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The Politics of International Assessments: The IAASTD Process, Reception and Significance

SHELLEY FELDMAN AND STEPHEN BIGGS

This paper explores the career of the International Assessment of Agricultural Knowledge Science and Technology and Development (IAASTD) from its inception, the publishing of its reports, and its place in ongoing debates on global agriculture, food security, poverty reduction, social equity and sustainable development. We highlight the disputes and disruptions that characterize the IAASTD process and attempts to marginalize its findings. Following a brief review of the history of the Assessment and of the social construction of scientific knowledges, we consider five processes that expose the hierarchies and contestations that shape ongoing debates. We reveal how conflicts within IAASTD and between IAASTD and its sponsors cannot be dismissed as either technical or managerial, but instead showcase the fragility of claims that privilege productivity increases over other relations in agricultural practice. We conclude with a challenge to understanding agricultural change and its future that builds on social, ecological and political relations as constitutive rather than as exogenous to research and policy formation.

Keywords: IAASTD, normative science, agricultural policy, social and ecological sustainability, social inequality

Cognition is the most socially-conditioned activity of man, and knowledge is the paramount social creation.

Ludwik Fleck (1979 [1935], 42)

INTRODUCTION

The International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD)[1] was a multi-stakeholder 4-year review and strategic planning initiative. It was comprised of more than 400 authors selected and working through a broadly representative Bureau, and sponsored by governments and international agencies, including the World Bank, the FAO, UNEP and other UN-affiliated institutions.[2] Animating this initiative was an effort to

Shelley Feldman, Cornell University, Feminist, Gender, & Sexuality Studies, 391 Uris Hall, Ithaca, New York 14850, USA. E-mail: rf12@cornell.edu; Stephen Biggs, 28 St Keyna Avenue, Hove, East Sussex, BN3 4PP, UK. E-mail: biggs.s@gmail.com

We have benefited from discussions with Beverly McIntyre, Rajeswari Raina and Edward Clay, Chairs and Organizers of the IAASTD project, and participating Authors and Review Editors. A special note of thanks is offered to our reviewers for their engaging comments. Both authors were members of the IAASTD core of Review Editors. Our examples draw on our encounters in the process, discussions with Bureau and Secretariat members, interviews with Authors, a brief survey of participants, and secondary data from communications among groups during and after the completion of the reports.

[1] The IAASTD Summary for Decision-makers and its accompanying reports were accepted at the World Summit on Sustainable Development in Johannesburg, South Africa. For a review of its animating purposes and strategic organization, see Jiggins (2008) and Ishi-Eiteman (2010).

[2] Food and Agricultural Organization (FAO), the Global Environmental Facility (GEF), the United Nations Development Programme (UNDP), the United Nations Environmental Programme (UNEP), the United Nations

understand the role of agricultural knowledge, science and technology (AKST) in enhancing production, reducing hunger and poverty, improving rural livelihoods and facilitating environmentally, socially and economically sustainable development. Since its launch in 2004, and its acceptance by more than 60 governments in 2008, the IAASTD reports[3] have been largely downplayed or ignored by the very agencies that sponsored and enabled its successful completion.

On 17 September 2009, more than a year after its publication on the web, and a few months after the printed version, the FAO initiated an online forum to examine precisely the issues addressed by the IAASTD: How can we ensure that enough food is available for and accessible to a growing world population? Their conclusion was that the world's population will increase by 34 per cent by the year 2050 and, coupled with declines in agricultural productivity, climate changes, competition from biofuels and limitations on public investment, a new agricultural strategy is necessary. As the FAO report frames it, 'globally the rate of growth in yields of the major cereal crops has been steadily declining. . . . The *challenge for technology* is to reverse this decline, since a continuous linear increase in yields at a global level following the pattern established over the past five decades will not be sufficient to meet food needs'(FAO 2009a, 2, italics added; 2009b).

Support for a view of technology as the engine of growth (and a disengagement with questions of long-term social and ecological sustainability) did not lead to debate over substantive issues or disagreements with IAASTD findings. Instead, there was relative silence about its substantive differences with the IAASTD process and denigration of its scientific legitimacy. To be sure, some scientists among the IAASTD participants claimed that their comments were not adequately incorporated into the IAASTD document by suggesting that this was because environmental groups 'outmaneuvered' their authoritative assertions and claims (Stokstad 2008, 1476). Similarly, as a Bureau member, Emile Frison, noted, 'it was difficult from the outset to engage the best scientists' or, as Paarlberg asserts, '[IAASTD] ended up more a collection of opinions than an incisive summary of the scientific literature' (ibid., 1476).

As we will show, framing a critique on the basis of what is presumed to offer 'legitimate scientific' claims begs the question of what such claims entail and the bases of their legitimacy. It also undermines an opportunity to engage substantively with the document's analyses and conclusions, since it fails to acknowledge divergent views within science, as well as the professionalization of the research carried out by civil society organizations (CSOs) (a growing part of the private, if not corporate, sector). Also, the FAO Online Forum, as others, focuses on the question of technology and ignores the methodological and epistemic challenges posed by the IAASTD in its call for a more embedded approach to understanding the current conditions of agriculture and its future options, and for what it might offer as an alternative analytical lens.

In this paper, we examine why responses to the question of how to feed current and future world populations differ between the IAASTD and the dominant views as represented recently by the World Bank, the FAO and other global institutions through an investigation of their different framing of the issues and associated animating assumptions.[4] In doing so, we acknowledge 'the progressive privatization of science' and the public–private partnerships that shape development research and signal the partial perspectives and interests that attend, particularly in

Educational, Scientific and Cultural Organization (UNESCO) and the World Health Organization (WHO). Support for this $12 million effort also came from governments such as Australia and in-kind contributions from institutions such as the International Food Policy Research Institute (IFPRI).

[3] The IAASTD reports were available on the Internet in 2008 and released in seven volumes in 2009 (McIntyre et al. 2009).

[4] To be sure, there are important differences within as well as between these institutional settings. In identifying broad distinctions between them, we hope to identify the bases of these differences without homogenizing within institutional differences.

this paper, to the research and evaluations undertaken by global institutions. As Robin Broad (2006) has suggested in her discussion of the World Bank and 'the art of paradigm maintenance', the research unit of the World Bank has been transformed into 'a key defender, maintainer, and promoter of the neoliberal paradigm'. We agree with her conclusions and wish to emphasize that the privatization of knowledge production, often through public–private partnerships, can help to expose the interests these serve, and how power and the institutionalization of a particular politics, often articulated through valuations attached to specific disciplinary traditions, shape not only agricultural research and practice, but also an unwillingness to take seriously alternative, as well as oppositional, interpretations of agriculture's current status and future prospects.[5]

We will argue that there is a homogeny of thinking among the organizations and agencies worldwide that attends to the question of agricultural growth. This homogeny refers to a shared point of view or vision and set of institutional practices that advocates for a particular political or ideological position – securing capital accumulation – able to 'acquire and maintain influence and shape policy' (Bates and Krueger 1993, 456; McNeill and St. Clair 2011). This includes the positions of the FAO (2009a,b) and the World Bank (2008), the Consultative Group on International Agricultural Research (CGIAR) (2009) and the corporate private sector in their conclusion that new plant science and new agronomic technologies – magic bullets – are the primary drivers of change and innovation in agriculture. When this driver is coupled with increased corporate private-sector investment to increase production and offers rhetorical claims about reducing poverty, we witness the commodification and narrowing of the agricultural development agenda (Brooks 2011). This narrowing of the research and policy agenda leads to the relative exclusion of views that situate agricultural production in relation to consumption, ecological choice and change, and jobs and livelihood relations and strategies.

We do not presume that issues that concern agriculture are unique in narrowing the scope of debate in this regard. What we do note, however, is that the question of food as commodity and as metaphor has a specific valence that creates particular opportunities for misrepresentation. Food carries strong symbolic meanings that can be used to garner support for particular policies, since food, and the threat of its lack, touches us through fear and anxiety about hunger and starvation,[6] and also can be used to connect us to other issues. As Palagummi Sainath (2001), an Indian journalist writing on food and other rural crises, points out with characteristic eloquence: 'An exclusive focus on "starvation deaths" – disconnected from the larger canvas – seems to imply this: if they don't die, everything's alright. If they lose their land, cannot feed their families, see their children enter bondage, are forced into debt-driven prostitution – all that is okay. They just shouldn't starve to death. That's upsetting. It's bad implementation.'[7]

What is important about this example is that claims of concern for ecological sustainability or social equity can be implicated, but left unaddressed, given a presumption of an

[5] See Wade (1996); also Amanor (2009) and Rizzo (2009). We also recognize that institutions often take policy positions or employ strategies that are unable to integrate non-conforming findings unless they are willing to open to scrutiny the interests of those they represent. When institutions do respond, they often do so in terms of managerial changes; see, for example, the World Bank response to the Deaton report (World Bank 2006).

[6] See its use as food aid, food for work, food for education, and in images of the costs of war or refugee status. Households are generally assumed to be food-secure when their members do not live in hunger or fear of starvation. The food metaphor features in literature (recall Dickens) and also in our everyday usage: 'that's serious food for thought,' 'I need to digest that' or 'there's no meat on that argument' (see http://www.ribbonfarm.com/2008/05/26/information-overload-and-the-food-is-thought-metaphor/).

[7] Sainath won the 2007 Ramon Magsaysay award for Journalism, Literature and Creative Communication Arts, the Boerma Award in 2001, and the Prem Bhatia Award for his 'outstanding, indeed exceptional, work on the problems of the poorest of the poor, especially in Andhra Pradesh,' in 2004 (see http://www.indiatogether.org/opinions/ps1.htm).

always and already threat of starvation, especially when coupled with the threat of population explosions in some world regions. This assumption is often deployed to highlight the promise of increased yields for avoiding such a crisis. Simply stated, when international institutions undergird their programmes with the threat of dramatic population increases and the imperative of needing more food, it provides a useful political trope for seeking ways to solve the threat of world food shortages, while also minimizing or eliding questions of distribution or the ecological costs of particular production regimes. Such a trope has the political promise of sustaining an unquestioned agricultural growth strategy and maintaining the boundaries of decision-making of the global institutions for whom production and its strategic justifications remain central.[8]

Our purpose is to investigate how these different assumptions shape the career of the IAASTD as it continues to unfold as a site of silence as well as contestation. We first briefly situate the IAASTD historically and in relation to its initial supporters, including its broadening to include the role of professional researchers from civil society organizations in development policy formation and practice. We then briefly examine competing scientific claims to show how knowledges are socially constituted and deployed in struggles over authority and voice. Finally, we examine these competing claims to understand the disagreements and divergences which shaped the IAASTD reports, and the various roles it has come to play in the politics of agricultural research policy. We undertake this task by examining five substantive themes: (1) the World Bank as interlocutor; (2) multi-stakeholder inclusiveness; (3) market contracts versus voluntarism; (4) capacity strengthening; and (5) institutional diversity. We follow this with attention to how particular communities of researchers contribute to the construction of hegemonic practices in the international agricultural research and production arena. Such practices, while not closed to heterogeneous research styles and approaches, nonetheless work within a 'business as usual' approach to agricultural science that includes, but is not limited to, how technological innovation is imagined as a key solution to food crises.[9] We conclude by recognizing how 'scientific' assumptions and language are deployed to legitimate particular understandings of agriculture's past and scenarios about its future.

SITUATING CONTEMPORARY AGRICULTURAL RESEARCH: A BRIEF GENEALOGY OF THE IAASTD

The rational for the IAASTD was supported by a host of public and private institutions and individuals, who formulated and shared a research agenda and operational and organizational procedures and also established a representative Bureau and Secretariat. This democratic orga-

[8] In a Gramscian-inspired discursive formation, it would be the process of garnering hegemony and the relations that attend to efforts at its fulfilment, recognizing that the process is never completely accomplished. Ongoing struggles over these issues, and the social movements that contribute to them – for example, Via Campesina – are critical in unsettling the boundaries established by these global institutions, and provide sustained challenges to the business-as-usual approach to the dominant agricultural production model.

[9] In early April 2009, President Obama called upon Congress to double U.S. financial support for agricultural development in developing countries. A 'fact sheet' shared with the public noted that a permanent solution to food insecurity requires restoring rapid and sustained economic growth, with expanded support for the use of modern technology, boosting access to quality seeds, fertilizers, irrigation and rural credit; linking small producers to markets, strengthening agricultural value chains and national and regional trade and transport corridors; and encouraging private investment through multilateral partnerships and leveraging the strength of the private sector, NGOs and universities. See also Beckett (2010), who notes that the Bill and Melinda Gates Foundation 'has arguably become . . . the most powerful charity in the world, and one of the most quietly influential international organizations of any sort', highlighting the shifting power relations embodied in some public–private partnerships. See White House (2009); see also Lang (2010).

nizational and procedural formation centred responsibility for decision-making and built on the experiences brought from the IPCC, the MA and the Ozone Assessment[10] by those chairing and coordinating the IAASTD.[11] Members of the Bureau also included scientists with experience in the CGIAR,[12] as well as those from the international research community, both public and private, the corporate sector, civil society organizations, national research institutions and the academy.[13] At the outset, and despite *post hoc* claims of a failure to include 'credible scientists' among IAASTD participants, the agreed-upon agenda and procedures were not developed by people with limited experience of international assessments. Rather, participants were vetted through a multi-stakeholder bureau, and were deemed highly qualified researchers who were prepared to collaborate on a project and procedures that sought to assess agricultural production goals in relation to those of poverty and ecological and social sustainability. Distinctive about IAASTD was an assumption that food production was to be understood as *embedded* in global as well as national and community-based processes of social and economic differentiation, land consolidation and trade regimes that together shape agricultural resource access and use. This meant that land, labour and trade relations could not be treated as externalities in assessments of agricultural research and production but, rather, are central to explaining current conditions and future options.

Although the Assessment predated the financial, food and environmental crises of 2007–10,[14] it recognized the paradox between dramatic increases in agricultural yields garnered from more intensive and extensive practices, and yet a failure to generate dramatic declines in poverty and child malnutrition, or to respond to growing concerns about ecological degradation. In part, the IAASTD sought to examine the bases of this seeming paradox and was open to different paths for enhancing growth, reducing poverty[15] and facilitating social, economic and ecological sustainability. Recognizing these processes *in combination* acknowledges the historical tendency of its opposite; namely, the separation of the agricultural 'sector' and agricultural research as autonomous fields of inquiry – fields that, independent of particular externalities, could generate appropriate technical solutions to production constraints through the deployment of expert technical knowledge.

IAASTD contributors, in contrast, were preoccupied with situating agriculture in relation to poverty, but also in relation to food security, including at the household level, environmental sustainability and livelihood strategies, especially for the rural poor.[16] This situated view provided a critical lens for assessing the contributions of a wide range of technological solutions, as well

[10] The Intergovernmental Panel on Climate Change (IPCC); the Millennium Ecosystem Assessment (MA) 2005; and the Scientific Assessment of Ozone Depletion (Ennis 2007).

[11] Robert Watson was a previous Chair of the IPCC, the MA and the Ozone Assessment. Co-chair Dr Hans Herren was the 1995 World Food Prize winner, and Co-chair Judi Wakhungu serves as Executive Director of the African Centre for Technology Studies. Also, several of the IAASTD Secretariat staff, Authors and Review Editors contributed to these earlier assessments and had extensive experience in the CGIAR network.

[12] Established in 1971, the CGIAR 'applies cutting-edge science to foster sustainable agricultural growth that benefits the poor. The new crop varieties, knowledge and other products resulting from the CGIAR's collaborative research are made widely available to individuals and organizations working for sustainable agricultural development throughout the world' (http://www.cgiar.org/who/index.html).

[13] For a list of members, see http://www.agassessment.org/index.cfm?Page=Bureau&ItemID=7.

[14] For a discussion of the 2007–8 food crisis, see the *Journal of Agrarian Change*, January 2010.

[15] As George Rothschild (2005) former Director-General, International Rice Research Institute and former Chief Scientific Adviser to the Australian Minister for Overseas Development, framed it: 'The great complexity of poverty in terms of its causes and solutions requires an appropriate blend of long-term technical and social science, if research feeding into development policy and practice is to make a meaningful contribution to poverty reduction. There is little room for quick fixes in technology, even though these are often favoured by politicians – and some donors.'

[16] See the special issue of the *Journal of Agrarian Change*, published in April 2009.

as the differential costs and benefits of these options – irrigation, agronomic changes, animal husbandry, post-harvest practices and the use of transgenics – in transforming productive capacities. While different interpretations and approaches framed discussion, the multidisciplinary[17] and multi-institutional character of IAASTD participants and their methodological diversity introduced normative and, importantly, non-normative understandings of agricultural research into the discussion. These discussions often led to productive exchanges, even as they challenged the tendency of a few people to rebel, withdraw or limit discussion to the current AKST framework.

Consequently, the IAASTD process shifted from a single focus on agricultural growth strategies to enhance yields through the manipulation of crops or their production; for example, the International Maize and Wheat Improvement Center (CIMMYT) on wheat and maize, the International Rice Research Institute (IRRI) on rice and the International Water Management Institute (IWMI) on water, as well as from the privileging of certain economic models and understandings of scientific rigour.[18] The International Food Policy Research Institute (2010), for instance, while being attentive to climate change and to food price fluctuations and riots in 2008, drought and heat in Russia that resulted in wildfires and a grain embargo in 2010, and unprecedented floods in Pakistan, nonetheless offer the following policy proscription: 'properly targeted agricultural productivity investments can mitigate the impacts of climate change and enhance sustainable food security . . . [Their analysis also] suggests that up to 2050, the challenges from climate change are "manageable," in the sense that well-designed investments in land and water productivity enhancements might, *conceivably*, substantially offset the negative effects from climate change' (pp. xv–xxi; italics added).[19] And, while other multi- and bilateral agencies make a similar claim – a concern with poverty reduction or food security and sustainability – their focus on technological innovation often leaves as consequential, rather than constitutive, the need to address poverty and ecological sustainability.

Examining these shifts is important today because interest in building agricultural capacity in Africa often invokes successes associated with the Green Revolution strategy in South Asia. However, in hindsight, it is crucial to distinguish the original project from significant temporal and global shifts in the political economy, and from the increasing acknowledgment of the economic, social and ecological costs of the Green Revolution for producers, communities and countries (Falcon 1967; Falcon 1970; Cleaver 1972; Farmer 1979; Pearce 1980; Byerlee 1992; Pingali and Raney 2005). Also specific to the Green Revolution strategy was that it was institutionalized through leadership by public-sector research and extension agencies with broad public-sector investments, the building of capacity among national research institutions and subsidies, whereas the current strategy retains its productionist orientation, but is now implemented under a global market-based system of production characterized by an expansion of the role of the transnational private sector, particularly in life sciences research (World Bank 2008, hereafter referred to as *WDR08*; Brooks 2011).

A recent review in *The Economist* (2011b) on the future of food suggests that the current withdrawal of public-sector support for basic research should be restored to the CGIAR system and that 'emerging giants should chip in too. China, India, Brazil and Russia'. They also restate

[17] Participants brought technical expertise in agronomy, plant breeding, soil science, entomology and farm management; economists shared expertise on trade, subsidies and models of growth; and social scientists brought expertise in political economy, extension, gender and labour relations, and demography.

[18] See Stokstad (2008) and CGIAR (2009). Both employ the [code]words 'scientific rigor' and 'rigorous analysis' to highlight a commitment to a single methodological tradition and the denigration of others.

[19] Their cautious claim of 'conceivably' is noteworthy.

the basic distinction between a CSO interpretation[20] and Malthusians – food companies, plant breeders and international development agencies – who view the Green Revolution, and by implication its reincarnation as the gene revolution, as 'a stunning success and needs to be followed by a second one now'. Likewise for a recent IFPRI report (2010, xv), which also directly addresses the problem of funding: 'dramatic increases in food production and land productivity led to complacency about the remaining challenges ahead, resulting in reduced public sector investments in agricultural productivity'. Public-sector investment, as suggested earlier, will have a different relation to the current development project than it did in the 1960s, with a new focus on partnerships that can also more directly subsidize private-sector Research and Development (R&D) as a complement to Foundation support to members of the CGIAR (Gates 2009). These same institutions continue to be the beneficiaries of foundation support, now including the Bill and Melinda Gates Foundation, whose focus centres on improved productivity and markets.[21]

There also is a significant shift in how we understand agricultural production, which was once focused on national food production, but today includes the production of energy and biofuels for a global market. This acknowledges a change from a sectoral strategy focused on a diverse group of producers engaged in food production, where farm-size was an important consideration, to a global production system that trades among food and biofuel production and need not be driven by national food needs. And, even when they are so driven, states realize these goals by investing in land abroad to meet their national food security needs (see, e.g., Kugelman 2009; Borras and Franco 2010). Moreover, in this global economy, effective food production strategies need to address food-protected markets and subsidies in the industrialized North that, through the World Trade Organization (WTO) Agreement on Agriculture, continue to subsidize agribusiness and offer them access to increasingly liberalized markets in the global South. In addition, current research is increasingly characterized by the dominance of private, corporate-sector organizations premised on commercial interests that build on, and alter, public-sector R&D capabilities and resources (see Spielman and von Grebmer 2004; von Braun and Ferroni 2008; Gillam 2010; Syngenta Foundation 2010). As a consequence, we witness the rise of negotiated public–private partnerships that trade between international and national interests and needs, and public goods and private expansion and control.

Also distinctive about the period during which the IAASTD was written was the growing number of epidemics that differentially affected populations across world regions; for example, severe acute respiratory syndrome (SARS) bird flu,[22] and, during the launch of the report, in Europe, blue tongue; food riots in Mexico, Argentina, Egypt and Haiti in response to rising food prices;[23] and the new urgency and acknowledgement of the processes that contribute to global warming and climate change. Significantly, too, we are witness to the continued breakdown of

[20] The article fails to recognize the broad interests of CSOs and suggests that their central concern is rich-country problems such as animal welfare and obesity, a finding contrary to the initiative taken by the CSO role in the IAASTD, and the role of global social movements, often with the support of CSOs, that exemplify the ongoing struggle for food sovereignty (Via Campesina, http://www.viacampesina.org/en/index.php?option=com_content&view=article&id=47:food-sovereignty&catid=21:food-sovereignty-and-trade&Itemid=38) [accessed 18 June 2011].

[21] See http://www.gatesfoundation.org/agriculturaldevelopment/Documents/agricultural-development-strategy-overview.pdf [accessed 7 August 2011]. See also Wield et al. (2010), who integrate discussions of political economy and agricultural biotechnology to reveal the increasing concentration among firms, as well as the commodity chain integration of seeds and chemicals with new investments in biotechnology.

[22] There was a massive reduction in vulture populations on the Gangetic plains and in the Himalayas, as a result of the use of diclofenac for cattle, which finds its way into the food chain.

[23] The spontaneous food riots of 2008 reveal the inability of governments to control the costs of the privatization of grain reserves and food prices as well as declines in their food reserves.

world trade negotiations over such issues as the position of the Organization for Economic Development and Coordination (OECD) countries in maintaining their highly protected and subsidized agriculture industries, contestation expressed in European Union (EU) legislation to prevent the import of GM foods and other agricultural products from the United States. Recently, too, the United States has introduced regulations to monitor and control the imports of GM foods (see Dejevsky 2000;Vicini 2010a,b). This very different institutional context makes it difficult to address the contradictions posed by borrowing selectively from the practices and discourses characterizing the shift from a green to a gene revolution (Pingali and Raney 2005).

Even if one were to ignore the social and ecological costs of the 1960s Green Revolution, these differences suggest that the possibilities it offered, as once assumed – to be able to address global food needs and a commitment to poverty reduction – are now being challenged by the new conditions that shape food production and consumption (Feldman and Biggs 2010). Yet, as for much of the agricultural science community, the promise of a second Green Revolution built support for the IAASTD, as well as for the FAO report and the World Bank Development Report (*WDR08*), even as we recognize that these projects began from different assumptions about the value and contributions of sectoral analyses, and about the synergies among productionist goals, environmental costs and distributional effects. Their different assumptions are also consequential for assessing agriculture's past, as well as for generating scenarios for agriculture's future. To understand these differences, we turn to showing how different knowledge claims can shape research outcomes, and how claims are always partial and representative of particular interests in ways that attempt to gate-keep what and whose knowledge counts.

SCIENTIFIC KNOWLEDGES: A CHALLENGE OF ENGAGEMENT

There is considerable debate about the character of science knowledge production and how science policy formation unfolds. Our purpose here is not to engage this impressive scholarship but, rather, to address how norms of scientific practice have been deployed in the IAASTD in ways that sought to sustain particular interests – the presumption that the technical practices of scientific discovery are built on assumptions of objectivity and disinterestedness – and particular relations of power. Working from the assumption that scientific knowledge is *made* rather than *discovered*, the process entails bringing together tools, knowledge and the institutions and relations that authorize and reproduce particular ways of knowing and interpreting evidence.

As we will show, the different starting points of inquiry among IAASTD participants are not contrasts between value-free and value-laden interpretation but, rather, represent diverse interests that could not simply be categorized, as some have argued, as credible versus non-credible science, or academic, policy institution and corporate-sector research versus CSO research.[24] Instead, we contend that to understand why the IAASTD findings have been so troubling to science as usual, it is useful to think in relation to the production of discursive formations that serve to legitimate some knowledges and challenge the validity and authority of others. Legitimate knowleges are reproduced through specific institutional practices and claims to authority – relations of power that shape how to understand research as 'rigorous and independent' versus interpretive and biased.

Michel Foucault (1977) defines this process retrospectively: 'the strategic apparatus which permits of separating out from among all the statements which are possible those that will be *acceptable* within . . . a field of scientificity . . . [It makes] possible the separation, not of the true

[24] Our focus is on the institutional response to the IAASTD, and not on individual researchers who may or may not wish to engage with the findings of the report.

from the false, but of what may from what may not be characterised as scientific' (p. 197; italics added). A strategic apparatus also entails the mechanisms by which particular interests and preferences are translated into influence over policy (Jasanoff 1987). As Robin Broad (2006) reveals in her study of the World Bank's Development Economics Vice-Presidency (DEC), the Bank's public presentation of its research arm is that it conducts 'rigorous and independent' work. In practice, however, she shows their research to be skewed towards reinforcing the dominant neoliberal policy agenda, since these assumptions frame the hypotheses they explore and the issues they deem worthy of study. Such selectivity is institutionalized, according to Broad, through six practices: the Bank's criteria for hiring and for promotion, the selective enforcement of rules and the discouraging of dissonant discourses, the manipulation of data, and the public promotion of their ideas.

What is critical to emphasize is that this is not a claim of conscious misrepresentation, although this can and does happen, particularly at the institutional level but, rather, that it identifies the set of practices that enable the reproduction of particular knowledges to the exclusion of other ways of knowing and types of knowledge (Feldman and Biggs 2010). Importantly, Broad's insight recognizes that such knowledges need to be made available for popular consumption so that, in her case and ours, a neoliberal agenda, and the assumptions that attend to it, can be viewed not only as legitimate, but also as taken for granted. This view of knowledge production and its attendant research paradigm is part of a political project that seeks to secure accumulation where new agricultural technologies and open markets are to be the focus of attention. With this as the objective, it is not surprising that a neo-Malthusian discourse finds a parallel in the conclusion of an important IFPRI (2010) study:

> As the global population grows and incomes in poor countries rise so too will the demand for food, placing additional pressure on sustainable food production. Climate change adds a further challenge, as changes in temperature and precipitation threaten agricultural productivity and the capacity to feed the world's population . . . Using various modeling techniques, the authors project 15 different future scenarios for food security through 2050 . . . [and] conclude that the negative effects of climate change on food security can be counteracted by broad-based economic growth – particularly improved agricultural productivity – and robust international trade in agricultural products to offset regional shortages.

What is important about this framing, and its conclusion, is that it appears to address a changing agricultural environment – climate change, population growth, and, in the background, a commitment to sustainability – yet it offers, in response to these changes, a business as usual approach to agriculture, without questioning the model they employ, or the consequences which may have arisen to shape the current crisis. In short, it speaks within the neoliberal paradigm.

In contrast, the IAASTD similarly sought to assess the current state of agriculture, but, in examining the changes that shape contemporary agriculture it broadly interpreted agricultural research as part of an historical development project whose productionist goals needed to be integrated with other critical issues, including questions of ecological and social sustainability, climate change and rural livelihoods. Thus, rather than assuming a narrow definition of production and market liberalization in the service of capital accumulation, there was a collective acknowledgement of some of the potential trade-offs and costs of continuing this normative approach to agriculture. This historical view opened to scrutiny the limits of a productionist approach that treated as externalities climate change, ecological sustainability and issues of livelihood security and equity, as it sought to attend to the findings that such scrutiny made visible.

The refusal to debate the substantive differences between these approaches, and between the issues they exposed, reveals precisely how power operates between different institutions, and contributes to understanding how and why some may discourage or ignore dissident voices that challenge their political objectives. It is this power relation that signals our concern to show how agreed-upon rules of procedure, areas of negotiation, and interpretations of 'balanced' assessments throughout the career of the IAASTD were repeatedly overridden by presumptions of what counts as valid knowledge, and how such knowledge is shaped by specific institutional alliances and interests. It is important to emphasize that our argument in this paper does not address the substantive claims made by the IAASTD and its differences with other institutional assessments and reports. Instead, our purpose is to offer an explanation for why differences in the findings and interpretations that do emerge about agriculture's future, and the issues that need to be addressed to realize social and ecological sustainability, have yet to be debated by the reports and assessments that were completed subsequent to the IAASTD by the World Bank, the Food and Agricultural Organization, the International Fund for Agricultural Development and the International Food Policy Research Institute.

There also were critical differences in the epistemological framings among IAASTD participants, although in this context differences sometimes produced animated and fruitful discussion, while at other times they led to intractability in struggles for authority and legitimacy. Often, in search for a balanced perspective – as in trying to offer multiple interpretations – negotiation frequently focused on which research techniques or method, qualitative or quantitative, had legitimate authority; and which discipline, economics or anthropology, was most credible to answer the questions at hand. Here, tensions were generally framed in terms of hierarchies of those speaking, as when agricultural economists would claim authority over social scientists, or those from CSOs were challenged for being interest-driven rather than highly trained research scientists who uphold value-free science.[25] These tensions led to competition over different interpretations of: first, the relationship between production increases and distributional effects; second, the appropriateness of the decision to invest in large capitalist farming under the assertion that it was more efficient and that its benefits would trickle down to smaller and non-farm producers through improvements in incomes and consumption; and, third, the role of small farm agriculture and the trade-off between food sovereignty and comparative advantage.

In an in-house evaluation of the IAASTD, Howard Elliott (2009) claims that such differences in approach and substance can be understood as managerial problems. We counter that a managerial interpretation of events and issues obscures contestations over interests among IAASTD authors and funders since, in some cases, IAASTD conclusions differed from the expectations of some funders, as well as from the research and corporate community that held a dominant position in agricultural research and production policy debates (Keith 2008; Stokstad 2008). We also suggest that substantive differences are often masked as managerial concerns as a way to reduce or undermine their importance. Sainath (2001) chides his readers by suggesting that the problem of starvation is not systemic but, rather, technical or managerial – poor implementation – whose solution merely requires minor fixes or shifts in how production and producer relations are managed. Such a view, of course, has important political implications, including that of directing attention away from precisely those questions that

[25] Notably, there were more women and researchers from the South associated with this project than is usual in such initiatives, which led to scoffing at the value of their contributions (Stokstad 2008). For further acknowledgement of this tendency, see also Brooks (2011).

might open to interrogation, rather than naturalize – that is, treat as inevitable – systemic problems or political relations including neoliberalism or globalization.

What we suggest is that by exposing the differences between the IAASTD and normative interpretations of the current status of agriculture, such as that between the *WDR08* and the IAASTD, we also remove the mask posed by claims of simple managerial differences. In so doing, we pose a challenge to the gatekeepers of international agricultural discourses for whom the productionist approach and market liberalization are understood as the only possible grounding and interpretation of agriculture's future (Feldman and Biggs 2011).[26] Also, different from in-house World Bank reports or evaluations, the IAASTD did not have a litmus test for inclusion, as Review Editors and Authors were broadly representative,[27] although all shared a broad interest in understanding how to enhance agricultural production in relation to questions of poverty reduction and sustainability. Such inclusiveness helped to identify the salience of current global events[28] and to work towards an understanding and identification of 'drivers of change' as part of an embedded historical project.

As we will show, in some cases, people joined IAASTD and were caught by surprise when faced with the intransigence of others who were unwilling to consider changing their focus, whether from a narrow sectoral view of agricultural production and the expertise that would enhance yield and somehow lead to reducing poverty, or an approach framed by strategies of growth that would *simultaneously* address reductions in poverty and inequality, and increase sustainable lives, livelihoods and environments. The latter view, as presumed by the majority, sought to embed agricultural production in the social relations and economic and ecological processes that constitute its particular historical form. Most important for the discussion that follows is that ignoring or labelling differences within the IAASTD, or between IAASTD and other international constituencies, as managerial concerns undermines opportunities for debate over the empirically based research on the causes and drivers of social and economic change.

EXPERTISE AND EXPERT KNOWLEDGE: MECHANISMS OF EXCLUSION

In this section, we examine how *mechanisms of exclusion* and entitlement operate to produce what comes to be considered legitimate knowledge. Understanding the role of experts and expertise can help to interpret IAASTD's reception, efforts to disrupt its agreed-upon set of rules and procedures, and, in some circles, disregard for its conclusions. We suggest that continuing efforts to ignore the Assessment sustains a 'business as usual' approach to agricultural production at the very moment that it, and other international reports, suggest that there are very high costs associated with a failure to address today's and future food security issues (IPCC 2007; FAO 2009a,b; Royal Society 2009).

[26] The Deaton report (Banerjee et al. 2006) has met a similar fate, it is read by some for what it reveals about the research undertaken by the CGIAR, yet acknowledgement by the Bank has reframed the issues identified in the report as reparable through changes in management and implementation (see http://siteresources.worldbank.org/DEC/Resources/84797-1109362238001/726454-1164121166494/Research-Evaluation-2006-Chief-Economist-Response-11-27-06-FINAL.pdf) [accessed 29 August 2010].

[27] In some cases, researchers were paid directly by their employers – for example, IFPRI – or were selected by governments, but the commitments of many were based on the issues at hand and their availability to volunteer.

[28] For example, food crises, battles over Genetically Modified Organisms (GMOs) as in Europe and India, the strengthened role of the private corporate sector in policy decision-making, the increasing concentration of ownership of R&D capabilities with the shift towards public–private partnerships, large commercial holdings and corporate land purchases or land grabs in Africa and Asia, and the ongoing, and changing, relations between international donor agencies and research institutes, CSOs and other members of the public and private sector.

Expertise highlights the professionalization and prestige that support the authoritative claims of some practitioners to the exclusion of others, a set of relations and behaviours that are often reinforced by selective peer review. This reproduction of a normative paradigm shapes analyses of particular issues, questions or paradoxes and the generation of policy proscriptions (CGIAR 2009) even though, as some note, 'the authority of science is seriously jeopardized when scientists are called upon to participate in policy-making. . . . [since] administrative decision-making often requires a probing of the areas of greatest indeterminacy in science (Jasanoff 1987, 197). The IAASTD process appreciated the important distinction between analyses and prescription, and so only offered 'options for action' with the recognition that decisions depend on interpretation and implementation by policy-makers who are likely to be better positioned to account for the conditions, relations and interests of particular contexts.[29] This, too, is what continues to be distinctive about the IAASTD collaboration, even though it was development policy institutions such as the World Bank, the FAO and IFPRI who were largely responsible for providing the critical resources for the initiative.

In agricultural research, as in other fields, expertise is built on a growing appreciation and recognized need for multi- and interdisciplinary research to assess practices, diagnose problems, and develop appropriate extension strategies and activities. Yet, while recognition of multidisciplinarity is an important first step, what participants experienced in the IAASTD process was that the organization of agricultural expertise remains wedded to the privileging of technical expertise and a hierarchy of disciplinary boundaries. In the social sciences, neoclassical economists often provide the models and approaches that set the normative and empirical standards for what is taken to be legitimate knowledge (CGIAR 2009). This hierarchy is reproduced in: universities and colleges of agriculture (e.g. the US land grant system); research institutes, including those that are part of the National Agricultural Research System,[30] and the CGIAR Rockefeller Fellowship Program for young scholars; internships at IFPRI; and, more recently, competitive grants from the Gates Foundation. Together, these institutional formations contribute to shaping and reproducing a productionist rationale for agricultural science.

It is precisely this training, and the assumptions that drive interpretations of past practices and their consequences and contributions, that give rise to the institutionalization of a hierarchy of expertise to gate-keep the issues that are deemed salient. These practices also shape how we come to understand and legitimate one set of assumptions and approaches to the exclusion of others. Perhaps unwittingly, the IAASTD, by bringing together a broad array of expertise with varied experiences from across institutional settings and world regions, generated the conditions and opportunity to complicate such traditions in ways that enabled thinking outside of the dominant framework of enquiry and its ahistorical view concerning the 'drivers of change'.

Two moments in the IAASTD process are noteworthy. One concerns the process of writing and disseminating the IAASTD reports; and the second, the career of the IAASTD since the availability of the Web Report and its publication by Island Press. In the first instance, the surprise was not only about differences among participants in analyses of agricultural science and practices, but also about *how* posing agricultural production in relation to social and

[29] IAASTD did not make universal claims or offer a model for countries to implement; instead, they included reports from different world regions to acknowledge the diversity within and across them, leaving the question of decision-making to individual country governments.

[30] Financial support for National Agricultural Research Systems (NARS) might not reveal the range of projects and interests included in their portfolio precisely because, as they note, such 'figures are meaningless as they include donors' contributions which are never available for all researchers with the system of enclave projects' (Beye 2002).

environmental sustainability led to questioning the dominant framework that depended on viewing agriculture as an autonomous sector, and agricultural research as concerned primarily with enhancing productivity through plant breeding. This was most apparent when participants representing specific institutions – for example, IFPRI or, in the private sector, Syngenta – presumed that some issues were 'beyond question' and sought to control the flow of conversation around the only question deemed important, that of agricultural growth. While these participants were not successful in stopping the reports from appearing with its their more expanded focus, the example suggests the power that such institutions hold to frame what knowledge is produced and to sanction alternative interpretations and policy options. Moreover, as gatekeepers of specific kinds of knowledge and specific knowledge claims, they continue to reveal, and thus to reproduce – however unevenly – their authority by trying to exclude or ignore IAASTD findings from ongoing debates.

The second, and related, point concerns the career of the IAASTD since its publication and the calls by many to question why its findings are addressed neither by those who initially funded or endorsed the project (e.g., the FAO and the World Bank) nor by selected governments (Australia, Canada and the United States). Noteworthy is the recent FAO initiative, *The State of Food Insecurity in the World* (2009b), which failed to engage areas of disagreement with the IAASTD, even though such engagement might have provided a venue for sustained thinking and learning about the complex relationships between efforts to expand production, sustain livelihoods and the environment, and reduce poverty – concerns presumably shared by the writers of both reports. Instead, institutions, including the FAO, the World Food Program and the World Bank, have marginalized and often appropriated the language of the IAASTD into how they frame the issues that they address. For example, an examination of the CGIAR web page is replete with the language of sustainability and objectives that address the poor, yet an examination of their research reveals a focus on technical solutions to increase yields. In other words, instead of embedding the research initiatives that they undertake in the context of climate change, ecological sustainability and enhanced livelihoods, they instead continue to narrowly prescribe growth in production and expanding markets as the solution to the agricultural (food) crisis (see also Gates 2009; IFPRI 2010).

Nevertheless, and interestingly, IAASTD continues to play an important role in unsettling this growth-*cum*-productionist approach. Some months after the completion of the IAASTD Reports, the United Kingdom adopted its recommendations calling for an end to input-intensive, trade-driven agriculture, and renewed its support for sustainable, local, smaller-scale agro-ecological farming. The United Kingdom became the 58th of 61 countries to endorse the call for 'A New Era of Agriculture'. Also, Greenpeace made use of the document to question the Department for International Development's (DFID) narrow productionist orientation to international agricultural research (Dechenne and Riley 2009), while the German government reopened its interest in thinking through and with the IAASTD in hand as they develop international agricultural policies that incorporate a commitment to sustainable lives, livelihoods, and the environment.[31]

Reflections on these tensions suggest that facts or evidence in support of a plausible argument can secure legitimacy, contribute to discussion in global policy arenas and contest institutional power differences. To parallel Sheila Jasanoff (1987, 195), 'facts are accepted as authoritative not necessarily because they can be empirically verified, but because they are validated through processes of informal negotiation and can be arranged into frameworks of shared assumptions and inferences'. Accepting this, the IAASTD can be seen as reviving a challenge to current

[31] Interview with Watson, May 2009.

authoritative voices over the framing of policy debates, and ongoing contestations that go back to the formative days of the FAO. Following examples from the IAASTD, which we use to unpack the workings of these dynamics, we return to expert knowledge and its use with a renewed appreciation for the role of international institutions as gatekeepers of knowledge, and why the issues raised by the IAASTD matter in current policy debates.[32]

EXERCISING DEMOCRACY IN THE IAASTD PROCESS

Differences in expertise were incorporated into the IAASTD through a shared understanding of democratic practices that responded to the multiple interests animating the project and the decision to decentralize participation and decision-making via a Secretariat and a Bureau (Jiggins 2008; Feldman, Biggs and Raina 2010). To illustrate how tensions over whose knowledge and what kinds of knowledge gains legitimacy in international discussions of agriculture's future, we share five examples to show the context in which the IAASTD was elaborated and, importantly, the role that the Assessment continues to play in agricultural policy circles since its endorsement by governments in April 2008.[33]

The World Bank as Interlocutor

Narratives of the IAASTD process confirm that it was initiated by the private sector and the CSOs, each, and at first separately, approaching the Bank to review and assess the current state of global agriculture and rural development. For the private sector, concern focused on the potential of the commercial application of advances in agricultural science, particularly of genetically modified crops, to enhance production. For CSOs, the concern was the persistence of poverty and inequality, and especially of adequate food, and insufficient concern with ecological sustainability, mostly with regard to rural communities in the global South. Here we see tacit as well as formal recognition of the World Bank's pivotal role in agricultural research and development policy that, paradoxically, through each party referring to the Bank for adjudication, acknowledges and legitimates its central role in global agricultural decision-making. Popular understandings confirm this role, although it is a role not given but, rather, constituted through these very practices of recognition.

Tacit recognition also informs the methods that we employ and the assumptions that we engage, as these practices construct and reproduce hegemonic understandings, and where formulations of research practice and the models and assumptions that guide research become normative *claims* to validity and justification.[34] Such claims were explicitly recalled when there

[32] These concerns and practices complement the social movements that keep alive debates on how to work towards meeting the goals of agricultural growth, ecological and livelihood sustainability, food security/sovereignty, and equity and social justice.

[33] Endorsement does not require or confirm any change in policy implementation, nor were there any specific policy suggestions on offer. However, public endorsement does make possible debate around the issues that the IAASTD raised and keeps them active in policy dialogue. Moreover, although approving the findings of the IAASTD, some observers challenged subsequent UK government policy actions for not being in keeping with these findings (Dechenne and Riley 2009). The paradox here is that despite efforts by some to ignore the Assessment, other institutional factors have kept in play the issues that it raised.

[34] As Lele et al. (2010, x) note, the 'biannual global conferences [is] designed to transform the current system of agricultural research [and] to convert the fragmented and multi-sectoral institutional setup into a coherent whole so as to achieve more rapid, scaled-up and sustainable impacts on food security, poverty and the environment. . . . There should be enough knowledge and resources available or that can be mobilized globally to tackle these problems.' Lele et al. (2010, 97) then conclude: 'The largely *exogenous* conditions for delivery include the need for secure land rights, revival of extension systems, engagement of CSOs, development of policy capacity, promotion of rural infrastructure and information technology, and establishment of appropriate financial institutions.' While

was disagreement over interpretations of evidence among participants during the IAASTD process, often used in efforts to silence or devalue alternative understandings. At other times, challenges to agreements on the principles of operation of the multi-stakeholder endeavour led some to directly intervene with the project's funders. For instance, a letter from Christian Verschueren, the Director General of CropLife (2007), the association representing the plant science community, to the Vice President of the World Bank, expressed displeasure with the conduct of the Assessment and sought World Bank support because, according to the industry, the IAASTD inadequately 'recognized the past contributions [and did not adequately promote] the potential of plant science technologies'. This intervention was meant to destabilize the agreed-upon procedures of the IAASTD.

The challenge by CropLife displays the connections that CropLife enjoys with the Bank and the power that comes from such partnerships, even though the Bank shared the letter with Bob Watson, the IAASTD chair. What is important is that the October 2007 letter to the Vice-President of the World Bank was sent to undermine or, at the very least, unsettle the substantive conclusions drawn from the evidence-based analysis that was emerging.[35] Interesting, too, is that the Bank's report on agriculture, the *WDR08*, begun after the start of the IAASTD, included many of the broad themes addressed in the Assessment. Although the *WDR08* was intended to guide Bank policy, and in that sense differed in its specific purpose, some WDR analysts were participants in the IAASTD and often referenced the WDR to criticize the emerging findings of the IAASTD. Yet, curiously, except for two bibliographical footnotes, the WDR does not substantively engage with the IAASTD analysis and findings.

While IAASTD's pluralist multi-stakeholder base and its various funders offered an opportunity for collaboration and evidence-based analyses, to the extent that the IAASTD challenged, and continues to challenge, the current model of normative science, its contributions may never secure broad institutional acknowledgement and legitimacy. This is especially likely given that the corporate private sector assumes that it can assert its power and gain ready access to the Bank as a global policy actor. The examples also reveal how particular interests attempt to ignore established rules of behaviour and, finally, how a global institution can mobilize in-house research and evaluations to support its claims about the (in)appropriateness of alternative interpretations of the relations between a commitment to enhance agricultural production and support for sustainability and poverty reduction.

This example is significant, not because the *WDR08* and the IAASTD reports differ substantively but, rather, because the empirical evidence has yet to be debated. Moreover, given the significance of the WDR yearly assessments, they can easily be used to marginalize IAASTD findings, especially given the political pressures on dependent economies to support donor expectations. Perhaps this is why the Elliott (2009) evaluation uses the language of 'the power and influence of the CSO to manoeuver and co-opt the integrity of the Assessment' since, by so doing, he pits the WDR against the IAASTD and discredits the Assessment as ideologically driven and scientifically biased. Elliott's statement is made from the partisan position of a World

this signals broad agreement by IAASTD, FAO and The Global Forum for Agricultural Research in their commitment to small farmers and sustainability, what is crucial here is precisely how each carries out their analysis and why the IAASTD findings are ignored rather than engaged in this shared endeavour (see also CGIAR 2009).

[35] See Feldman et al. (2010, 69) who offer another example of the assumptions that undergird relations between the private sector and international institutions. As they note, there was 'the ever-present threat of some actors walking out of the Assessment whether over disagreements of interpretation and evidence, or a *presumption* of ownership of what *should* be included in the report'. In a well-publicized act of 'walking out', corporate-sector representatives of some major interest groups contributed an opinion piece that was quickly published in the *New Scientist*, with the *explicit purpose* of discrediting the IAASTD. No responses to the article were ever published by the *New Scientist*, despite several requests that they do so.

Bank insider, and thus it is hardly surprising that he follows other critics who do not engage in substantive debate on the issues that both reports address but, instead, castigate some of the participants in order to discredit the legitimacy of the IAASTD reports and process.[36]

Multi-Stakeholder Inclusiveness: Negotiating Difference

The multi-stakeholder approach of the IAASTD was created as an ideal strategy to enable a diverse group of people with differing expertise, and representing different institutional positions within the agricultural research and production community, to come together to build an evidentiary-based understanding of current agriculture to inform future agricultural research and policy options. Some participants joined IAASTD anticipating that regional scientific and indigenous knowledge would be recognized and incorporated into IAASTD analyses. Others represented particular institutions; for example, national research institutes, IFPRI, the FAO and Syngenta. Together, this multidisciplinary environment created broad opportunities for fruitful substantive debate.

Paradoxically, this ideal multidisciplinary strategy masked critical differences in power and authority within groups, and failed to appreciate and adequately account for participants as parties interested in specific outcomes. Unsurprisingly perhaps, this sometimes resulted in competition over ideas, interests and modes of analysis in ways that generated contentious claims to knowledge and authority. But, in other cases, productive exchanges recognized global agriculture as diverse and multidimensional, even though this challenge to a 'single world view' led some to be disappointed that the process did not lead to consensus, especially concerning issues of trade, biotechnology and interpretations of the history and implications of the Green Revolution for current initiatives.

While some find the lack of consensus or the inability to cover all issues related to agricultural knowledge to be a problem (Scoones 2008), we suggest instead that it was precisely because consensus was not an objective – nor was it an expectation that all issues related to AKST would be covered – that participants were able to engage themes critically and identify complex understandings of agricultural policies, practices and institutions. To be sure, there was some expectation that a number of issues would be included that were not sufficiently addressed by the IAASTD (e.g. fisheries, forestry, agricultural mechanization and livestock), given an absence of expertise. However, what is revealed in discussions with Authors and Review Editors is that the broad-based, multidisciplinary approach of the IAASTD provided a rich context for analyses of the complexity and differentiation of modes of agriculture that would probably not have been captured by a single model. But, there was consensus among analysts that the evidence gathered confirmed that options for action could not be collapsed in order to offer a universal approach to intervention across world regions and temporalities. The importance of regional diversity to discussion in the IAASTD is evidenced by the decision to make publicly available the five regional reports, *Central and West Asia and North Africa*, *East and South Asia and the Pacific*, *Latin America and the Caribbean*, *North America and Europe* and *Sub-Saharan Africa*, which revealed the range and policy contexts and conditions that were taken into account in writing the Summary for Decision-Makers, and the Synthesis and Global Reports.[37]

[36] This, interestingly, differs from how the Bank responded to the Deaton report, which similarly generated a managerial response, but without the added castigation of its authors.

[37] The regional reports were initially envisioned to provide background for these latter two reports, rather than to be available as individual documents.

Market Contracts versus Voluntarism

Among IAASTD participants, a number were seconded from positions in government, international and national research and policy institutes (UN organizations, the World Bank, CSOs and the CGIAR), the academy and private-sector firms. In some cases, this obliged them to present the interests of their organization; while others – particularly academics, some CSO members and independent consultants – were more likely to engage in wide-ranging discussions that facilitated thinking collaboratively across disciplines. Discussions engaging a range of expertise and conceptualization helped to formulate a way to talk about the intersections of agricultural growth and ecological, social and economic sustainability that enabled creative thinking among Authors to explore, rather than tacitly assume, the normative assumptions of popular views of AKST (survey data and interviews 2009).

What was interesting about some of these exchanges was a presumption by some IAASTD participants that CSO members, lawyers and academics from specific fields offered less rigorous interpretations (to be read as not using established models, whether macro or micro, and their attendant data) than those representing the funding and policy institutions (e.g. CGIAR and IFPRI).[38] Such exchanges revealed how institutional and disciplinary hierarchies can be used, and often may be reproduced, with technical science and economic models represented by large funding and policy agencies carrying more validity than independent academic voices, CSOs, and the social or political sciences (Stokstad 2008). However, it would be erroneous to simply categorize Authors along disciplinary or professional lines, since there were important differences not only between these constituent groups but also within them. For example, interdisciplinary thinking led to a productive exploration of the role of small farmers in the sustainable intensification of productive capacity, or of the kinds of trade regime that would best support poverty reduction. While the Authors and Review Editors often mediated such engagements, in two cases they were resolved by the Bureau and highlight the interplay of market contracts, voluntarism and the power exercised in hierarchical relationships among groups with differential power and access to and control of decision-making.

The first example concerns the demise of the qualitative scenarios chapter for the Global Report. Originally, the Bureau approved the inclusion of this chapter, the first draft of which was based on the specific framework and methods for scenario analysis adopted by the Millennium Ecosystems Assessment (MA).[39] When Bureau members reviewed the draft, however, it was unanimously rejected as being unhelpful to the IAASTD and a decision was taken to exclude the chapter from the report.[40] This decision by the Bureau was rigorously questioned by the chapter

[38] The majority of agricultural economists in international agricultural research have been trained in farm management theory, the theory of the firm and neoclassical economics. Vernon Ruttan (2000) rather than Galbraith, for instance, is their ideal.

[39] As noted at the start, the chair, co-chairs and some members of the Secretariate brought to IAASTD substantial experience with international science and technology assessments, including with the Millennium Ecosystems Assessment (MA). When the MA was concluded, it was acknowledged that it had not adequately examined the dynamics and interactions of social (especially poverty) and technical variables over time. In response, one rationale for the IAASTD was to examine precisely these issues. However, some IAASTD Authors who also were members of the MA thought that the qualitative scenario work would adapt the MA work rather than assess what scenario analysis would be relevant for IAASTD. The unanimous rejection by the Bureau of the draft global qualitative scenario chapter thus came as a surprise to those who were confident in the framing of the MA, where poverty, inequality and insecurity were not central foci of attention.

[40] Two reasons for the decision to reject the chapter were offered: the chapter was viewed as rootless, bearing no relationship to the present, and the relationships that were suggested had no understandable 'cause and effect' that was meaningful to Bureau members.

Authors at an open meeting between the Secretariat and Authors of the Global Report. Interestingly, the Authors of the scenario chapter had assumed that because the MA had legitimized the use of a specific methodology, this legitimated the approach and conferred on Authors the authority to use it in the IAASTD reports. Clearly, the decision to exclude the chapter challenged their authority in ways that they did not anticipate. But, since there was no formal contract to produce the scenario chapter, and a democratic process of decision making among Authors and the Bureau served as its guiding approach, there was no other recourse for the Authors but to accept the decision, making some feel that their contributions to the IAASTD had been wasted.

The second example concerns the quantitative modelling of future scenarios. This chapter was to be undertaken by a group from IFPRI that was supported by funds provided to IFPRI by the Australian government. In this case, this formal agreement or market contract resulted in an uneasy relationship between the IFPRI modellers and many of the other members of the IAASTD. Following discussion and debate, it was decided that the modelling chapter would become an independent chapter, with little substantive relation to the other sections of the IAASTD reports. In the end, this stand-alone chapter did not reflect the interdisciplinary and cross-regional exchange that characterized the meetings, nor did it build on the findings and assumptions of the regional reports. Rather, it was based on what Bob Watson referred to as a 'business as usual approach,' where it engaged the very assumptions that ignored the salience of historical changes, ongoing and emergent crises, and dramatically changing social and agricultural landscapes.[41]

What we found as participants and in interviews with Review Editors and Authors was that among those contracted to perform particular Assessment tasks, their contract made it difficult, if not impossible, for them to leave on their own accord. For those concerned primarily with the prospects of biotechnology in future agricultural decision-making, the IAASTD emphasis on linking biotechnological changes to ecological sustainability, poverty and enhanced human security had little appeal and thus some withdrew because of lack of interest. Interviews with Authors also indicated that some withdrew because of lack of time, or because they simply did not find the opportunity worth their voluntary, and very time-consuming, effort. For those who stayed, they were surprised by the conversations and the diverse assumptions that characterized engagement over such issues as: the character of development processes; relationships between poverty, resource inequalities and productive capacity; determinants of food insecurity and ecological instability and degradation; and understandings of national and global dependence.[42] But, unlike disagreements over evidence *per se*, our experiences as participants suggest that these differences represent divergent epistemological groundings, since they were based on different understandings of causality, universalism, contingency and the social dynamics that shape interpretation and provide the bases for policy options.

[41] Interestingly, the IFPRI models are used in the recent UK Government Foresight Report (2011) on the future of global food and farming. Significantly, many of the strengths and weaknesses of such partial equilibrium and computable general equilibrium models (at whatever level of aggregation) were well documented in the 1980s (Langham and Retzlaff 1981; Thorbecke and Hall 1982). Of course, many quantitative models can be used to explore future scenarios of global food, agriculture and poverty, but the choice reflects the assumptions of the modellers and their interlocutors.

[42] During our interviews and in our survey evidence, we found a number of participants who indicated the value of such interdisciplinary exchanges for their work (research, policy analysis and formation and planning) in their home institution.

Capacity Strengthening

Capacity building is critical in outlining future scenarios for agricultural growth, since it offers a basis for options for action. However, to think creatively about capacity building requires identifying institutional needs and imagining various forms of engagement or exchange. This, in turn, requires identifying working assumptions that animate the decision-making process and aid in distinguishing among areas of need. These tasks proved to be quite difficult among IAASTD participants, as some focused on constraints to technological improvements and adoption to enhance growth, while others emphasized questions of distribution and ecological degradation. For those concerned with enhancing growth, capacity building focused on the need to strengthen technical expertise to support basic and applied research in developing new technologies able to increase production. For those who attribute current AKST needs as stemming from political, social and technical paradoxes, efforts emphasized embedding agriculture in processes of demographic, ecological and socio-political change to enhance local and regional research capacity by building mechanisms for collaboration among different types of research institutes and ministries who hold diverse portfolios. Discussions confirm that the expectations were that such a collaborative strategy could provide a context able to respond to the need to enhance production while *simultaneously* addressing questions of ecological sustainability and access to food and labour opportunities. This meant that trade-offs among types of technology could be addressed in the context of the kinds of research informing technology choices, rather than viewing costs or benefits consequentially. In short, debate ensued over how to address what we have learned about the costs that might be reproduced were the people involved in the IAASTD to ignore the economic, distributional and ecological impact of the Green Revolution[43] for future institution and capacity building.

With the Malthusian assumption under scrutiny, and evidence now available on the mixed long-term effects of the Green Revolution, the writing of a capacity-building chapter appeared a daunting task. The task was further complicated by the findings of the regional IAASTD reports, which revealed an institutional complexity that suggested that options for capacity building needed to be attentive to particular rather than universal circumstances. Significantly, the decision, halfway through the report writing process, not to include a capacity-building chapter in the Global Report, which might have sought a universal model for institutional reform and capacity building, actually represents an important strength of the IAASTD, as it signals the criticality of rethinking institutional formations and capacities.[44] For example, it led to thinking about alternative ways to embed support for departments of plant breeding and soil science in institutional formations that also were attentive to social, political, economic and ecological challenges and potential changes (e.g. Ministries of Rural Development, Social Welfare, Labour, Forestry or Water). Also important about these exchanges was that they offered a perspective for policy-makers to consider institutional arrangements that do not build on borrowed assumptions and institutional models about causality (from scientific change to social response), or about fixed understandings of development as evolutionary, linear or determined by externalities in or of the global world order. Instead, IAASTD put forward a way for people to consider interpretations and options for action that did not simply reproduce business as usual.

[43] The Green Revolution is not the only experience that was discussed by participants, although its position as the standard forerunner for examining earlier efforts to institutionalize a new production regime is clearly located in both *how* the Green Revolution was imagined and *how* it has unfolded over the course of the last half-century.
[44] This did not mean that capacity development was not covered in the report, as many of the chapters discuss institutional capacity within the context of the substantive issues being addressed.

Non-negotiation: Difference on the March[45]

As signalled earlier, from the beginning of the IAASTD, struggles ensued over what counted as evidence and interpretation. Participants spent a great deal of time during the formal meetings, as well as during shared meals and evenings, negotiating how they could collaborate to analyse and write a document that would account for the differences in perspective, approach and goals that characterized the interdisciplinary group of researchers, academics, policy-makers and activists that formed the Assessment teams. Despite these differences, collective participation was crucial to the intellectual project, especially as it was initiated in response to industry as well as to CSO requests, and was to address a timely and popular topic, the relationships between food production and social and ecological sustainability, in the context of enormous inequality and poverty worldwide, and a rapidly declining ecological landscape. Moreover, precisely because of the varied crises that seemed imminent – food, ecological, disease, environmental, growing social inequality and eventually fiscal – there was a need to synergize knowledge to respond to these sometimes interlinked and overlapping challenges. Although the IAASTD was not planned to address such emergent crises, those that did arise during the Assessment did make the issues that they raised important to address, despite efforts by some to isolate AKST needs from these challenges and to limit discussion to the claims of authoritative expertise, which were assumed to be the most appropriate to address agricultural futures.

As noted at the start, the IAASTD was designed to be a more democratic exercise than most assessments and evaluations. This is because in the past, and even now, such documents are written either by specialists from particular, often narrow, research communities who are contracted to do the work, or by in-house departments or groups (Banerjee et al. 2006). This democratic innovation also was framed by a new form of collective participation; namely, that of making the Draft Report available to its various publics, national as well as international researchers and policy-makers. This was done by placing chapter drafts and other documents on public access web sites for public review. Authors and Review Editors were then required to respond to each comment in ways that addressed the issues raised by participants well beyond the more than 400 formal IAASTD members. Despite these efforts, which required responses based on empirical evidence, in January 2008 the Secretariat received an unsolicited letter from the Director of the CGIAR's Challenge Fund that expressed his displeasure with the Assessment. As he states it,

> [T]he Alliance of the 15 CGIAR Centers express their concern with the report. It is our considered opinion that basic revision, based on a more comprehensive conceptual framework, would be needed to make the document more reflective of the current situation and future opportunities in relation to Agricultural Science and Technology for Development. . . . The two overview reports of IAASTD, Summary for Decision Makers (SDM) and Synthesis Report (SR), make a strong point that there are competing world views of the role of AKST, but they tend to support one particular world view as superior to others without marshalling convincing evidence. Therefore the overview reports have a persistent tone that understates the past benefits and *future potential of modern agricultural science and technology* and overstates the potential, and understates the challenges, of upscaling the benefits of indigenous and local knowledge and participatory approaches. A more balanced and integrated treatment of these worldviews would have been highly beneficial. The significant progress that many developing countries have made in imple-

[45] See also the earlier reference to the letter from CropLife to the World Bank.

> menting policies that made agriculture an important contributor to growth and poverty reduction is not adequately presented (italics added).[46]

Frison's statement (2007) illustrates that some initial agreements of procedure in the IAASTD were more illusionary than real, especially when those with alliances with the Bank felt that they could subvert these procedures in order to assert their particular notions of 'balance' and judgement. Clearly, the position of the CGIAR highlighted here appears to devalue the evidence-based arguments and documentation that was put forward in support of the Summary for Decision Makers and the Synthesis Report. Coincidently, these documents had face validity, given that they were supported by the government representatives of 57 of the 61 countries in attendance at the Johannesburg meeting, where individual country governments debated and, in some cases, changed points made in the document, and then approved both reports.

Our point here is twofold: first, to reveal how particular interest groups can voice their disagreement outside of the accepted rules of negotiation, even when they are collectively established and agreed upon. Such a 'show of power' undermines the assumption that differences of interpretation in the field of AKST can be negotiated or rethought based on evidence and critical analysis, a point that the Elliott evaluation ignores. Second, the CGIAR denigrates the IAASTD process and reports, yet they offer no *counter-evidence* for their claims that could have provided a productive arena for debate. Moreover, it is plausible to assert that the elision of IAASTD findings from their ongoing work, or debate with any aspect of their empirical content, indicates their interest in promoting technical and narrowly framed agricultural growth solutions to current food crises as the only approach able to contribute to contemporary challenges facing AKST.

Another interpretation of the letter is that for those participants who did not have their interpretations promoted, it was 'fair game' to deploy other methods to influence the findings, conclusions and implications of the project.[47] For these participants too, what may have been at stake was the loss of authority in speaking on behalf of the agricultural research community and the global agricultural sector, and in emphasizing plant science based agricultural technologies as the solution to the agricultural crisis, rather than a commitment to develop a comprehensive view of agricultural and rural technology research that can respond to diverse ecologies, the imperative to reduce poverty, and the criticality of securing lives and livelihoods. For the CGIAR, the former provides the rationale for increased investment in technical capacity that, as they state it, should emphasize the promise and '*future potential of modern agricultural science and technology*' (see also IFPRI 2010; *The Economist* 2011b).

On occasion, the CSOs also challenged the IAASTD process and considered withdrawing from the Assessment, but negotiated their position within the larger body. Their strategy differed from the corporate private sector as well as from the CGIAR in important ways. They first raised their concerns in response to CropLife's letter to the Vice President of the World Bank when it appeared that procedural agreements were being jettisoned. However, the decision to

[46] See Frison (2008), whose letter does not state a concern with climate change, inequality, livelihoods or global trade for what they might reveal about a way to secure growth while integrating human and ecological concerns. This being so, it is significant that Frison speaks for a group of agricultural institutions, not as an individual author, while CropLife claims to speak on behalf of an entire industrial sector. Together, they contribute to reproducing the legitimacy of the role of the World Bank in international agricultural decision-making and policy. The NGOs' initial response to the Bank to advocate a concern for practices that can address the issue of sustainability and poverty reduction similarly reproduces the Bank's role in agricultural research and policy.

[47] There was substantial involvement of CG authors in IAASTD, and they, like others in the international research community, were invited via public access web communication to offer substantive arguments of the analysis where the draft chapters were being negotiated.

leave was abandoned when both the Bureau and the Secretariat did not follow CropLife's recommendation but, instead, kept to the agreed-upon principles established at the start of the IAASTD. The IAASTD project was a collaborative initiative and worked precisely because the co-chairs of the Assessment ensured that procedures were sustained, as was fair engagement among Authors and Review Editors, and that all comments from reviewers on the draft chapters that were posted on the public access web sites were responded to by the Authors and Review Editors.

For, Sygenta, in contrast, the decision to 'walk out' of the IAASTD process was based on substantive differences regarding why they joined in the first place, which they publicly revealed in *New Scientist*, *Science* and other popular, as well as academic, media (Keith 2008; Feldman and Biggs 2011). For them, it appears that it was only when the project diverged from their expectations, and they could not refocus the animating terms of the analysis, that the 'overarching question . . . [became] a mouthful: How can we reduce hunger and poverty, improve rural livelihoods, and facilitate equitable, environmentally, socially and economically sustainable development through the generation, access to, and use of agricultural knowledge, science and technology?'(Keith 2008, 1474). Not only do they poke fun at the mandate of the IAASTD, which was initially based on agreement among all stakeholders, but they also denigrate the quality of the process that, according to them, 'stunted the assessment's analytical rigor' and was actually 'hijacked' by participants who were opposed 'to GM crops and other common tools of industrial agriculture'. Yet, as recognized by most governments, a review of the IAASTD reports acknowledges a clear place for GM crops in strategizing about the future of agriculture, but are cautious about a narrow focus on gene technology as the solution that could adequately respond to the broad mandate of food security, including for the poorest and most vulnerable, as well as ecological and social sustainability.

What these choices suggest is that interpretations of evidence, the character of what is considered rigorous science, including assumptions about reliability and validity, the interests of researchers and the institutions that fund them, and decision-making processes, can – when analysed together – be viewed as political projects where power differences are always being negotiated (see also CGIAR 2009). And, if political power and institutional control lead to the marginalization of some voices and approaches, then interests and politics need to be incorporated into how we understand and undertake the production of science knowledge as a social practice.

CONCLUDING REFLECTIONS

What an examination of the IAASTD process helps to make evident are the norms of science that shape analysis and interpretation, and the contestation that ensues over claims of scientific expertise, legitimacy and authority. Engagement with the social construction of discursive formations and their role in attempting to secure particular, usually narrowly focused interests as central aspects of hegemonic practice, helps to expose the embedded character of science and power relations throughout the Assessment. Importantly, tropes of expertise and methodological rigour within the frame of neo-Malthusianism shows how struggles over interpretation reveal the privileging of some knowledges and the efforts entailed in the marginalization of others. We also show how knowledge is produced as part of a series of ongoing practices – some collaborative and others contestatory – that operate to value and validate some interpretations of current needs and the choices available to meet them.

Within the agricultural sciences, these struggles reflect the privileging of the approach and assumptions of plant scientists and agricultural economists, who rank first among a hierarchi-

cally ordered group of scientists. The models they deploy, and which are presumed to be replicated by other disciplinary approaches, generally examine agricultural production in isolation from the social, ecological and political relations that structure the agricultural sector. We argued that engaging the adherents to this approach,[48] and those who challenged its normative framing, exposes why the IAASTD's emphasis on the connections among production goals and the creation of sustainable livelihoods for poorer people in rural areas appears as a threat to the business as usual framing of such issues. This experience returns us to a fundamental debate opened during the creation of the FAO, the UN organization established in the postwar period precisely to enable freedom from want and hunger of the most marginalized and vulnerable in society when, under its first director, Sir John Boyd Orr, tensions emerged between a technical approach to enhance production and a focus on food security for the poorest, as well as on sustainability (Feldman et al. 2010).

This tension has been reproduced in discussions within the IAASTD. But, even as these debates continue, they are a minor voice in comparison to those who sustain a commitment to sectoral analyses to understand contemporary agriculture and its policy options (World Bank 2008; CGIAR 2009). This backdrop promotes transgenetic technologies as the primary approach to agricultural growth and sustainability; encourages public–private partnerships to support a technological revolution, and legitimates new investment for a green/gene revolution in Africa. Together, such interventions establish particular claims of scientific truth that are bolstered by selectively engaging experts as members of a community of scientists who, as Jasanoff (1987, 196) notes, 'have been quite successful in protecting . . . [the] claim of exclusivity, jealously guarding their power to define the public image of science and warding off competing claims by rival disciplines'. This is no more clearly revealed than in a current review of agriculture in *The Economist*, which argues for more financial support to the CG system, reclaiming a neoliberal view of the role of science as the way to resolve 'the 9-billion people question' (*Economist* 2011a).

Despite this policing of what is legitimate science, the Assessment continues to have an important presence in ongoing discussions of agricultural growth, sustainability and poverty reduction. While the political legitimacy and strength of a selective and normative community of experts has tried to ignore IAASTD findings and options for action, others, including members of the large development community and national ministries of agriculture and rural development, continue to use it in policy formation. Moreover, the current financial, food, energy and environmental crises are leading to a questioning of extant theories that have failed to predict or understand these crises, and of prior efforts to resolve them. It is interesting to note that updated CGIAR web pages, when articulating their vision and goals, have appropriated the language of the IAASTD, and recent analyses of international institutions are increasingly concerned to display a commitment to reducing rural poverty and inequality, ensuring fairer trade, and intensifying diverse forms of smallholder agriculture (IFAD 2010). These concerns, too, have opened a space to think anew about the relationships between agricultural science and politics, recognizing that policy choices, as well as analyses in agricultural science, are not neutral but, rather, represent interests in particular forms of accumulation that need to be continually reproduced. By recognizing that these interests are grounded in the assumptions that characterize normative science, it is possible to address them in ways that offer opportunities for alternative approaches to emerge, and be taken seriously, so as to be better able

[48] This is not an effort to homogenize differences within these disciplinary practices, but to highlight their normative impulse.

to respond to current levels of poverty and inequality, and the ecological challenges that shape the future of agriculture over the long term.

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