

An Experiment in Ethiopia: The Chilalo Agricultural Development Unit and Swedish Development Aid to Haile Selassie's Ethiopia, 1964–1974¹

Karl Bruno

ABSTRACT

Der Beitrag untersucht ein von Schweden geleitetes Projekt im Bereich der integrierten ländlichen Entwicklung, das Chilalo Agricultural Development Unit (CADU) in der Provinz Arussi in Äthiopien. Entworfen von einer Gruppe von Experten des Agricultural College of Sweden bildete CADU den ersten größeren schwedischen Versuch, agronomisches Wissen im Kontext von Entwicklungszusammenarbeit in den globalen Süden zu transferieren. Mit Hilfe eines Maßnahmenbündels sollte sozio-ökonomische Entwicklung ermöglicht und beschleunigt werden. Im Mittelpunkt standen landwirtschaftliche Experimente, um die Produktivität von Kleinbauern zu steigern. Entwicklungsstrategien und die entsprechenden Technologien waren stark von der wissenschaftlich-technischen Tradition des Agricultural College geprägt. Einerseits berücksichtigten sie in erheblichem Maße die Spezifika der jeweiligen lokalen Landwirtschaft. Andererseits blendeten sie soziale Faktoren weitgehend aus. Die Berücksichtigung lokaler Gegebenheiten machte das Projekt zu einem der wenigen Projekte im Rahmen der Grünen Revolution in Afrika, die erfolgreich waren. Die Vernachlässigung sozialer Faktoren trug jedoch dazu bei, dass Bauern das Projekt nicht uneingeschränkt begrüßten, und dass insgesamt die soziale Ungleichheit im Projektgebiet wuchs. Als Folge des Fokus auf arme Bauern entwickelte sich CADU zu einem politisch stark umstrittenen Projekt. Im Kontext der zunehmenden Spannungen im spät-imperialen Äthiopien wurde es zu einem aktiven Akteur in den ländlichen Konflikten, die der Revolution von 1974 vorausgingen.

1 This paper is based on results first presented in my doctoral dissertation. The direction of analysis is substantially

We were not too happy when we thus reacquainted ourselves with Addis Ababa. We suddenly saw everything clearly again. The dirt and the poverty hit us with almost the same withering force as the time when we first trod the ground of Ethiopia. [...] We enter Chilalo. Something has happened here. The road is lined with undulating wheat fields. Just maybe! Our spirits rise. Kilometre is added to kilometre. We pass Kulumsa. The maize stands tall and fine. We stretch our necks. Yes, the fodder beets look like they are supposed to. Last year's astounding results were thus no coincidence.²

Thus wrote Swedish agricultural extension specialist Martin Wik in October 1970 in the staff magazine of his employer, the Agricultural College of Sweden. On leave from the college, Wik was working for the Chilalo Agricultural Development Unit (CADU), a Swedish-planned rural development project in Ethiopia's Arussi province. He described the project as a model of agricultural success amidst Ethiopian poverty and squalor. Sweden can make a difference in the world, his letter seems to say: come to Chilalo and see for yourself.

Two months earlier, CADU's executive director Paulos Abraham had also written to Sweden, to the Swedish International Development Authority (SIDA). SIDA was the Swedish government agency that funded most of CADU, which had become something of its flagship project. Paulos³ letter reported on a recent project study on the effects of mechanized farming on peasant agriculture, and it expressed concern about what was happening in Chilalo:

As you can gather from this study, mechanization has taken place at a fast rate especially during the last three years; CADU as an agent of improved practices seems to have contributed to the process; the process seems likely to continue. The consequence [sic] of primary concern to CADU are the likely effects on tenants, the worsening of the terms of contract for tenants and increased skewedness of income distribution.⁴

Among other things, these two letters attest to the significance and impact of knowledge and expert circulation to practices of rural development. Part of a longer historical trajectory intimately associated with colonialism, the presence of Western agricultural experts applying their knowledge in a "developing-country" setting remained the core of 1960s rural development efforts. Taken together, the letters also suggest something of the fundamental ambivalence of such efforts and the premises on which they rested. While

the same here, but the narrative is shortened and framed somewhat differently: K. Bruno, *Exporting Agrarian Expertise: Development Aid at the Swedish University of Agricultural Sciences and Its Predecessors, 1950–2009*, Uppsala 2016, chapters 3 & 4.

2 M. Wik, *Utdrag ur brev till konsultentavdelningen från statskonsulent Martin Wik*, in: *Axplock: Lantbrukshögskolan informerar*, November 1970, p. 13. Uppsala County Archives, Agricultural College archives, Planning Division, Secretary Section (hereafter cited as AC-SS), series Ö1, vol. 1 [this and all subsequent translations from Swedish by the author].

3 Ethiopian names consist of a given name followed by a patronymic. It is proper to use either the full name or just the given name when referring to a person.

4 Paulos Abraham to Lars Leander, 18 August 1970. Swedish National Archives, Swedish International Development Authority archives (hereafter cited as SIDA), series F 1 AB, vol. 778.

Green Revolution development projects had the potential to create “undulating wheat fields” in places where farmers earlier had struggled to make agricultural yields meet their needs, the consequent economic transformation often accentuated social divisions and conflicts, both within rural society and between states – often seeking to extend their power and control through development efforts – and their rural populations.

Understanding these ambivalences of agricultural development requires engagement with the crucial tension between the local and the global in agricultural science, and with questions of power and direction of knowledge flows in the context of expert-led development projects. One approach to these issues derive from a research tradition in history and anthropology from the 1970s and 1980s that recognized the failures and destructive potential of Western agricultural science in colonial contexts, and sought to highlight the efficacy of the knowledge already held by local populations in colonized areas. A useful distillation of its main points can be found in the work of political scientist and agrarian historian James C. Scott, who argues that Western interventions in developing country-agricultures regularly fails because they rest on a “high-modernist” ideology.⁵ Modern science is uncritically understood to be able to improve human life, and this understanding is coupled with the willingness to use the power of a centralized or centralizing state to back up large-scale interventions to “solve” social problems. But solutions proposed on the basis of this ideology tend to be untenable because they are detached from local concerns and thus inherently reductionist: they abstract away the complexities of particular social and geographic contexts. This is particularly devastating in agriculture, which is an activity intimately tied to the local.

A second strand of work on agrarian development, associated in particular with historians of the late colonial period in Africa, and at times in direct polemic with Scott and others who share his views, has produced more nuanced accounts which show that there can be more to science in development than meets the eye.⁶ Without downplaying that science and expertise have been instruments of colonial oppression, such work draws attention to the important roles historically played by cross-cultural exchanges, local knowledge production and adaptation, expert learning, and intermediary actors. Work in this tradition thus problematizes an understanding of modern agricultural science and technology as inherently reductionist and universalistic, and as generally imposed in a top-down fashion on the rest of the world. I am sympathetic to this problematization, and given the continuities between the late colonial development projects and development aid, I argue that the same qualification can be applied to the postcolonial era as

5 J. C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, New Haven 1998, chapter 8.

6 For example W. Beinart, K. Brown, and D. Gilfoyle, *Experts and Expertise in Colonial Africa Reconsidered: Science and the Interpenetration of Knowledge*, in: *African Affairs* 108 (2009), pp. 413–433; M. M. van Beusekom, *Negotiating Development: African Farmers and Colonial Experts at the Office du Niger, 1920–1960*, Portsmouth 2002; C. Bonneuil, *Development as Experiment: Science and State Building in Colonial and Postcolonial Africa, 1930–1970*, in: *Osiris* 15 (2000), pp. 258–281; H. Tilley, *Africa As a Living Laboratory: Empire, Development, and the Problem of Scientific Knowledge, 1870–1950*, Chicago 2011.

well. This highlights the need for studies of different sites of agricultural knowledge-making and knowledge-moving, such as CADU, in the comparatively less studied context of post-war African agricultural development.⁷

Looking to the movement of knowledge also actualizes questions about the nature and origins of the knowledge that moved and reshaped rural areas as it did so. CADU in a sense brought the world to rural Ethiopia, being constituted through international networks of knowledge and people as well as seed and animals. Though ostensibly a Swedish aid project, it built on strategies developed in Pakistan, on education provided in the United States, on experiences from Nigeria, on plant material from Kenya and Mexico, on European cattle, and so on. But the design and operations of CADU nonetheless clearly expressed a Swedish “national style” of agricultural development. Borrowed from the history of science and technology, the term, in the present paper, signifies nationally shared discourses and approaches within a field of scientific expertise.⁸ In this particular case, it was expressed as a strong emphasis on the need to adapt agricultural knowledge to local settings: it was focused on spatially bounded understandings; on what historian of science Robert Kohler has termed “residential knowledge.”⁹ My argument is not that this attitude was, necessarily, unique to Swedish experts, but it was a characteristic feature of their expertise that they themselves saw as derived from long-standing national traditions. At the same time, the Swedish style of agricultural development also tended towards prioritizing technical solutions and downplaying social aspects of rural change. Highlighting these both sides of the Swedish national style contributes to an understanding of how national specificities could shape international development efforts. It also contributes to a better understanding of CADU, which is of some historical significance also as a particular project. During the 1970s it was considered a pioneering effort and an important source of experience for international discussions of rural development, and it has become a recurring point of reference in the historiography of late-imperial Ethiopia as well as the subject of studies in its own right.¹⁰ But CADU has not been ap-

7 Studies of post-war agricultural development have tended to focus on the Green Revolution programmes in Asia, particularly India. The literature is immense; for an overview see C. R. Unger, *India's Green Revolution: Towards a New Historical Perspective*, in: *South Asia Chronicle* 4 (2014), pp. 253–270.

8 For an example of history of science use of the concept, see J. Harwood, *National Styles in Science: Genetics in Germany and the United States between the World Wars*, in: *Isis* 78 (1987), pp. 390–414.

9 R. E. Kohler, *All Creatures: Naturalists, Collectors, and Biodiversity, 1850–1950*, Princeton 2006, pp. 156–162.

10 On CADU's importance in the 1970s, see, e.g., Uma Lele, *The Design of Rural Development: Lessons from Africa*, Baltimore 1975; for examples of studies putting CADU in the context of late-imperial agricultural policy, see, e.g., Getnet Bekele, *Food Matters: The Place of Development in Building the Postwar Ethiopian State, 1941–1974*, in: *The International Journal of African Historical Studies* 42 (2009), pp. 29–54; P. B. Henze, *Layers of Time: A History of Ethiopia*, London 2000, p. 272; Bahru Zewde, *A History of Modern Ethiopia 1855–1991*, 2nd ed., Oxford 2001, pp. 194–195. The most comprehensive study (including ample references) of CADU as a project is by political scientist and development scholar John M. Cohen: J. M. Cohen, *Integrated Rural Development: The Ethiopian Experience and Debate*, Uppsala 1987. Another important reference is the first project director Bengt Nekby's book on CADU's first three years: B. Nekby, *CADU: An Ethiopian Experiment in Developing Peasant Farming: A Summary of the Work of the Chilalo Agricultural Development Unit during the Period of the First Agreement 1967–1970*, Stockholm 1971.

proached historically in earlier work, and as a consequence, certain crucial aspects of its background and creation at the Agricultural College of Sweden have been missed.

In the following, I will present a narrative of CADU that builds on and elaborates the points discussed above. I will discuss how the project came about: its background, motivations, and main influences. I will also consider the general strategy chosen to effect the transfer of Swedish agricultural knowledge to Ethiopia, the channels that were deemed suitable to diffuse knowledge in the Ethiopian countryside, and the effects of the project on the region where it was implemented. In doing so, I hope to contribute to a discussion of conditions of post-war rural development policy development as well as to a broader discussion of rural populations' appropriation of interventions in the context of development projects.

The Agricultural College of Sweden, Localized Research, and Development Aid

The origins of CADU can be found in a reorientation of the international development debate in the early 1960s, which involved a reappraisal of the role of agriculture and an increased sensitivity to the fact that industrialization alone would not solve the problems of the Third World.¹¹ This view, promoted in Sweden not least by renowned economist Gunnar Myrdal, helped put agricultural and rural matters on donor agendas, and in 1963, the Swedish Agency for International Assistance (Nämnden för internationellt bistånd, NIB), a predecessor of SIDA, reached out to the Agricultural College of Sweden with an inquiry about whether it would be interested in taking part in the Swedish development aid program. In response, a college committee chaired by vice-chancellor Lennart Hjelm developed a sketch of a plan for how the Agricultural College could contribute to Swedish agricultural aid.¹²

The committee proposed the establishment of a research station in an unspecified developing country, to be associated with the Agricultural College and tasked with creating “technical improvements of the capital-extensive type.” This alluded to the basic techniques of what would later be labelled the Green Revolution – higher-yielding cereal varieties and artificial fertilizer – which were to be implemented along with efforts in the areas of distribution and marketing of produce.¹³ It also implied a focus on increasing land productivity through scientific interventions and the provision of new inputs, rather than increasing labour productivity through mechanization. Techno-scientific innovations and methods to help farmers use them, rather than capital-intensive machin-

11 For a more elaborated discussion of this “rediscovery of agriculture” in the 1960s, see M. Frey, *Doctrines and Practices of Agrarian Development: The Case of the Office du Niger in Mali*, in this issue.

12 Forskning och undervisning på jordbrukets område: Ett förslag till ett svenskt biståndprojekt i anslutning till lantbrukshögskolan. Meeting minutes, Faculty of the Agricultural College, 15 April 1964, attachment § 15a. Uppsala County Archives, Agricultural College's archives, Secretary Division, series A II a, vol. 31.

13 *Ibid.*, p. 3.

ery that would drive labour displacement, were at the core of the proposed project. Rural incomes had to increase as a prerequisite for general socio-economic development, but without this generating surplus labour from agriculture: the report explicitly noted that moving beyond subsistence farming to more entrepreneurial forms of agriculture using capital-intensive and labour-saving technology would come at a “rather late” stage and that such developments presently were less relevant. For the time being, yields needed to increase without any significant decreases in labour demand; thus, an intensive rather than extensive strategy focused on the cultivation of basic food crops should be promoted.¹⁴

This plan required extensive research work, and the professors presented fairly elaborated reflections over the nature of the agricultural research that would be needed:

*The economic and technical development naturally demands continual efforts in terms of agricultural research. In spite of the obvious importance of research, this point is most often the weakest in the development programs. This depends perhaps on an underestimation of the latter stages of applied research. The large variations in agriculture in terms of natural, economic, and cultural conditions demand an extensive regional experimental activity. Research results can thus only in special cases be directly transferred from one environment to another. A failure to complete the research to the stage at which the results are practically applicable, ought to play a larger part in the resistance to technological innovations than the often-cited cultural factors.*¹⁵

The demarcation of science from the knowledge held by farmers—with the latter being reduced to “cultural factors” with little real bearing on agricultural improvement—was typical of the time. In this sense, the proposal was permeated by what Scott calls high-modernism. But Scott also argues that high-modernist agriculture will tend to adapt environments to technology rather than technology to environments, and this was explicitly rejected by the college’s professors.¹⁶ They suggested that in agricultural science, research results would generally not retain their applicability when moved to new contexts, which meant that localized research would be necessary. This formed part of a broader ideological stance towards peasant agriculture. While their choice of words betrayed a reductionist view of Third World societies, the college’s professors did not employ stereotypes of inherent conservatism and backwardness. They proposed research work directed towards the development of peasant agriculture, which implied that smallholding peasants would be ready to make rational changes if provided with proper incentives. Science’s role was to provide such incentives in the form of practically applicable innovations. This positioned the plan in direct contrast with other would-be modernizers of the period, many of whom regarded traditional rural societies as fundamentally hampered by fatalism and

14 The terms intensive and extensive are used only in a relative sense here: if discussing whether modern agriculture should be optimized toward land or labor productivity, the latter represents the more extensive approach.

15 Forskning och undervisning, p. 3.

16 Scott, *Seeing Like a State*, p. 301.

lack of ambition.¹⁷ In this regard, the college's professors had drawn on the work of American agricultural economist Theodore Schultz. In his 1964 book *Transforming Traditional Agriculture*, Schultz argued that what he called "traditional" agriculture normally represented an optimal utilization of available technologies in a given natural and social context. Western experts had misunderstood the stagnation they had observed among traditional farmers, Schultz claimed: if traditional agriculture had indeed stagnated, it was not because of fatalism or irrational reverence for past practices. It was rather the opposite: agrarian societies had, over centuries, employed rational methods to optimize their systems of production as far as their technologies allowed, but over time such optimization tended toward equilibria where further production increases were impossible using existing factors of production. Schultz's conclusion was that such societies needed to be provided with modern technology to break the impasse.¹⁸

These theses on "traditional" agriculture were distinctly ahistorical, were supported only by problematic evidence, and paid no attention at all to social or material inequality.¹⁹ But Schultz's challenge to psychological and cultural explanations for agricultural stagnation lent support and credibility to those who had reason to favour peasant-oriented development: it suggested that peasants were in fact rational economic agents who could be main drivers in development processes if provided with proper incentives. It also implied another conclusion drawn by the Agricultural College's committee, namely, that peasant resistance to innovations tended to result from the failure to supply incentives that were good enough, often due to a dearth of research. More particularly, the committee concluded that resistance followed from the failure to sufficiently adapt technologies to local conditions.

A more concrete example of their suggested approach followed in the committee's discussion of crop production, in which they outlined some principles for plant breeding and varietal use:

*The cultivation material can consist of already present varieties or of introduced varieties with better cultivation characteristics. Insofar as the already present cultivation material is well adapted to the environment it should primarily be used. It is eminently probable that this material, through breeding, can be improved concerning both quantitative and qualitative return. Plant breeding, which at the outset likely can be carried out with relative simple methods, can be expected to yield good results.*²⁰

17 M. Adas, *Dominance by Design: Technological Imperatives and America's Civilizing Mission*, Cambridge, MA 2006, p. 257.

18 Schultz was not explicitly cited in the document I discuss here, but would be in later proposals by the same people. T. W. Schultz, *Transforming Traditional Agriculture*, Chicago 1983, pp. 29–32.

19 See the discussions of Schultz's work in P. Hill, *Development Economics on Trial: The Anthropological Case for a Prosecution*, Cambridge, UK 1986, pp. 23–26; T. Mitchell, *Rule of Experts: Egypt, Techno-Politics, Modernity*, Berkeley 2002, pp. 223–224.

20 *Forskning och undervisning*, p. 4.

Prioritizing local plant material was not a common stance among Western agricultural experts in the mid-1960s. Most varieties used as inputs in Green Revolution projects at the time were instead developed by what historian of science and technology Jonathan Harwood calls a “cosmopolitan strategy,” a plant breeding approach aimed at the creation of plant material that would perform well under a wide range of conditions.²¹ Against the cosmopolitan strategy Harwood describes a local strategy, which started from existing local varieties and strived to identify and develop those that would perform the best under specific, local conditions. While not unequivocally siding with either strategy, the college prioritized the local approach, in line with the more general argument about the importance of local and de-centralized research.

The contrast between cosmopolitan and local strategies for plant breeding reflects deeper tensions between the universal and the local in agricultural science. As a scientific field, it has something of a fundamental paradox: it is characteristic of modern science that it strives for universal theories, and it is equally characteristic of agriculture that it is a localized activity, directly dependent on ecological and social particulars that vary widely from place to place. Both sides of this paradox are represented in the history of agricultural development. Localist approaches to the development of tropical agriculture, focused on adaptation to particular environments, were often advocated in the colonies during the interwar period, but in the aftermath of World War II a more authoritarian and universalist view became dominant in colonial and postcolonial development efforts.²² This universalism manifested in a range of ways, from Harwood’s cosmopolitanism to the idea that almost any environment can be reshaped so as to fit with pre-existing agricultural approaches, to a belief in an off the shelf-approach that has been described as “transfer through analogy.”²³ When put into practice, the lack of sufficient attention to local contexts that is implied in such project designs often resulted in well-publicized mishaps, such as the spectacular failure of the British East Africa Groundnut Scheme in the late 1940s. This was part of the context of the Agricultural College’s plan, as the professors alluded to in their discussion of the need for local research. But they also had other reasons to argue for an approach that would require extensive resources dedicated to local survey and research activities, which had less to do with the Third World and more with the conditions of the agricultural sector in Sweden itself.

By the 1960s, it was clear that the establishment of modern, industrial Sweden meant that agriculture would lose its standing as the central sector of production in Sweden as in the rest of the industrialized world, and thus that its institutions would lose influence. As historian Kiran Klaus Patel puts it in summarizing what he describes as the

21 J. Harwood, *Europe’s Green Revolution and Others Since: The Rise and Fall of Peasant-Friendly Plant Breeding*, London 2012, pp. 45–46; 122–23.

22 D. Arnold, *Europe, Technology, and Colonialism in the 20th Century*, in: *History and Technology: An International Journal* 21 (2005), p. 100; J. M. Hodge, *Triumph of the Expert: Agrarian Doctrines of Development and the Legacies of British Colonialism*, Athens, OH 2007, pp. 148–152.

23 On transfer through analogy, see D. Porter, B. Allen, and G. Thompson, *Development in Practice: Paved with Good Intentions*, London 1991, pp. 85–86.

declinist narrative of modern agriculture, “the economic, social and political leverage of agriculture shrank” as “it became Western societies’ sacrifice on the altar of modernity.”²⁴ To maintain its relevance, the Agricultural College thus strived to widen its scope and make claims on new domains, and as vice-chancellor Hjelm perceived that the need for agrarian experts working in and for the developing world would increase significantly in the future, development aid came to be included among them. This was succinctly expressed in a memo he authored a few years later, in which he argued that there were three main reasons for the college’s continued expansion over the next five years: (1) problems relating to the ongoing rationalization of Swedish agriculture; (2) pressing environmental issues; and (3) the matter of development aid and food production in developing countries.²⁵

For the college to realize the third part of this agenda, it was imperative that the Swedish aid authorities settled on a strategy for its agriculture-related work that was congruent with the expertise available at the college and within the Swedish agricultural research network in which it was a central node. As such, it was fortuitous for its representatives that Schultz had proposed an approach that was very much in line with pre-existing and well-established Swedish traditions of localized research. They themselves used “a hundred years of Swedish experience in experiment organization and design” as an argument for why this type of effort was suitable for Swedish expertise.²⁶ This was no doubt an attempt to relate the proposal to the established policy that Sweden ought to provide aid mainly in areas for which its nationally available expertise was especially well suited, but it also provides a hint to the background of how agricultural experimentation was understood at the college. It referred to the agricultural experimental activities performed in Sweden since the nineteenth century within a growing research system that had always included a regional and localized component, investigating under which specific conditions or in which areas promising crop varieties could be recommended to farmers.²⁷ Such activities corresponded very well to what the college’s committee proposed to establish in a developing country. Apart from Schultz’ mostly theoretical argument, the plan thus drew primarily on experiences from Sweden. It made little effort to engage with the broader problem of differing development conditions in different settings. There was a perfunctory remark about how a “more or less extensive land reform” would be needed in many countries, but otherwise the plan ignored the larger social setting of the proposed experiment station.²⁸ The professors only manifested an interest in local contexts within

24 K. K. Patel, *The Paradox of Planning: German Agricultural Policy in a European Perspective, 1920s to 1970s*, in: *Past & Present* 212 (2011), p. 239.

25 Lennart Hjelm, *Målsättning för lantbrukshögskolans utbyggnad under nästkommande femårsperiod*, attachment § 56 to meeting minutes, Working committee of the Faculty of the Agricultural College, 18 March 1966, AC-SS, series A VI a, vol. 1.

26 *Forskning och undervisning*, p. 4.

27 Mats Morell, *Jordbruket i industrisamhället, 1875–1945*, Stockholm 2001, pp. 142–156; for an inside account of the system as it looked in the 1950s, see Erik Åkerberg, *Om fast och lokal försöksverksamhet*, *Växt-närings-nytt* 11 (1955), pp. 2:1–2:3.

28 *Forskning och undervisning*, p. 3.

the domain of the agricultural sciences. Otherwise, they seem to have seen the Third World as something of a blank slate.

International and Domestic Influences

The college's plan made an impression at NIB, which appointed its authors to a working group tasked with the further planning of a Swedish agricultural aid project.²⁹ The secretary and main driving force of this group was agricultural economist Bengt Nekby. He had completed a PhD at Iowa State College under the well-known Earl O'Heady, who directed the Center for Agricultural and Economic Adjustment, a newly created research unit focused on the study of agricultural economics and policy in the United States and abroad. Nekby had then been employed by the Ford Foundation as advisor to one of the regional governments in Nigeria, a position that made him one of the few Swedish agrarian experts who had any experience with international development work.

In January 1965, Nekby travelled to Pakistan and India to study two ongoing efforts in rural development: the Comilla project in East Pakistan (present-day Bangladesh) and the Intensive Agricultural Districts Program in India.³⁰ The Comilla project, the brainchild of Pakistani social scientist Akhter Hameed Khan, focused on regional development by way of research, training, public works, and the organization of farmer cooperatives for the distribution of credit and inputs.³¹ It made a particularly strong impression on Nekby and would come to shape the further planning of the Swedish project. After this study trip, its ambitions grew from agricultural development as such to regional rural development, including, but not limited to, efforts directly linked to the agrarian production.

Even so, the focus remained squarely on agronomic interventions. The final report produced by the working group discussed these at length.³² It highlighted adaptations to the local, instead of adaptations of the local, meaning that the project was still to be based on extensive local research. But it was slanted toward technical and top-down perspectives and paid little attention to complicating factors beyond the agricultural research work. Land tenure was again mentioned only briefly and was not integrated into the larger analysis. The report also lacked any deeper reflection over whether the Comilla model, or something like it, was suitable to apply in wholly different social and natural contexts. But the most glaring example of the techno-centric attitude was the fact that when argu-

29 The working group had several other members as well, but the part of its work detailed here was performed by the representatives of the Agricultural College.

30 L. Hjelm and B. Nekby, Preliminär rapport från studieresa i Libanon, Pakistan, Indien, Israel, Tunisien och Algeriet samt från diskussioner med the Food and Agriculture Organization of the United Nations i Rom den 14/1 – 10/2 1965, Swedish National Archives, Swedish Agency for International Assistance archives, series F VIII, vol. 1.

31 About the Comilla project, see, e.g., A. F. Raper, *Rural Development in Action: The Comprehensive Experiment at Comilla*, East Pakistan, Ithaca, NY 1970.

32 Preliminär rapport över formerna och möjligheterna för en utökad svensk biståndsinnsats på jordbrukets område, Meeting minutes, SIDA Board of Directors, December 10 1965, attachment 1 to point 2, SIDA, series A1 B, vol. 1.

ing for the relevance of the proposed project, the professors leaned heavily on Gunnar Myrdal's arguments for the primacy of agriculture in the economy of developing countries, all while ignoring how this in Myrdal's analysis was closely bound up with emphasizing land and tenancy reforms and careful analysis of local social structures.³³ This lack of attention to the broader setting of agricultural development contrasts sharply with the strong awareness the group demonstrated of the problems involved in transferring agronomic knowledge, and was most likely a consequence of the report's institutional origins. At the Agricultural College, there was little room for subjects like rural sociology or history at this time, and so there was comparatively little possibility for its experts to take broader social factors into account in their work.³⁴ In its relation to domestic agriculture, the college represented a kind of Swedish agricultural modernism, which paid much attention to local conditions as they pertained to agricultural production, but less attention to agriculture as a social system. Through the college, this modernism also came to shape the planning of the early Swedish agricultural aid, as it was expressed in the design of CADU.

On the basis of this final report and a brief tour through East Africa by the expert group, SIDA, the new Swedish aid agency which had replaced NIB in July 1965, decided to go ahead with the planning of a regional rural development project. It was to be situated in Ethiopia, a location deemed favourable because the climactic conditions in the Ethiopian highlands meant that Swedish agronomists would be able to work with species, and under agricultural conditions, that were reasonably familiar. Ethiopia also had the advantage of long-standing links to Sweden, and was seen as being in dire need of aid.³⁵ In the 1960s, the country, then still ruled by Emperor Haile Selassie I, was characterized by widespread poverty. The absolute majority of the population lived in rural areas, and most of the agrarian society remained embedded in a feudal or semi-feudal economic structure. Traditional elites—state, church and private landlords—held large parts of the land, much of it cultivated by sharecropping tenant-farmers using an ox-plough technology complex that would have been familiar, if distinctly amodern, to a 1960s Swedish agronomist.³⁶

Describing the rest of the planning process falls outside the scope of this paper. Suffice it to say that the project was planned as a regional development project along the general lines presented above, with a strong focus on agricultural science as a driver of development. The project was located to the Chilalo *awraja* (sub-province) in Arussi province. Chilalo was a highland region with a climate suitable for cereal production. It had a

33 This was clearly emphasized in the book by Myrdal that the report cited: G. Myrdal, *Vår onda värld*, Stockholm 1964.

34 J. Myrdal, *SLU och det moderna samhällsprojektet*, in: G. Ramberg (ed.), *Sammanhang: SLU 25 år*, Uppsala 2002, p. 24.

35 On earlier Swedish links to Ethiopia, see V. H. Norberg, *Swedes in Haile Selassie's Ethiopia, 1924–1952: A Study in Early Development Co-Operation*, Uppsala 1977.

36 On the ox-plow system, see J. C. McCann, *People of the Plow: An Agricultural History of Ethiopia, 1800–1990*, Madison 1995.

population of about 400,000, with 65,000 farm households. Its farmers mostly grew barley and wheat, with 52 per cent of the cultivated land devoted to the former and 18 per cent to the latter. There was little market-directed animal farming and no commercial dairy production, but most peasants kept animals for traction and for household food. According to the available data, the average peasant held less than five hectares of land. Though efforts had been made to find an area with more favourable tenancy conditions, about 50 per cent of Chilalo's peasants were tenants, and the tenants had on average slightly smaller holdings than those who owned their land. Whether tenants or not, the small-holders were generally subsistence farmers using traditional methods and implements.³⁷

The Chilalo Green Revolution

CADU started its operations in September 1967. It was established as an autonomous agency within Ethiopia's Ministry of Agriculture, overseen by an inter-ministerial committee chaired by the Minister of Agriculture.³⁸ Bengt Nekby, who had left his position at the Agricultural College, was named its first executive director. The official objectives of the project were defined as follows:

- To bring about economic and social development,
- To give the population an increased awareness of and responsibility for development processes,
- To verify methods of agricultural development,
- To train staff.

In practice, the generation of economic incentives was prioritized in the early stages of the project, even if the goals were formally seen as equally important. Social development was then expected to follow from the economic progress.³⁹

The project retained a wide range of activities, but the most important ones were those that related directly to the agricultural production: agricultural and animal husbandry experimentation, extension and education, marketing activities, and the provision of credit for the purchase of inputs. Also crucial to the project was the planning and evaluation section, which was tasked with gathering data and monitoring project developments and effects, as well as developing new methods based on project experiences.⁴⁰

37 The information about cultivation practices is from SIDA Project Preparation Team, Report No. I on the Establishment of a Rural Development Project in Ethiopia (1966), p. 151. For the other data, see Cohen, *Integrated Rural Development*, pp. 46–60.

38 Cohen, *Integrated Rural Development*, p. 72.

39 Nekby, CADU, p. 47.

40 Cohen, *Integrated Rural Development*, p. 76.

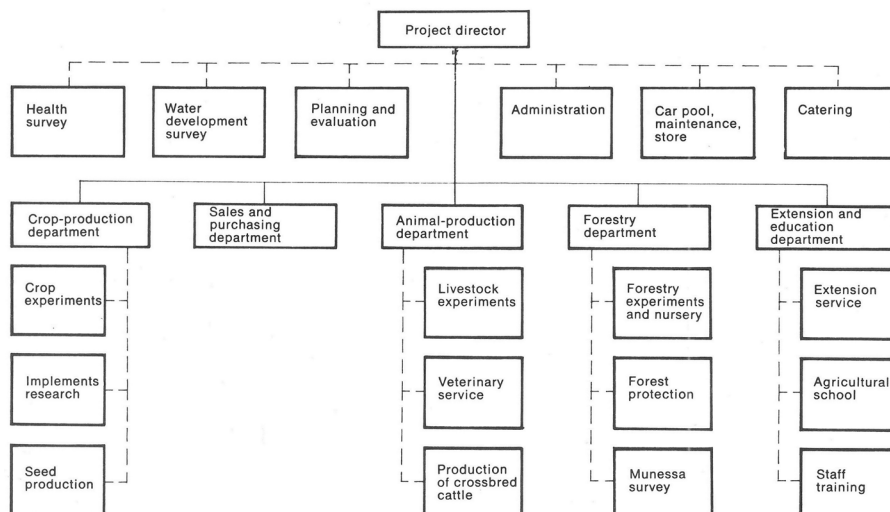


Figure 1. The organizational structure of CADU during the period of the first Ethio-Swedish agreement (1967–1970), illustrating the large number of activities undertaken.⁴¹

The importance afforded to this feedback mechanism goes to show the experimental and self-reflecting attitude that pervaded the project. Describing CADU, as Bengt Nekby did in the title of his book on the project, as an experiment in Ethiopia is thus fitting. Not only was agricultural experimentation the core of the effort, but one of its objectives was to verify a system of methods for agricultural development that had not been tested in Africa before.

The project's crop and animal production work, emphasizing adaptive research, was generally successful.⁴² Under the leadership of Swede Harald Linder and Ethiopian Dag-natchew Yirgou, trials of wheat varieties from Ethiopia as well from research programs in Mexico and Kenya enabled staff to identify and improve well-adapted plant material that eventually yielded up to twice as large harvests as the local material under farming conditions, if supported by artificial fertilizer. On the animal side, a cross-breeding program was developed under which CADU cross-bred local heifers with higher-yielding breeds imported from Europe. This created a new dairy cattle stock capable of producing more than five times the amount of milk, but it required substantially more feed, proved

41 From Nekby, CADU, p. 95.

42 For a detailed account of this research, see H. Linder, *Crop Production Improvement: Activities in Chilalo Agricultural Development Unit in Ethiopia, 1966-1970: Abridged Version of an Agricultural Thesis*, Uppsala 1976.

somewhat susceptible to disease, and was more difficult to manage in comparison with local cattle.

In order to transfer this knowledge to local farmers and encourage them to take up the innovations, CADU operated extension and marketing activities. The basic premise of the latter was that farmers needed to know that their produce could be sold at a fair price, if they were to have any reason to experiment with ways of increasing production. CADU thus established a number of trade centres throughout Chilalo where the project bought wheat and milk from farmers. CADU's extension activities were based on a system of extension agents supervising model farmers, a method that had been adopted from the Comilla project. The number of model farmers grew steadily, exceeding 400 in the year before the revolution.⁴³ The final piece of the package that was intended to generate agricultural development in Chilalo was the provision of cheap credit to farmers, specifically to enable them to buy the inputs provided by the project. The interest rates on these loans were low enough to make them *de facto* subsidies.⁴⁴ Credit provision was handled at the trade centres under the supervision of extension agents, and credit was only given in kind, in form of seed and fertilizer.

The extension methods proved rather effective in terms of outreach, so that "all but the most remote" farmers eventually became aware of the project's message.⁴⁵ But awareness did not automatically translate into acceptance, and on close inspection, CADU's research activities highlight that it proved difficult for the project to fully reconcile modern agronomic techniques with the idea of local adaptation. To be sure, CADU's promotion of the new, locally adapted wheat varieties was very successful. They soon became highly popular among participating farmers, and wheat rapidly replaced barley as Chilalo's dominant crop. But other innovations were largely rejected. CADU attempted to promote other crops besides the new wheat varieties, but with little success. Farmers also rejected CADU's attempts to sell them clean seed produced by the project, preferring to use their own. Likewise, the new iron plough designed by the project proved problematic. It was largely rejected by farmers who considered it to be too heavy both for the oxen who were supposed to pull it, and for the farmers themselves who had to carry the plough to the fields.⁴⁶ All these problems indicate that the previous strong interest in local conditions and practices decreased somewhat when the project got under way. A later evaluation of the project suggested that its research on cultivation ought to focus more on "actual farm conditions". This indicates that the methods developed were not adequately adjusted to farmers' situations, which in turn can explain the farmers' rejection of them.⁴⁷

The project nonetheless began to transform the agrarian society in Chilalo. The marked success of the wheat research and improvement was the most important factor, as it

43 Cohen, *Integrated Rural Development*, chapter 4, note 37; Dagnatchew Yirgou et al., *Final Report on the Appraisal of CADU and EPID* (1974), p. 9.

44 Cohen, *Integrated Rural Development*, p. 92.

45 *Ibid.*, p. 85.

46 *Ibid.*, p. 92.

47 Dagnatchew Yirgou et al., *Final Report on the Appraisal*, p. 18.

quickly led to significant increases in agricultural productivity. The number of farmers taking part in the credit scheme increased as well. In 1971, the project had enrolled 25 per cent of its target population, and the participating farmers stood to significantly increase their harvests and incomes.⁴⁸ At the same time, the project suffered from not being positively integrated into its socio-political environment. Though it was well-connected with a group of younger, reform-minded civil servants in Addis Ababa, notably the junior minister of agriculture Tesfa Bushen who was one of the main driving forces behind the project in Ethiopia, it had failed to make similar connections in Chilalo. Attempts to facilitate dialogue and coordination between the project and the local authorities achieved nothing, reflecting CADU's inability to establish common ground with the local administration and with other powerful interests in the area, who saw the project as a threat to their own power base.⁴⁹ The tenancy conditions and entrenched social relations in the area thus begun to strongly shape the effects of the project's interventions. While incomes were up across the population, the distribution was skewed, with large farmers' incomes increasing much faster.⁵⁰ One reason was that many of the small-holding peasants were share-cropping tenants, who had little incentive to increase their production. Another was that it was easier and less risky for larger farmers to experiment with the increased farming complexity brought on by CADU's innovations. But even after CADU began to employ land holding ceilings for access to its credit schemes, so that the proportion of participating small-holders rose significantly, the prevailing patron-client relations, rigid social structures, and antagonistic policies of local officials still tended to steer project benefits disproportionally towards the larger farmers and the local elite.⁵¹ The project had attempted to form peasant cooperatives for marketing and procurement, which could have counteracted this tendency, but strong resistance from local elites forced project management to move slowly in this regard, and so cooperative societies had little impact in Chilalo before the revolution.⁵² The end result was, in the clear-cut language of economist Winfried Manig's analysis of CADU, that "[t]he *productivity growth* achieved by utilizing modern technologies was redistributed *along the lines of existing societal modes of distribution*."⁵³

Alongside this, a more sinister process, which would come to seriously damage the project's external reputation, was also well under way. By 1970 a large number of tenants had been evicted from their land by landowners to whom the example of CADU had made abundantly clear that modern agriculture, in particular in its mechanized variety, could be a profitable commercial endeavour. The mechanized seed production farm in

48 J. M. Cohen, Effects of Green Revolution Strategies on Tenants and Small-Scale Landowners in the Chilalo Region of Ethiopia, in: The Journal of Developing Areas 9 (1975), p. 340.

49 Cohen, Integrated Rural Development, p. 114.

50 Ibid., pp. 112–113.

51 All these constraints are discussed extensively in Cohen, Integrated Rural Development, chapter 5.

52 Ibid., pp. 116–117.

53 Winfried Manig, "Green Revolution" Technologies Reconsidered: Another View: The Ethiopian Example, Africa Spectrum 24 (1989), p. 281 (italics in original).

Kulumsa seems to have been a key source of inspiration, whose impact was further enhanced by the fact that the Ethiopian government provided subsidies to landowners who wanted to mechanize agricultural operations on their holdings.⁵⁴ When this became apparent, CADU attempted to implement mitigating strategies, such as the hiring of evicted tenants within its infrastructure department or the promotion of local industry, though none was fully successful. Evictions continued in areas affected by the project until the revolution.⁵⁵

The Kulumsa farm had been developed into a modern Western operation that served as an experiment and seed production farm for CADU. To operate such a farm was perhaps necessary: consulting for the project, the Agricultural College's professor of crop production, Ewert Åberg, argued in 1966 that "measures for a rational agricultural operation" had to be taken at Kulumsa.⁵⁶ But it is of some interest that there seems to have been little discussion of possible knowledge transfer effects of operating a farm according to a Western model of intensive, mechanized farming in the project area, especially in an Ethiopian context where there were government subsidies available for mechanization. As has been pointed out by political scientist Michael Ståhl, there was also a deeper contradiction in play here, namely that all of CADU's attempts to support peasant agriculture were embedded in a political environment where large-scale commercial farming was simultaneously encouraged by the Imperial government.⁵⁷ There is no doubt that the implications of this contradiction had been underestimated by the project's planners. This conclusion can be stated more generally: they underestimated the extent to which Chilalo society could shape the project's effects because, in spite of their commitment to peasant agency, they did not fully grasp that this society was full of actors who could appropriate project knowledge in their own ways and for their own purposes. This top-down bias reflects the conditions of the project's initial conception at the Agricultural College, where, as noted, there was little research in fields such as rural sociology, history, or anthropology. The underappreciation of the agency of actors in Chilalo society is well illustrated by the fact that while the project's strategy largely rested on the power of models, with an elaborate system of extension agents and model farmers created to disseminate knowledge among the peasants, no one considered that the example of Kulumsa could, and would, likewise function as a model for an audience of larger landowners.

The social changes in Chilalo increasingly drew CADU into the rising political tensions in Ethiopia. The most important opposition to the regime at the time came from the radical student movement, centred on the Haile Selassie I University in Addis Ababa. Land reform and peasant empowerment were core issues for the students who had promoted them since the mid-1960s under the slogan "land to the tiller."⁵⁸ CADU, which

54 Cohen, *Integrated Rural Development*, 125–127.

55 *Ibid.*, 127–129.

56 Ewert Åberg, *Rapport över resa den 25 oktober – 12 november 1966 för utredningsarbete rörande det regionala utvecklingsprojektet i Etiopien*, p. 6. 4 January 1967, SIDA, series F1 AB, vol. 770.

57 Michael Ståhl, *Ethiopia: Political Contradictions in Agricultural Development*, Stockholm 1974, p. 105.

58 Bahru Zewde, *A History of Modern Ethiopia*, pp. 220–226.

explicitly focused its work on peasants, became both an object and a subject of the political tension. The student movement was generally critical of CADU, seeing it as a government project that favoured private interests at the expense of the most disenfranchised of the rural poor. Within CADU itself, many of the Ethiopian staff opposed the prevailing order as well, though they rather argued that projects like CADU, acting as progressive rural forces, could help bring about the necessary conditions for change. In this regard, CADU increasingly differed from other projects employing Green Revolution techniques, most of which were guided by a technocratic vision of problems solvable without political intervention.⁵⁹ While CADU's development strategy put primacy on technical factors, Swedish aid administrators and diplomats simultaneously put pressure on the Ethiopian government to effect tenancy reforms in conjunction with the Swedish contribution. Together with the Agricultural College's strategy of focusing on poor peasants in an Ethiopian setting where this was politically highly charged, this helped create conditions for a radicalization of the project. This especially came with the rapid and generally successful Ethiopianization after 1970, when first Paulos Abraham and then Henock Kifle became project directors. The latter became involved in drafting plans for a rural land reform while directing CADU, and was at the centre of a controversy that engulfed the project in the final months of imperial rule as a coalition of landlords engaged in a struggle against him and the project. Henock's plan was later taken up by the new post-revolutionary military regime as they actually did carry out a land reform in 1975, but by then, CADU (soon geographically expanded and renamed ARDU, Arsi Rural Development Unit) itself had been turned into a vehicle for the new government's political ambitions.⁶⁰

59 A. De Greiff A. and M. Nieto Olarte, What We Still Do Not Know About South-North Technoscientific Exchange: North-Centrism, Scientific Diffusion, and the Social Studies of Science, in: R. E. Doel and T. Söderqvist (eds.), *The Historiography of Contemporary Science, Technology, and Medicine: Writing Recent Science*, London 2006, p. 250.

60 The political tensions and struggles that arose around CADU at the end of the emperor's reign have not been part of my empirical analysis, but are discussed in a fairly recent master's thesis from Ethiopia: Tariku Degu, *Transformation of Land Tenure and the Role of Peasant Associations in Eastern Arsii (1974–1991)*, MA Thesis, School of Graduate Studies, Addis Ababa University (2008), pp. 23–32. See also Andargachew Tiruneh, *The Ethiopian Revolution, 1974–1987: A Transformation from an Aristocratic to a Totalitarian Autocracy*, Cambridge, UK 1993, pp. 99–100. About the post-1974 developments of ARDU, see Cohen, *Integrated Rural Development*, chapter 6.

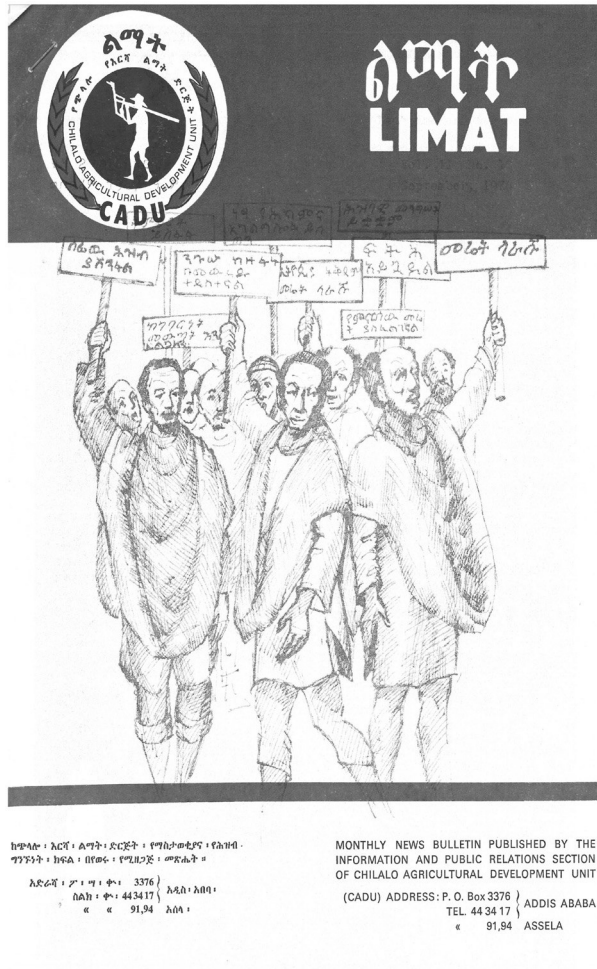


Figure 2. The radicalization of CADU can be clearly seen in this issue of the project's newsletter from September 1974, the month Haile Selassie was imprisoned by the army. Its editorial begins by stating: "History has time and again taught us that at a transitional stage, the ruling class makes a frantic and desperate attempt to hold on to the old order." It later makes the (somewhat revisionist) claim that "[e]nd to all feudalist oppression has been CADU's goal ever since its inception" and that "[t]here should be no illusion that the forces of reaction will peacefully accept fundamental changes." Thanks to Lars Leander for the newsletter.

IV – Concluding Discussion

In this article, I have discussed the conditions under which Swedish rural development aid policies changed and were given a more coherent formulation in the mid-1960s, with focus on the key role played by the Agricultural College of Sweden and its attempts to respond to structural changes in Swedish agriculture. The most significant effect of this was the implementation of the CADU project in Ethiopia, with which Sweden joined the ongoing international effort of applying Western agricultural science in the developing countries of Asia, Latin America, and Africa. Integrated into such international networks, CADU drew on practices, ideas, and resources drawn from a range of localities that spanned four continents. This highlights the fact that though the notion of bilateral aid suggests an interaction limited to two states, donor and receiver, reality can be much more complex. CADU was only realized through the harnessing of transnational flows of knowledge, people, and technology, brought together by a development strategy devised at the Agricultural College of Sweden. This dimension of knowledge transfer should not be overlooked when studying ostensibly unidirectional knowledge links, even if it is embedded in the unequal power relations that generally characterize development efforts.

In spite of its international character, I have argued here that a defining feature of CADU was that its development and technology transfer strategy was deeply connected to techno-scientific traditions at the Agricultural College, through which the international input was shaped. It was on account of these traditions that CADU emphasized the importance of agricultural science and understood applicable knowledge as highly localized, and so aimed to adapt knowledge to contexts rather than contexts to knowledge. Although the adaptive, local research was not fully carried through in all respects, this focus still made CADU, particularly its crop production improvement work, technically much more successful than many other contemporary projects and settlement schemes. It was one of the few really effective implementations of the Green Revolution technologies in Africa in its time, and was able to demonstrate how food production could be significantly increased in the setting where it operated. The importance of this fact should not be downplayed in a national context where starvation was, and remains, a real and present risk if harvests fail.⁶¹

But although interested in the local conditions, the Swedish planners' perspective was limited by certain techno-centric and top-down biases that came with their background. To them, agricultural experiments resulting in profit-generating innovations were always defining features of agricultural development. They downplayed how social aspects would shape the uptake and effect of the new technologies utilized within the project. The very choices of Ethiopia and Chilalo as the location were in important respects based on agronomic factors, in the face of socially disadvantageous conditions. In these re-

61 See Christopher Clapham, *The Modes-of-Production Debate in Ethiopian Agriculture*, review of *Integrated Rural Development*, by John M. Cohen (and several other works), in: *Africa: Journal of The International African Institute* 58 (1988), p. 365.

spects, CADU's strategies reflected a Swedish national style of agricultural development, characterized by a strong attention to local agricultural environments but a comparatively limited sensitivity toward social factors. Given the profound internationalization of agricultural development networks at the time, the scope of this argument must be understood correctly: I do not, as should be clear, argue that CADU represented a direct transposition of insulated Swedish knowledge and experience to Ethiopia, but simply that the priorities and sensibilities of its planners and first managers were shaped by discourses and understandings shared by most Swedish agronomists, on account of them all having been trained at the Agricultural College and in a national context that historically had emphasized the importance of localized and farmer-oriented research.

Their lack of attention to the social dimensions of development also meant that the Swedish experts failed to fully grasp the implications of their own activities, a common feature of modern expertise that is well-documented in the literature. They were ill-equipped to understand that adaptation of technologies, in its strong sense, implied an extensive mobilization of local people in the adaptation process and the use of methods beyond the standard repertoire of experimentation and extension. The partiality of perspectives available to technical experts thus created problems for CADU as it has for many other well-intended but ultimately problematic agricultural development efforts: peasant response was mixed and social inequalities exacerbated as an effect of the project's activities. The project tried to mitigate this to some extent, but it had limited power over the entrenched networks of redistribution in the local society and had not foreseen the unintended appropriation of project knowledge by resource-strong local actors.

This story is fairly standard fare in the history of the agricultural modernization. More interesting is that in spite of this, CADU never developed into a technocratic project in the usual sense. Its original planners and managers were clearly experts committed to technocratic ideals, and this did shape the project, but it did not, in the end, rid it of politics nor of a certain sensitivity to political problems as such. On the contrary, between its often stated focus on poor peasants and small-farm agriculture, Swedish diplomatic offensives, rural tensions, and Ethiopian radicals, the project was always intensely politically charged, and once its management was Ethiopianized, it found itself an active party in the rural conflicts that preceded the revolution of 1974.

With the revolution, CADU's scope, purpose, and methods changed and the project's international influence declined. But between 1967 and 1974, it was widely seen as a pioneering integrated rural development effort; as an experiment in Ethiopia that would generate new knowledge about methods to stimulate the kind of economic change in the countryside that was increasingly understood as central to social development in general. It received a steady stream of visitors, mostly perhaps anonymous policymakers and aid workers, but also high-profile officials like the president of the World Bank Robert McNamara, who visited in 1970 and, according to a report by the Swedish ambassador, stated his "lively appreciation" of the project as well as of the Swedish diplomatic pressure

for social and legal reform.⁶² This suggests that CADU's particular niche in the post-colonial flora of rural development efforts and institutionalized development knowledge, which is beyond the scope of the present study, would be interesting to explore in further work. In conclusion here, I will simply say that in retrospect, it is clear that as an experiment CADU was both a success and a failure: it did systematize knowledge about the conditions of farming in rural Ethiopia as well as of how different attempts at stimulating agricultural development there could work, and in purely technical terms the project more than achieved its goals. But these successes came at an unintended social cost which in the eyes of many observers more than negated the benefits.

62 Carl Bergenstråhle to Lennart Klackenborg, 21 October 1970, SIDA, F 1 AB, vol. 778.