needed. The first is information about technological, market and other options to adapt farming and livelihood systems to changing realities. The second is information about the climate itself in the form of weather forecasts, seasonal forecasts and information about longer-term climate trends. This article surveys key issues surrounding the provision of climate information in the perspective of the tasks, relationships, priorities and values of public, private and civil society institu-

tions involved agricultural advice. A core assumption is that in order to understand the prospects for effectively engaging in these new tasks, it is essential to take into account how advisory services already function, particularly the relationships that exist between advisors and their clients.

It must be stressed, however, that information for adapting to a changing climate is not the only aspect of climate change that will impact on advisory services. In addition to information for climate change adaptation, mitigation of the threat of future climate change by reducing carbon dioxide and other greenhouse gas emissions in agriculture will rely on information about new technologies, incentives for their use and regulation. Advisory services have a self-evident role in providing information about these changes. Beyond the provision of information, their role in impelling farmers to adopt low carbon production methods is highly contentious. There are sometimes unwarranted expectations among those promoting mitigation options that advisory services can convince farmers to shift to complex new production systems for altruistic reasons. Advisory services have never proven themselves to be effective at the kinds of 'behaviour modification' being called for in climate change circles (World Bank 2010), and any engagement in enforcement of new regulations could be devastating for the trust that is required for effective advice. It is more likely that farmers and other actors in the agricultural sector will undertake mitigation measures primarily where incentives/sanctions are strong (with advisory services making them aware of these factors), or where there are clear synergies with the adaptations that are needed to climate change.

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This article does not analyse these issues related to climate change mitigation, but they exemplify how the normative thrust of climate change plans and policies may be out of touch with empirically based understanding of what advisory services can accomplish and what they cannot.

What's different about climate information and advisory services?

Agricultural advisory services have always worried about the weather. These services have helped farmers decide which varieties suit their climate. They have helped in finding new seeds when floods and droughts have made it necessary to replant. They have helped farmers to think through what they can grow to meet market demands, given their climatic conditions.

It would seem that advisory services would be seen as a major potential partner in achieving new goals related to climate change adaptation since they are already engaged in helping farmers to deal with an unpredictable climate. Indeed, advisory services are frequently mentioned in discussions of climate information as an important set of actors. Despite this recognition, it is less clear what the relationship is expected to be between the 'old' engagements of advisory services in helping farmers adapt and the 'new' potentially quite large agenda of investments and institutional development being planned in association with climate change adaptation. In order to understand the new role of advisory services in climate information, this must be put in the perspective of what lessons (should) have been learnt about this set of advisory tasks in the past.

Climate and weather information may receive major attention in the coming years. Judging from attention to climate information in conferences and declarations about climate adaptation investment priorities, these services are likely to expand exponentially. But calls for greater attention to climate information are thus far dominated by a normative, supply-side discourse about the need for more climate information. A 'loading dock' approach (Cash, et al., 2006) dominates the discourse on climate information,

with more attention paid to producing information than to thinking through who is likely to pick up the information and deliver it. With respect to extreme events, for example, much attention is being paid to designing new systems for 'early warning – early action' in relation to seasonal forecasts, but less to understanding the dynamics surrounding the actors that are to link warnings with actions. The lessons of past failures to use information from early warning systems within the agricultural sector have not been applied. So far there has been little attention paid to how existing, pluralistic advisory services (including not only public agencies, but also private firms involved in market chains, insurance, etc.) are likely to integrate this information into their ongoing work. Apart from acknowledgement that they are important, advisory services have been treated as a black box in much existing analysis. The World Climate Conference 3, held in September 2009, was a major event in promoting the new climate information agenda. The conference agreed on a 'Global Framework for Climate Services' that calls for increased 'information streaming' through a cryptically labelled 'user interface programme' (WMO 2009). This may represent a strong commitment, but statements such as this illustrate how little is known about the 'user interface programmes' that already exist wherein actors in the agricultural sector access a range of information. Attention to lessons learnt in pluralistic advisory service development could help flesh out what a new and expanded 'user interface programme' might come to consist of.

Climate information in the changing landscape of market and rural development

In order to adapt to climate change, more and better information is needed. Farmers, traders, input suppliers and other agricultural actors can better manage their exposure to climate risks if they can access information that is deemed to be accurate, up-to-date, clear, relevant and timely in relation to planting and investment decisions. The potential of seasonal climate forecasts in particular to increase agricultural productivity and profitability has been clearly documented (Hansen, et al., 2009).

However, there are diverse ways that this information is likely to reach and be interpreted by different sets of actors. For example, a public advisory service agency needs to somehow integrate this information into other tasks that they are assigned by the agricultural ministry (which often has an uneasy relationship with the environmental ministry that is usually responsible for climate investments). Some advisors, particularly in the private sector, will integrate climate information into advice if the client demands it and if they can access this information, but meteorological services may only have links to public sector actors. Farmer organisations may be a major source of information for their members, but they tend to be 'out of the climate loop.' Their role may be in advocating for their members' interests vis-à-vis producers of climate information. These are some aspects of the complex advisory systems into which the 'user interface programmes' will have to be integrated.

There is some analysis available about what kinds of farmers are already accessing climate information and who is likely to utilise the expanded provision of climate information being planned for the future (Hansen, et al., 2009; Bohn 2003). Most of the limited existing research on the impact of climate information on agriculture has focused on how individual farming households interpret and utilise this information (e.g., Ziervogel, et al., 2006; Marx, et al., 2007). It has been recognised that it will not be easy to make this information available in a useable form for smallholder farmers given difficulties in down-scaling information, the patchiness of weather in relation to forecasts and above all the need for information that is timely enough to give farmers time to react (Hansen, et al., 2009; Cash, et al., 2006; O'Brien & Vogel 2003; Blench 2003). Improved climate advisory services need to be informed by farmer perspectives on the value of climate information, but this is just one aspect of the challenge.

New types of climate information are part of advisory services in ways that are interwoven with advice related to a range of other decisions that farmers and other actors in agrifood systems are making. This includes how climate information is combined with decisions about how to respond to information about markets. Limited attention has been given to

the implications of climate information within complex, multi-stakeholder and market oriented agricultural systems. New information needs to be integrated into existing flows of information such as when a supermarket is demanding a specific variety, in a set quantity, at a particular time, perhaps even with a low carbon footprint or organic certification. The implications of each of these factors for if and how (or even whether) a farmer can use different forms of climate information need to be considered. Farmers weigh market and weather risks together, and advisors need to frame their advice within these judgements.

In discussions of climate information it is also generally assumed that agricultural sector actors just need information about their own climate. But farmers and commercial actors have long been very interested in information about the weather elsewhere, including information about droughts or floods in the neighbouring province or on other continents that create new market opportunities due to increased producer prices.

There is a smallholder focus in climate information discussions that is based on questionable assumptions that the farmer is automatically the target group. In contract farming, climate information services may have a different dynamic, which is not just about reaching smallholders. When farmers turn over a significant proportion of their production decisions to others, the buyer may instruct them when to plant, what variety to use and may even provide seeds and ploughing services according to a pre-arranged schedule. It may be the contractor, not the farmer, who needs to access and respond to climate information. Farmers who have signed these contracts may be merely frustrated and annoyed if they receive seasonal forecasts that cast into doubt a production strategy that they are powerless to change.

Advisory services: Problem or solution?

It is not uncommon to see advisory services portrayed as a problematic 'gatekeeper' (Peterson, et al., 2010) in relations between climate science and farmers. This view of advisory services as obstacles to the flow of climate information in projects is common. There is some accuracy in this portrayal. Agricultural advisory

services are agencies that presumably should be advising farmers about climate change, but they are usually not in the loop in the design of climate adaptation strategies and there are considerable disincentives in the ways that most advisory services operate to integrating a dynamic approach to the use of climate information. Advisory services are 'sticky institutions' in the sense of tending to continue with the modalities and norms that have governed their work in the past, even when information indicates the need for very different priorities.

They are generally not likely to see climate information as 'good news' in relation to their existing task environment. Climate information is about increasing the adaptive capacity of actors in the agricultural sector, but adaptive thinking is not how advisory services usually operate. Most advisory services are oriented toward promoting predetermined, set packages of recommendations that have been chosen based primarily on past production data, gross margin analyses and on-station agricultural research. Given the variability, unpredictability, and increasing prevalence of extreme events that are expected to accompany climate change, fixed packages can become an obstacle to adaptation, even if they reflect longer-term trends about changing temperatures and precipitation patterns. Climate change adaptation recommendations often consist of suggestions that advisors are tasked with promoting drought/flood resistant varieties, but replacing one package with another may not be enough to deal with uncertainty about which extreme their clients should prepare for.

A fundamental change in the roles of advisory services is required. The conventional focus of advisory services on recommendations and production protocols based on average weather conditions will not equip their clients to respond to increasing climate uncertainty and variability. Hansen, et al., point out that 'Management that is optimal for average climatic conditions can be far from optimal for growing season weather in most years' (2009:3). The standard modus operandi of advisory services may put farmers at greater risk.

Advisors often actually contribute to increased climate risk by encouraging farmers to adopt high yield-

ing varieties that depend on controlled environmental conditions and otherwise discouraging traditional methods for spreading agricultural risks. New climate change adaptation projects may expect advisors to encourage farmers to preserve and enhance biodiversity, but this is sometimes overlaid as a minor additional task on top of a primary mandate to promote standard seed and fertiliser packages (Christoplos, et al., 2010). The relatively small and fragmented projects that currently dominate the climate adaptation agenda in the rural development sector can hardly be expected to reverse the prevailing paradigm wherein advisory services are seen as a tool to encourage farmers to abandon biodiversity in favour of higher risk production systems.

Paradoxically, food security programming, which is often focused on promoting such seed and fertiliser packages, may increase the food security risks that are related to climate uncertainty and variability. Advisory services in many countries are currently receiving increased financing as part of such fast-track food security programmes. By comparison, the comparatively sluggish climate change adaptation pipeline has thus far not resulted in significant new investments. It is therefore obvious where advisors are likely to direct their attention.

The core challenge in finding an appropriate role for advisory services in climate information is that of breaking out of tendencies to provide blanket and static advice. The central message coming from climate information is that there is no fixed message:

- a. not temporally (since seasons differ),
- b. not for different groups of agricultural actors (since the types of climate information required will differ),
- c. not for large geographical areas (due to the patchiness of climate conditions), and
- d. not for standard production protocols (since there is a need for a menu of options to deal with the level of risk that each actor chooses to take).

If climate information is to be harmonised with the overall advisory system, the starting point must be to recognise that different agricultural actors may need totally different types of climate advice. In more

traditional production systems smallholders tend to maximise opportunities to act flexibly in response to climate events and information (and also information on markets, etc.) by planting different crops and varieties and making small adjustments during the agricultural cycle. They may value weather reports but they already have their own strategies to deal with uncertainty. This is in contrast to larger commercial farmers who need to make major capital investments before the planting season and therefore rely on a single climate prediction at the beginning of the production cycle (Blench 2003). For this reason seasonal climate advice for commercial farmers may be more useful than advice to smallholders. But this also means that, particularly among large commercial producers and contractors, the use of seasonal forecasts in decision-making is contingent on receiving this information at the right time (Bohn 2003). Late information is useless information. To complicate matters further, market oriented advisory services for smallholders may involve urging them to abandon dynamic approaches since they may need to accept fixed investment strategies from the start of the production season if they are to live up to the standards required to access new markets. Reliable seasonal forecasts may even be a precondition for smallholders to take the risk of following market oriented advice more generally.

Thus, to a large degree the suspicion about the potential of advisory services in providing climate information is well justified. The difficulty with this reasoning is that advisory services are often the only intermediaries around. Their mandates, roles and tasks may be a poor match with the needs of farmers struggling to adapt to climate change, but they are the only ones out there. There are several aspects of the current landscape of agricultural advice that give reason for somewhat more optimism.

First and perhaps foremost, advisory services are increasingly pluralistic and are involved in facilitation and brokerage among different service providers and market actors. This could draw them into more flexible discussions of how to respond to warnings of climate variability. Blench (2003) has pointed out that climate information must be linked with brokering access to appropriate seed varieties to match expected

weather conditions, otherwise such information will be seen as 'worthless.'

Another area where recognition of the flexible role of advisory services could point towards more adaptive advice is *after* extreme events. Advisors are sometimes assigned responsibility for the distribution of seeds and inputs as part of agricultural rehabilitation assistance after droughts and floods. This could provide a window of opportunity to discuss with their clients how the inputs they are receiving should support them to manage expected climate variability. Advisors could also become partners in new forms of early warning – early action initiatives, with advice tied to distribution of appropriate seeds in advance in response to seasonal forecasts, instead of after the drought or flood has wiped out their crop.

Advisors are beginning to become involved in weather index-based and crop insurance schemes where they are being financed by insurance companies to provide farmers with the information they need to respond to potential hazards and mitigate their risks. If insurance companies see advisory services as a way of reducing their own corporate exposure to financial risks, this can lower the cost of premiums charged to farmers (though some public subsidies are likely to still be needed if policies are to be affordable by smallholders). This is an intriguing area where public-private partnerships (with advisory services in a key role) are receiving considerable attention as an *ex ante* way of managing risk. This is seen as a potential alternative to expensive *ex post* humanitarian assistance. If these efforts are expanded beyond current pilot projects this could become a significant role for advisory services in the future, especially in chronically food insecure countries where alternatives are being pursued to recurrent relief programming.

Pluralism in advisory services is now recognised as being a core principle in ensuring that a range of types of advice reaches different clients with a variety of demands and needs. Bureaucratic public sector advisory service structures are in most cases unlikely to be able to exhibit the flexibility required to mobilise campaigns fast enough in response to forecasts. For example, if the main expected response to a seasonal forecast is to ensure that farmers have access to

seed varieties that are appropriate for expected growing conditions, meteorological services could contact seed companies directly and encourage them to provide climate-related advice along with their sales. Input suppliers are very often the main source of information for farmers. Since these suppliers need to place orders for the right seeds at the right time, it would seem obvious that they may be the most efficient and effective channel for informing farmers about why different varieties are appropriate in light of expected weather conditions. They need to sell their seeds and retain the trust of their customers, so their motivation to use climate information as part of their marketing is self-evident.

Conclusion

It is easy to narrowly focus on seeing advisory services as deliverers of information. This does not reflect the complex relationships that exist among advisors, farmers and other actors in the agricultural sector. They are not just vessels for information. Advisors can also advise those producing and supplying climate information about

- a. when they need to get this information to their clients (e.g., early enough for input suppliers to provide appropriate products),
- b. what forms are meaningful for their clients (what 'data resolution' is needed to be useful), and
- c. where in the market chain key decisions are being made about how to respond to climate forecasts (not necessarily farmers).

Advisors are brokers in these complex relationships and may be the only actors who have a reasonable overview of who has to respond to climate information, how and when.

An awareness of these relationships could also be a reality check for the climate community. Expectations that advisory services will undertake 'behaviour modification' among their clients to implement low carbon futures deserve critical reflection, as do hopes that advisors can manage the complexities of many of the mitigation schemes currently being planned. Hopes that a public sector advisory service will be allowed to 'implement' anything on behalf of the min-

istry of environment ignores inter-ministerial realities where ministries of environment and agriculture rarely see eye to eye. Hopes that the government can provide any information on a sufficiently timely and flexible basis may reflect false hopes that an effective public sector advisory service actually exists. Engagement between the climate change community and advisory services must be based on an awareness of

- a. pluralism in advisory service systems,
- b. relations among market actors, and
- c. the foundations of trust between advisors and farmers.

Even if fairly reliable seasonal forecasts are available, it is questionable whether an advisor would urge a farmer not to bother planting at all if a severe drought is predicted. The value and potential use of climate information must be assessed within the context of the fragile relationship that advisors have with their clients. If climate information is to get off the 'loading dock,' this will require more attention to what advisory services already do, including their functions, roles, relationships, values and concerns. Without such an understanding, plans for more effective use of climate information will remain ad hoc, and climate advisory services are likely to continue to consist of whatever small, fragmented initiatives happen to 'fall off the back of the truck' of the climate change agenda. Their clients need better information than that.

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