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# **How Michigan State University Became a Leader in African Agricultural Economics: A Personal Memoir**

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# **How Michigan State University Became a Leader in African Agricultural Economics: A Personal Memoir<sup>1</sup>**

Derek Byerlee<sup>2</sup>

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## **Abstract**

Drawing on an extensive review of available documents and my own personal recollections, this history describes the research and capacity building activities in Africa from 1963-1978 of the then Department of Agricultural Economics (AEC) of Michigan State University. The aim is to analyze how MSU came to be a leader in food and agricultural economics related to Africa that endures today. I first review the involvement of AEC faculty in the institutional building project at the University of Nigeria in the 1960s that involved the two main protagonists of the history. First from 1965-1971, Glenn L. Johnson initiated and led large projects to analyze and plan the Nigerian agricultural sector, based on paper and pencil projections and then pioneering simulation modeling. Second, Carl K. Eicher from 1970 built an extensive program of microlevel research involving intensive household surveys mostly focused on Sierra Leone. Both had important legacies in follow-on AEC activities throughout Africa and in the agricultural development profession, more generally. I argue that Eicher ‘seized the moment’ to aggressively recruit African graduate students and others with interests in Africa that through their thesis work and later employment as AEC faculty, became the bedrock of AEC’s food security programs in Africa.

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<sup>1</sup> This paper was prepared as background to an event planned in 2024 to commemorate a half century of MSU leadership of research and education in food security in Africa as well as the 75<sup>th</sup> anniversary of the founding of the Department of Agricultural, Food and Resource Economics at MSU.

<sup>2</sup> Most recently Georgetown University, Washington DC. I joined MSU in 1970 as a research specialist and resigned as Associate Professor in 1978. I appreciate valuable comments from Mike Abkin, Eric Crawford, Rob King, David Norman, Dunstan Spencer, Scott Swinton, Eric Tollens, and David Wilcock.

## Introduction

Few would disagree that over the past 50 years, the Agricultural, Food and Resource Economics Department of Michigan State University (MSU) has been the ‘go-to place’ in the US and indeed globally, for research and graduate study in food and agricultural economics related to sub-Saharan Africa. That MSU would assume this leadership role was not obvious in 1970. The Food Research Institute at Stanford University had already built a solid reputation through a series of books on the food economies of Africa starting in the 1950s.<sup>3</sup> By 1961, MSU had initiated its first venture in Africa with its institution-building project at the University of Nigeria, but another nine US land grant universities had similar institutional-building roles across Africa during the 1960s. Only MSU would turn this experience into a lasting and leading presence in the region as it rapidly expanded its horizons from Nigeria during the 1970s to most other anglophone countries in both West and East Africa and then to the francophone countries.

This review is my personal interpretation of how MSU established its leadership position in agricultural economics in Africa and the major actors that brought this about. I joined MSU in 1970 and worked on the two major streams of African research projects until I resigned in 1978. The first of these streams was the Agricultural Sector Planning Model applied to Nigeria (1967-1971) that in turn was an outgrowth of the Consortium for the Study of Nigerian Rural Development (CSNRD—pronounced as “Snerd”) that MSU led from 1965 to 1969. The second stream was the African Rural Employment Project (AREP) and a direct follow-on project from 1972-1979. These two streams represented very different approaches to research on agricultural development, one aimed at using sector-level models to improve policy and investment decisions at the national level, and the other aimed at building a microlevel data base through intensive field surveys to describe and understand rural household decision-making, with only tenuous links to policy decisions.

My motives in this review are threefold. First, I am one of the last survivors of the faculty of what was then known as the Department of Agricultural Economics (AEC) at MSU from this formative period for establishing MSU’s reputation in Africa. Building on the excellent timeline by Crawford, Weber, and Staatz<sup>4</sup>, I provide a personal perspective to add to the written record of the time. Second, from a professional viewpoint, I wish to better understanding the broader context of international development in this period and especially interpreting why we were doing what we were doing. In particular, the year 1970 when I joined AEC was a turning point in the history of development economics, since after the UN Decade of Development of the 1960s, GDP as the metric of development was being questioned as poverty reduction and income equality moved to center stage. The early 1970s were also a milestone in African agricultural development in terms of moving beyond the colonial focus on export crops to food production. Finally, an evaluation of the legacy of MSU’s work, albeit with the benefit of hindsight, reveals how MSU was able to “seize the moment” to establish its brand name in African agricultural economics.

In what follows, I first briefly describe the main protagonists in the history from 1963 to 1978 and how I came to be involved in both streams of MSU’s work in Africa in the 1970s. I then

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<sup>3</sup> Johnston, 1958. Other books focused on maize, cassava, and food crop marketing.

<sup>4</sup> Crawford, Weber, and Staatz, 2024.

briefly introduce the MSU-University of Nigeria experience as the starting point for AEC's involvement in Africa, before providing a more in-depth analysis and personal memoir of each of the two main streams of work—CSNRD and simulation modeling in Nigeria, and the AREP and follow-on activities in Nigeria but mostly in Sierra Leone. I then turn to a brief overview of the influx of African and other (mainly returning Peace Corp Volunteer) graduate students that transformed AEC and provided critical input into its research programs, especially in francophone Africa in the late 1970s. I conclude by reflecting on the major actors and turning points that launched AEC's focus on research and graduate training in African agriculture.

## **The Protagonists**

The story is dominated by two leading and very different protagonists in AEC who worked closely together in the 1960s and then parted ways in the 1970s. [Glenn Johnson](#) (1918 - 2003) grew up on farms in Minnesota and Illinois before undertaking his MS degree at MSU and then a PhD at the University of Chicago under two notable economists, T. W. (Ted) Schultz (a future Nobel Laureate in Economic Sciences) and D. Gale Johnson. He joined MSU in 1952, having already gained a reputation at the University of Kentucky as a leading production economist through important theoretical and quantitative contributions to the understanding of farmer decision making in US agriculture. His first big venture in international development was in 1963 as inaugural director of the Economic Development Institute (EDI) of the University of Nigeria (UNig) under the MSU institution-building contract. From there he designed and led the CSNRD project and the follow-on Nigerian simulation modeling study. Johnson received high-level recognition in the agricultural economics profession as a Fellow of the American Agricultural Economics Association and president of the International Association of Agricultural Economists, as well as being named an MSU University Distinguished Professor.

[Carl K. Eicher](#) (1930-2014) was also a farm boy, albeit with a difference—his father was the manager of a farm at a psychiatric hospital in the Upper Peninsula of Michigan. Eicher did his BS and MS at MSU before completing a PhD at Harvard under the maverick economist and noted author, John Kenneth Galbraith, with a thesis on the economic development of an American Indian reservation. He then took up MSU's first AEC position dedicated to international agriculture in 1961. This position had been established under MSU President John Hannah's policy to engage MSU in the emerging field of international development aimed at making MSU into a leading university globally. Like Johnson, Eicher also became a university distinguished professor but through a very different route. In all his career beyond his MS thesis, Eicher never used a mathematical equation or statistical procedure in his research. Rather he contributed through a voracious appetite for collecting literature from widely different and often obscure sources and digesting findings into broad-ranging synthetic reviews or pithy soundbites published in popular outlets such as *Ceres* (FAO) and *Foreign Affairs*, but rarely in the main professional journals. After making his name with an edited book of readings for a graduate course, *Agriculture in Economic Development* (with AEC's Lawrence Witt) published in 1964, he succeeded Johnson as director of EDI at the UNig in 1964, and then worked on the CSNRD project under Johnson. However, from 1970, he ploughed his own furrow through a passionate dedication to developing African institutional capacity and building a wide network of research scholars across Africa. His first significant grant was for the AREP in 1972.

I was a small bit-player in the MSU-African story. I worked closely with both Johnson and Eicher but in both cases my collaboration was accidental. After a (fortunately) brief interlude as a colonial officer in the then Territory of Papua and New Guinea and an MS at the University of

New England in Australia, I followed Albert (Al) N. Halter, a visiting professor at New England, back to his home university, Oregon State University, to undertake my PhD studies. Halter had in turn been a PhD student at MSU under Johnson and a pioneer in the application of simulation modeling in agriculture. When he moved in 1970 for one year to MSU to work on the Nigerian simulation model, I again followed him hoping to combine my skills in mathematics and modeling with my interests in international development for my thesis work. Searching for a thesis related to the high interest at the time in rural-urban migration and urban unemployment in Nigeria, I asked for an appointment with Eicher who had recently published a paper on the topic. His assistant listed this in his appointment diary as a “discussion of employment in Africa” and in characteristic Eicher style, he did not wait for further explanation but launched into a half-hour lecture on how I should build my career by obtaining field experience in Africa and where I might seek employment to do so. I did not receive any advice on my thesis topic but not long after did receive a job offer from AEC Chair Dale Hathaway for a post as assistant professor to work on AREP from September 1971 after completing my thesis. I was completely unprepared for the offer but quickly accepted. This was my first lesson in negotiation—a few months later the full list of MSU faculty salaries that until then had been confidential was leaked and published in the *Lansing State Journal* and I learned that I was at the bottom of the list and significantly below other recent hires.<sup>5</sup>

### **MSU and the Economic Development Institute, University of Nigeria**

Even before gaining independence in 1960, US foreign assistance and US philanthropic organizations had been engaged in Nigeria as the most populous country in Africa and a country considered critical to ensure its alignment with the West in the Cold War climate of the times. With independence, USAID<sup>6</sup> provided strong support to Nigeria re-enforced by the Korry Report in 1966 that recommended regional approaches to aid in Africa except for large and strategically important countries, notably Nigeria, Ethiopia, and the Democratic Republic of Congo.<sup>7</sup> By the mid-1960s, Nigeria was USAID’s second largest program globally in terms of dollars and the largest in agriculture and in technical assistance personnel.<sup>8</sup> In 1967, USAID was supporting 24 projects and engaged 250 US “experts” in Nigeria with a focus on agricultural development.<sup>9</sup>

Nigeria was also regarded as a model of successful development through indigenous smallholders during the colonial period. British colonial governments had prohibited foreign investments in plantations, notably Lever Brothers (now Unilever).<sup>10</sup> Instead, in what was interpreted as a classic example of the ‘vent for surplus’ development model, entrepreneurial smallholders developed cocoa, palm, and rubber export industries in the south and groundnut and cotton exports in the north by utilizing their surplus land resources and labor at non-peak

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<sup>5</sup> My initial fixed-term appointment was quietly but controversially converted into a tenure-stream appointment in 1972. The lack of transparency in my appointment became a headache for new AEC chair, Harold Riley, that resulted in new rules about open advertising of tenure-stream positions and the appointment of a search committee for each position.

<sup>6</sup> The Agency for International Development (AID) was created from its various predecessor organizations in 1961 and later widely known as USAID.

<sup>7</sup> Smith, 1968

<sup>8</sup> OECD, 1968; Jaeger, 1987

<sup>9</sup> USAID, 1967

<sup>10</sup> The original policy against foreign-owned plantations was laid out by the colonial governor in 1925. See Legislative Council of Nigeria, 1925.

season.<sup>11</sup> After WWII agricultural exports were taxed through parastatal marketing boards established to stabilize prices and generate a surplus to invest in infrastructure, social services, and to pay colonial administration—a tax that grew rapidly from the 1950s. Little attention was given to stimulating food production since food imports were low and production was seen as following population growth.<sup>12</sup>

The UNig was the brainchild of Dr Ndamdi Azikiwe, Premier of the Eastern Region (and later the first president of Nigeria) who had studied in the US and wished to build a land grant-style university in his Region. Premier Azikiwe had set aside a large fund from the Eastern Region Agricultural Marketing Board for the enterprise and after a visit to Nigeria by MSU's President Hannah, USAID signed a contract to help build the UNig near the village of Nsukka. This was the peak of USAID's institution-building phase for universities where a US land grant university was twinned with a university in the developing world usually with a special focus on agriculture. These projects aimed to quickly increase the supply of local university graduates to replace the large number of US technical advisers of highly variable quality and to replicate the US land grant model of integration of research, extension, and education.<sup>13</sup>

The MSU-UNig contract involved 79 MSU faculty in residence in Nigeria across a wide range of disciplines in agriculture and other fields, but only four AEC faculty. The first head of agricultural economics at the University of Nigeria at Nsukka, AEC professor, Warren Vincent, was appointed toward the end of the project to the UNig Nsukka main campus.<sup>14</sup> All other AEC activity was based at the Economic Development Institute (EDI) campus of UNig some 60 km away from Nsukka in the regional capital of Enugu.<sup>15</sup> Besides Johnson and Eicher as EDI's first directors, two other MSU faculty involved in EDI who played important roles in later AEC international projects were Herbert (Herb) C. Kriesel, a student colleague of Johnson at the University of Chicago,<sup>16</sup> and Carl E. Liedholm of MSU's Department of Economics.

EDI was conceived as a leading thinktank on economic research and policy advice and Johnson and Eicher with additional support from the Ford Foundation and USAID laid out an ambitious research agenda, including in agricultural economics, mainly on export crops. There was a sense of excitement about the potential of EDI as aptly expressed by T.W. Schultz after his visit as a member of an external advisory committee to guide EDI's research and teaching.

The "returns" here to economic analysis per man year are much, much larger than they can be in the United States. The best ore has long been mined at home; not so here.<sup>17</sup>

However, and perhaps not surprisingly given the daunting task of building EDI from scratch, the AEC faculty carried out little research although they supervised four American PhD students from MSU who undertook their thesis research in Nigeria on the export crops, oil palm and

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<sup>11</sup> Eicher and Liedholm, 1970. The vent for surplus model was coined by Myint, 1958.

<sup>12</sup> Eicher and Liedholm, 1970.

<sup>13</sup> The history of MSU and the University of Nigeria is described in Zerby and Zerby, 1971, and Stevenson, 2020. Johnson and Okigbo (1989) also evaluate the experience.

<sup>14</sup> Eicher at EDI also helped develop the agricultural economics curriculum and teach courses by commuting to Nsukka twice a week (Eicher, 1966)

<sup>15</sup> Besides USAID, EDI received substantial support from the Ford Foundation

<sup>16</sup> Kriesel with an MS degree worked with AEC for many years on fixed-term contracts for several projects.

<sup>17</sup> Johnson, 1964



rubber, and the emerging cash enterprises, rice, and poultry.<sup>18</sup> All involved limited surveys with one or a few visits to collect field data.

No Nigerian student from the Eastern Region undertook graduate studies in AEC during this period although John Abaelu from the well-established University of Ibadan became the first African student to earn his PhD in agricultural economics at MSU in 1966 before then joining EDI.<sup>19</sup> Indeed, Eicher at the end of his tour as Director of EDI openly confessed that he “made a mistake” in not employing young Nigerians in EDI and then sending the best for further study abroad.<sup>20</sup>

EDI did attempt to implement longer-run field-based data collection for research and mounted two large surveys funded by USAID in 1966. Everett Rogers a rising star from the MSU Communications Department carried out a detailed single-visit survey of technology adoption in Eastern Nigeria, following the success of his groundbreaking book, *Diffusion of Innovations*.<sup>21</sup> The results of the first phase of this survey were analyzed and published before the MSU contract was halted by the Nigerian civil war.<sup>22</sup> Meanwhile, the AEC team at EDI under Eicher and Kriesel designed an ambitious nation-wide farm household study using multiple-visit surveys of about 1,000 households over a year. This was part of a multi-country USDA effort inspired by Schultz’s about-to-be published book, *Transforming Traditional Agriculture*.<sup>23</sup> However, the Nigerian survey was doomed by the outbreak of civil disturbances in the north in 1966, the death in a road accident of the American professor in charge at the University of Ife in the West, and finally by the outbreak of civil war in 1967. All MSU faculty in Nigeria, including the remaining AEC team member, Kriesel at EDI, were evacuated and the data that had been collected over a year in the East were lost.

The main legacy of this first phase of AEC’s involvement in Africa was the experience and contacts gained by its faculty members, especially Johnson, Eicher, and Liedholm which would serve as a solid basis for initiating research and graduate training in Nigeria and further afield during the next decade. The failure of the ambitious farm household survey must have also left Eicher with a sense of unfinished business that likely influenced the focus of AREP in the 1970s.

## **The Consortium for the Study of Nigerian Rural Development**

### ***The development state and planning***

It is easy to forget the central role ascribed to planning by practicing development economists and political leaders in the early post-colonial period. Planning was the *modus operandi* for allocating scarce public resources and as today, engaging with foreign assistance agencies to support economic development. But expectations from planning were much higher as noted by Michael Todaro at the University of Nairobi who prepared the first textbook on development

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<sup>18</sup> The students were Delane Welsch, William Miller, Kurt Anschel, and Malcolm Billings

<sup>19</sup> In 1948 Ibadan became the second university established in sub-Saharan Africa outside of South Africa. The first in all of Africa was Fourah Bay College in Sierra Leone that, like Ibadan, was initially linked to a UK university that granted the degrees.

<sup>20</sup> Eicher, 1966.

<sup>21</sup> The field studies were implemented with the aid of Dutch graduate student, Niels Roling, who from his future professorial position at Wageningen University would become a global authority in rural sociology and extension. See Hursh et al., 1969.

<sup>22</sup> Rogers and Niehoff, 1967

<sup>23</sup> For full details see Kriesel, 1967

planning for African students.<sup>24</sup> He observed the “almost universal acceptance of development planning as the principal means toward accelerating economic growth.”<sup>25</sup> This was especially true in the era of the development state in Africa in the 1960s where all countries prepared five-year plans with specific growth targets, differing only on the extent that some plans focused more narrowly on public investment or more commonly, comprehensively embraced the whole economy with a heavy dose of state-owned economic enterprises.<sup>26</sup>

Given the scarcity of economic graduates in Africa, much of the analysis for planning was carried out by foreign expertise using donor funding. The best-known example was in Nigeria where the planning team was led by Wolfgang Stolper, who had studied under Joseph Schumpeter at Harvard. Stolper was recruited in 1961 by MIT to go to Nigeria, a country that he described as the “sleeping giant of Africa.”<sup>27</sup> He recorded his experience in a book memorably titled, *Planning without Facts*, which was on the bookshelf of all MSU faculty involved in Nigeria. Stolper particularly highlighted the lack of data for agriculture (except for exports), which accounted for 60 percent of total GDP and 75 percent of the employment in the mid-1960s—that is, most of the Nigerian economy.

Given the importance of the agricultural sector, a great deal of effort was placed on more detailed planning for the agricultural sector especially by ministries of agriculture. FAO became an enthusiastic proponent of agricultural planning conducting annual training courses and producing guides for practitioners. Another active participant was the Center for Development Planning in Washington DC, led by J. Price Gittinger who prepared a detailed review of agricultural planning methods.<sup>28</sup> I and later other MSU professors later developed a productive relationships with Gittinger in co-teaching the course AEC 962, *Development Planning and Agricultural Sector Analysis*, using his popular text book on project appraisal.<sup>29</sup>

The methodology of agricultural planning revolved around projecting demand for each commodity based on income and population, setting targets for supply, analyzing needed investments and manpower to achieve targets, and then checking consistency with projected public revenues, foreign exchange earnings, and skilled manpower availability. This was all achieved through a (hopefully) coherent set of investment projects. Even more so than macroeconomic planning, agricultural planning in Africa was highly constrained by poor data. Accordingly, there were continuing calls for improved farm-level data to support better planning, notably from Ranier Schickele, a leading agricultural economist at FAO who was a visiting professor at AEC in the early 1970s, and Clifton Wharton, an agricultural economist who became president of MSU in 1970.<sup>30</sup>

Stolper’s Nigerian plan for 1962-66 was by his own admission weak on agriculture and endorsed politically popular but inefficient investments in farm settlements and state-run plantations, contrary to the colonial history of successful smallholder development. The Plan also perpetuated high marketing board taxes averaging 27-47% that were being largely squandered in

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<sup>24</sup> The general textbook on planning was Lewis, 1966.

<sup>25</sup> Todaro, 1971

<sup>26</sup> Green, 1965

<sup>27</sup> Stolper, 1963; Utietiang, 2014.

<sup>28</sup> Gittinger, 1966. See also Utietiang, 2014.

<sup>29</sup> Gittinger, 1972 and 1982.

<sup>30</sup> Schickele, 1966; Wharton, 1965

expenditures on the state-run schemes.<sup>31</sup> Indeed, in the 1950s Nigeria had had its own fiasco of a groundnut scheme—the Niger Agricultural Project based around farm settlement—smaller in scale but equally disastrous as its more famous Tanganyikan sister.<sup>32</sup> Farm settlement was popular as a way to employ school leavers who were migrating *en masse* to the cities despite already high urban unemployment.<sup>33</sup> In the 1960s, the Moshav cooperative farming scheme was imported from Israel through FAO as a model for farm settlement, but this was also a failure as documented by AEC’s second PhD graduate from Africa, Dupe Olatunbosun of the University of Ibadan in his 1967 dissertation.<sup>34</sup>

## **Enter CSNRD**

The CSNRD study initiated in 1965 was a major effort to lay out future scenarios and a plan for Nigerian agricultural development. Ostensibly its aim was to inform the design of the USAID program for the sector but it is clear that CSNRD and in particular its leader, Glenn Johnson, wished to influence Nigerian planners, and indeed change the whole conversation about Nigeria’s agricultural development strategy.

The CSNRD study was launched in the wake of a 500+ page report on Nigeria prepared by an unnamed but obviously very large FAO team.<sup>35</sup> The FAO ‘perspective plan’ to 1980 purported to rebalance toward food production, but less than 20 pages were devoted to food staples against 230 pages to export crops. Its food production strategy was focused on the Middle Belt of the country, an area of low population density due to the prevalence of tsetse fly, to be developed through large-scale settlement schemes and “the substitution of monoculture in evenly spaced rows for the widely used systems of mixed culture.”<sup>36</sup>

Why then would USAID invest \$15M (in today’s dollars) in the CSNRD study? The most likely reason is that USAID and Johnson were unhappy with the *status quo* nature of the FAO report. Despite rising oil revenues, FAO still saw the agricultural marketing boards as a major source of tax revenues to fund capital expenditures across all sectors. Further the FAO report perpetuated investment in state-run plantations although it did call for modifications of the high-cost farm settlement schemes.

CSNRD was led by MSU but built partnerships with three other US universities involved in institution building in Nigeria that broadened MSU’s narrow expertise beyond Eastern Nigeria. The University of Wisconsin was supporting the University of Ife in Western Nigeria and Kansas State University was supporting Ahmadu Bello University in the Northern Region, both recently established universities. Colorado State University was engaged in building research and extension capacity in the regional ministry of agriculture in the Eastern Region and like MSU left with the outbreak of civil war.<sup>37</sup>

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<sup>31</sup> Forrest, 1981

<sup>32</sup> Baldwin, 1957.

<sup>33</sup> Callaway, 1963.

<sup>34</sup> Olatunbosun, 1967. Perhaps uniquely, Olatunbosun’s minor was in psychology.

<sup>35</sup> FAO, 1966. The World Bank also sent in a large team and released a 10-volume report, with one devoted to agriculture.

<sup>36</sup> FAO, 1966. pp 113

<sup>37</sup> Prior to 1967, Nigeria was divided into four Regions with their own regional governments, that subsequently were divided in several stages into 36 states today.

MSU was clearly in the lead in designing and implementing CSNRD. Besides Johnson, other AEC faculty included Eicher and George Dike while Charles Laurent and Kriesel (formerly EDI) were fixed term faculty. Kriesel and Orlin Scoville from Kansas State provided critical support on the ground in Nigeria. Following his earlier support to EDI, Schultz was also an adviser to CSNRD. Involvement of Nigerian scientists and economists in the exercise was minimal, a weakness that was later criticized by USAID reviews.<sup>38</sup> Two Nigerians did contribute through their thesis research—Olatunbosun at MSU and Godwin Okuruma at Yale University (along with three Americans/UK students from MSU).<sup>39</sup>

Given civil disturbances and then the outbreak of civil war, Johnson had many nervous moments and doubts about whether CSNRD could succeed.<sup>40</sup> Despite these setbacks, the final CSNRD report was delivered in 1969 summarizing the results of 33 published reports and 12 working papers. These were based largely on secondary data and a few on-site visits (except to the Eastern Region) to estimate farm budgets and collect information from government agencies. Unlike the FAO report the CSNRD report was relatively concise, clearly written and hard hitting in its recommendations. Three thousand copies of the final report were widely distributed in Nigeria. However, interaction with Nigerian policy makers was limited although it greatly improved when Bukar Shaib, a young veterinarian from the north became Federal Permanent Secretary of Agriculture in 1968—he would go on to become one of the foremost African leaders in agriculture and the CGIAR for the next two decades.

Echoing Nigeria's First Plan and the FAO report, CSNRD gave most attention to export crops which accounted for eight of the CSNRD reports. However, unlike FAO, CSNRD championed lower taxes on export crops as an incentive for smallholder expansion of exports. Increased farm income through exports was seen as creating a virtuous circle by stimulating demand for food and industrial products, reducing the widening rural-urban and north-south income disparities, and providing the engine for overall economic growth.

Only one of the CSNRD reports focused on food crop production and another provided Nigeria's first estimates of the supply of food nutrients.<sup>41</sup> With self-sufficiency for most foods and the non-tradable nature of most food staples such as cassava, yams and sorghum, food markets were judged to be constrained by effective demand. Eicher himself was a particularly vocal advocate of this position. Given his later fame in drawing attention to Africa's food crisis, it is surprising to find that in 1967 he described a proposal to prioritize food production in the humid tropics as "sheer nonsense" and in 1969 he wrote, "it is dangerous, to say the least, to think that the number one agricultural problem in African nations is the need to expand food production."<sup>42</sup> Although he noted that "Nigeria has surplus land and the ability for the next 10-20 years to feed itself,"<sup>43</sup> the final CSNRD report did call for long-run investment in research on food crops with the prospect that surplus production, especially of maize, could be exported.

CSNRD was particularly critical of farm settlement schemes and, although it noted that some state-run plantations were profitable, it argued that they were not as efficient as smallholders. The key instrument for public investment in CSNRD was the smallholder production

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<sup>38</sup> Jaeger, 1987

<sup>39</sup> George Brinkman and Robert Gray from the US and Malcolm Purvis from the UK.

<sup>40</sup> Baker, 2015.

<sup>41</sup> Okurume, 1969; Smith, 1969.

<sup>42</sup> Eicher, 1969a

<sup>43</sup> Eicher, 1969b.

campaign—subsidies to farmers to replant or establish new tree crop plantations, provision of “modern inputs” such as fertilizer and pesticides, and lots of extension advice. These were in most cases efforts to scale up ongoing experiences, building on evaluation studies carried out under EDI and others, often through thesis studies. Particular attention was given to investment in research, notably absent from the FAO report, and agricultural education to produce an expanded cadre of trained extension agents.

Finally, CSNRD reversed the top-down planning approach of setting production targets and focused instead on three scenarios built up from investment portfolios and incentive packages, one that promoted agriculture through lower taxes and higher investment in smallholders, one that was “business as usual”, and one that further taxed the sector. The approach was to project GNP and rural income for each scenario along with consistency checks on budgetary, manpower and foreign exchange resources. This was all accomplished through paper (large sheets), pencil (with eraser), and a Facit mechanical calculator—a tedious process that occupied the services of one PhD student.<sup>44</sup> It also made it costly to explore other scenarios or conduct sensitivity analysis on key parameters and Johnson was soon looking for ways to computerize the analysis.

Overall, CSNRD was ahead of its time in emphasizing smallholders as the engine of growth for the whole economy, the key role of price incentives, and the importance of prioritizing investment on public goods, especially research. Given the war, use of the CSNRD studies was limited but it became a valuable resource in the aftermath of the war (more below). A spinoff was a USAID-funded review of the Tanzanian marketing boards in 1969 that involved three AEC faculty from CSNRD.<sup>45</sup> Finally, CSNRD sponsored Eicher’s seminal review paper on *Employment Generation in Agriculture* that launched the second stream of MSU projects in Africa.

### **The Nigerian Agricultural System Simulation Model**

*With facts too many to list ‘em,  
The answer is a General System,  
So what has got to be advised,  
Is “get the stuff computerized.”<sup>46</sup>*

#### **A general systems simulation approach**

The simulation model of the Nigerian economy arose directly out of the CSNRD study. As indicated in the above ditty by Kenneth Boulding, the paper and pencil calculations used in the CSNRD study were onerous and limited the exploration of additional scenarios or alternative assumptions. Logically in an era when agricultural economists were mainstreaming the use of computers in their research Johnson sought early in CSNRD to find ways to build a computer model of the Nigerian agricultural sector. The simple approach would have been to computerize the CSNRD calculations in a comparative static model, but after listening to a presentation by his former student Halter from Oregon State University, the prospect of modeling the dynamic time path of alternative policy interventions became the main objective. Historian Kevin Baker in his

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<sup>44</sup> Brinkman, 1967.

<sup>45</sup> Kriesel et al. 1970.

<sup>46</sup> Kenneth Boulding reproduced in Millikan and Hapgood, 1967.

in-depth review of the Nigerian simulation modeling experience aptly described it as a process of creating a “virtual Nigeria.”<sup>47</sup>

Systems simulation as it was termed arose in electrical engineering through the defense and space sectors and its application to economic processes was championed by system scientist Jay Forrester and economist Edward Holland at MIT.<sup>48</sup> In agricultural economics, Halter had pioneered the application of the approach to model a cattle operation and a river basin system.<sup>49</sup> Based on Halter’s work, Johnson called a meeting of economists, Stolper among others, and system engineers (some from defense contractors) in 1966 to explore the application of the approach to agricultural sector modeling.<sup>50</sup> The meeting concluded that simulation methods needed further development and USAID-Washington agreed to fund a one-year pilot project using Nigeria as the prototype. From 1967, the CSNRD and the Nigerian simulation studies proceeded side by side at MSU with CSNRD providing most of the data for the simulation model.

For USAID this was part of several efforts it funded to test alternative agricultural sector models to improve policy making and planning. Others included an econometric model at Iowa State University and a recursive linear programming model at the University of Wisconsin. At the same time, my former econometrics professor from Australia, J. H. (Jack) Duloy at the World Bank was leading an ambitious multilevel programming model of Mexican agriculture (named CHAC from the Mayan god of rain).<sup>51</sup> USAID convened meetings annually among these groups to compare the experiences and provide an opportunity for each team to argue that theirs was the best approach.<sup>52</sup>

In the case of Nigeria, the econometric approach was a non-starter due to lack of time series data on the sector. Linear programming approaches were regarded as too rigid and Johnson who had a strong interest in values was unwilling to select any one welfare variable to maximize. Systems simulation provided considerable flexibility to build models for specific sub-sectors according to a standard protocol that could then be integrated for more aggregate analysis. Further, Johnson was very fortunate that MSU already had capacity in simulation of economic systems. One of Halter’s students from Oregon State University, Thomas (Tom) Manetsch, a professor in MSU’s Department of Electrical Engineering and Systems Science, had modeled the cotton and forestry sectors in Brazil and the US, respectively. Tom W. Carroll in the Department of Communications had worked with Everett Rogers on simulating the diffusion of innovations over space and time based on the logistic curve. In addition, Michael Abkin, fresh from the Peace Corps in Western Nigeria joined the team in 1969 as a graduate student in systems science.

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<sup>47</sup> Baker, 2015.

<sup>48</sup> See Holland (1961) for the first application of systems science to national economic modeling.

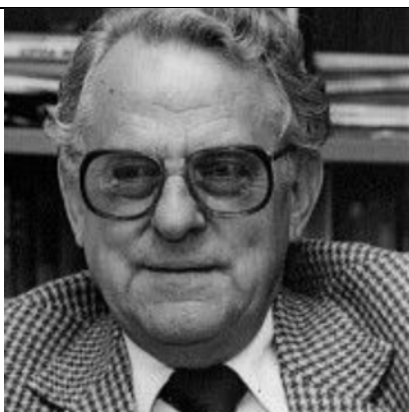
<sup>49</sup> For example, Halter and Dean, 1965

<sup>50</sup> Johnson, 1966

<sup>51</sup> An extensive review of simulation modeling in the 1970s albeit with limited reference to the systems science applications is provided in Anderson, 1974.

<sup>52</sup> A review of these models is provided by Thorbecke, 1973.

Glenn Johnson, director, and Tom Manetsch, operational leader of the simulation team



The team started in 1967 with a model of the Nigerian cattle sector as proof of concept. Systems simulation was easiest to apply to a defined biological process—in this case a cattle population with a given birth and death rate, a growth rate related to feed intake, and an off-take rate for beef—building on the previous work of Halter.<sup>53</sup> Likewise, modeling of tree crops through a life cycle based on tree growth and maturity, and technology adoption using the logistic curve were well suited to systems simulation. On the other hand, modeling of behavioral processes such as the effectiveness of production campaigns required heroic assumptions (as they also did in CSNRD).

After the cattle model, most of the work was performed by Manetsch working with several graduate students from both systems science and agricultural economics. Advised by Halter and under the overall supervision of Johnson, each team member modeled a specific subsector of the economy. In addition to cattle, the models included one each for agriculture in the north and south of country, one for the cocoa sub-sector, and a population model. I constructed an input-output model that linked agriculture with the nonagricultural sectors. Located in the new International Center building, the team built a strong collaborative and interdisciplinary spirit through shared offices and physical isolation

Michael Abkin (right), a core member of the simulation team, on a recent visit to a former student in Ondo, Nigeria where he taught high school in the 1960s



<sup>53</sup> Halter and Dean, 1965

from their home disciplinary departments.<sup>54</sup> Indeed, we were happily undisturbed by the real world since travel to Nigeria was limited to a few short visits to gather secondary data due to the civil war and its aftermath. Citing Stolper's *Planning without Facts*, we joked that the elegance of our models would substitute for real world evidence.

Since Halter continuously smoked cigars, team members were recognized everywhere by the smell of cigar smoke that permeated all our clothing. This ironically included the only other resident of the office suite, Kusum Nair, an Indian journalist who was engaged in her lonely but courageous quest to debunk agricultural economists' views of smallholder agriculture, especially Schultz's "poor but efficient" hypothesis.<sup>55</sup> At least she, unlike us, had spent years in the field talking to farmers and I regret that I did not interact more with her.

The graduate students did the bulk of the programming in FORTRAN and FORDYN computer languages, punched their own cards and spent long hours at the Computer Center debugging the programs and making sensitivity and validation runs, and occasionally reconstructing something of a "jigsaw puzzle" if the cards got out of order or worse, were dropped—as many as 2000 in total for one model. In addition, Gloria Page provided capable programming oversight and advice. As a female in an all-male profession, she was a pioneer in her own right, but today better known as the mother of Larry Page, cofounder of Google.<sup>56</sup>

Given the flexibility of the general systems simulation approach, the model(s) were "under-identified"—that is, although the results were validated against the few historical time series data available for Nigeria, there were many ways that we could tweak parameters to ensure a 'good fit'. Also in our enthusiasm, we finished up with a suite of models with over 3,000 equations and when all models were integrated it was often difficult to interpret the results especially if they were counterintuitive. But the biggest weakness was the inability of the team to interact with Nigerian decision makers to better understand their needs. Although a couple of trips were made to Nigeria, they focused on filling data gaps rather than talking to policy makers since they were still pre-occupied by the war and reconstruction.

Not surprisingly perhaps, the results of the simulation models were little different from those of CSNRD which had provided both the overall conceptual approach as well as most of the data.<sup>57</sup> The models reinforced the focus on stimulating export crops by reducing taxes and by investing in production campaigns, concluding that "a technological transformation of export crops is necessary for sustained growth." Food crops were modeled as non-tradeable with an inelastic

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<sup>54</sup> The 10 authors of the final report were Tom Manetsch (lead author) and his student, Michael Abkin in the Dept of Electrical Engineering and Systems Science, Marvin Hayenga and Glenn Johnson, AEC faculty, Kwong-Yuan Chong and Earl Kellogg AEC graduate students, Tom Carroll in the Department of Communications, Gloria Page in the Department of Computer Science—all at MSU, and Al Halter and myself (as a graduate student) from Oregon State University. Team spirit was further developed through an annual fishing trip to an isolated lake in Canada organized by Johnson.

<sup>55</sup> At the time she was writing her book *Three bowls of rice*, following her controversial but widely read books, *The lonely furrow* and *Blossoms in the dust*. She published her final indictment of Schultz, *In defense of the irrational peasant* in 1979.

<sup>56</sup> Baker, 2015

<sup>57</sup> The full report is provided in Manetsch et al., 1971 and a summary in the Michigan State Agriculture Sector Simulation Team, 1973.



demand, so that investment in food crop campaigns reduced prices and farmers' incomes although increasing nonagricultural incomes.<sup>58</sup>

The study was received with mixed reviews. The overall report had a respectable citation of over 60 and several articles were published in leading journals. However, the report received a blistering review in the prestigious *Economic Journal* that questioned "how far are the simulators prepared to go without theory and without substantial evidence" concluding that "it would have been prudent [for the authors] to explore their ideas in practice. Thus, we are denied proof of the pudding."<sup>59</sup> Even a reviewer from MIT the home of systems simulation, questioned the costs of obtaining what might be "trivial conclusions."<sup>60</sup> Some years later, Eicher (not part of the team) concluded that sector models, notably the Nigerian models, were "academic toys."<sup>61</sup>

By the end of the project in 1971 Nigerians themselves were participating more in the project. S. (Sam) Olajuwon Olayide, Professor and Head of Agricultural Economics at the University of Ibadan visited MSU to undertake simulation runs on the impacts of export taxes.<sup>62</sup> Nigerian graduate students at MSU also extended the models to the fisheries and forestry sectors.<sup>63</sup> Back in Nigeria, Bukar Shaib was still in charge of agriculture. He chaired the National Agricultural Development Committee to discuss results of the model and the subsequent Nigerian perspective plan for agriculture drew heavily on the CSNRD and the model results.<sup>64</sup> Consistent with our recommendations, export taxes were sharply scaled back facilitated by the sharp rise in oil revenues in the early 1970s.

Nonetheless, historian Baker's conclusion that the model of a Virtual Nigeria had a "great deal of success in Nigerian policy circles" is likely an overstatement.<sup>65</sup> Johnson was keen that the model be moved to Nigeria and institutionalized in the federal ministry of agriculture but after much discussion this did not eventuate. In Nigerian government circles, MSU was still regarded with suspicion given its close association with the University of Nigeria in the east and visits by MSU professors to the breakaway Republic of Biafra during the war.<sup>66</sup> Also, after Nigeria joined OPEC in 1971, USAID decided to wind down its program in Nigeria effectively curtailing future funding to MSU.

MSU's lack of attention to food crops during its decade in Nigeria had also undermined its credibility. With the oil price spike of the early 1970s, the rapid injection of oil revenues into the economy, and an overvalued exchange rate, food prices and food imports in Nigeria skyrocketed with food imports in 1975 rising to five times their 1970 level. The government then launched a series of crash food programs; the National Accelerated Food Production Programme from 1972, Operation Feed the Nation from 1976, and the Green Revolution Programme from 1980.<sup>67</sup> Against this background, Olayide chaired a Nigerian government high-level food committee in 1971 that released a report a year later in which there is no mention of the simulation results that

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<sup>58</sup> Rice and wheat as very minor crops were modeled with imports as a fixed share of consumption. Only palm oil and meat were modeled to have the flexibility to change from export to import status.

<sup>59</sup> Wynn, 1973, pp. 328-9.

<sup>60</sup> de Neufville, 1973.

<sup>61</sup> Eicher and Baker, 1982, pp. 46.

<sup>62</sup> Olayide et al, 1974.

<sup>63</sup> Olasupo Ladipo and Felix Nweke, respectively.

<sup>64</sup> Government of Nigeria, 1973. Johnson, 1976.

<sup>65</sup> Baker, 2015, pp. 28

<sup>66</sup> Notably George Axinn. See Brown, 1969.

<sup>67</sup> See Okigbo (1999) for a good overview of these programs

had just been published and with which he was quite familiar.<sup>68</sup> Two of MSU's Nigerian graduates at the University of Ibadan, Olatunbosun and Olayemi, also joined the chorus in highlighting Nigeria's emerging food crisis.<sup>69</sup>

The transfer of the USAID food and agricultural officer from Lagos to Seoul provided an opening to explore Korea as the venue for institutionalization efforts and this became the focus of the simulation team in the 1970s along with a smaller effort in Venezuela. These ventures are described in a comprehensive report edited by AEC's George (Ed) Rossmiller.<sup>70</sup> However, in the wake of the Sahelian famine in the early 1970s the MIT group was commissioned by USAID to simulate development strategies for the region.<sup>71</sup> Although this ten-volume report was advised by Rossmiller, it seemingly had little impact.<sup>72</sup>

Sector analysis using a variety of modelling approaches continued to be funded by USAID through the 1970s but mostly in Asian and Latin American countries that had better-developed data systems and institutional capacity to implement the models. By the 1980s, sector modeling lost favor as emphasis in development economics shifted away from planning and the development state to private sector approaches. However, today the suite of models maintained by IFPRI for modeling at different levels of aggregation and applied to food policy analysis in many countries resembles the "library of models" that MSU pioneered in the 1970s.<sup>73</sup>

## **African Rural Employment Projects**

### ***1970 as a turning point***

The year 1970 was a turning point in development economics that until then had largely emphasized the maximization of growth as the metric of development. "Employment generation" now became the buzz words of the profession although this emphasis was already well established in Nigeria and much of Africa. In contrast to Asia where the population explosion and the Malthusian specter of famine dominated development discourse, concerns in Africa about rapid population growth were manifested in rapid urbanization, rising urban unemployment of young school leavers, and the prospects of political unrest in urban areas. Urban unemployment in turn reflected the explosion of rural-urban migration by school leavers and the slow growth of the 'modern' urban sector where they aspired to work. This was highlighted in the extensive studies by New Zealand economist, Archibald Callaway, who had come to Nigeria in the early 1960s with the MIT Stolper planning team and remained at the University of Ibadan for much of the next two decades.<sup>74</sup> Another economist at the University of Ibadan, John Harris, moved to the University of Nairobi where in 1969 he and Todaro published their highly influential model of intersectoral migration in which the decision to migrate depended on the probability of finding a job in addition to wage differentials.

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<sup>68</sup> Olayide et al., 1972.

<sup>69</sup> Olatunbosun and Olayemi, 1973.

<sup>70</sup> Rossmiller, 1977.

<sup>71</sup> The MIT group was building on the fame of their recently released Club of Rome report that for the first time applied the systems simulation approach at a global level.

<sup>72</sup> Eicher and Baker, 1982.

<sup>73</sup> Robinson et al., 2021; Abkin, 1972

<sup>74</sup> More generally Callaway convened a major conference on employment at Cambridge University. See Callaway, 1971.

Also, in 1969 Dudley Seers at the University of Sussex had published his influential article, *The Meaning of Development*, that marked the ‘dethroning’ of GDP as the metric of development.<sup>75</sup> Other colleagues of Seers at Sussex joined with the International Labour Organization to lead a series of country studies of unemployment. Both Seers and Hans Singer, a pioneering development economist at Sussex were invited by AEC as visiting professors in the early 1970s where they exposed Eicher and others to these major shifts in development economics thought.

The second major change from 1970 was to rebalance the focus of agricultural development in Africa from export to food crops. Food production in Africa was not keeping pace with population growth in contrast to the take off in food production spurred by the green revolution in Asia. The first pan-African conference on agricultural research held in Abidjan in 1968, organized by USAID and the National Academy of Science, and attended by both Johnson and Eicher, was a landmark in calling for a pivot from the colonial emphasis on export crops toward food production.<sup>76</sup>

Finally, there was a growing chorus to collect primary data at the rural household level in order to “plan with facts.” This was not new since as we have seen MSU had embarked on an ambitious rural household survey at EDI in the mid-1960s that was thwarted by the civil war. Others were also demonstrating the value of farm-household data collection. The Uboma community development project of the Shell Foundation in Eastern Nigeria was initiated with a very detailed village-level study by agricultural economists and nutritionists at the University of Ibadan under the leadership of H. A. Oluwasanmi, the Harvard-educated Professor of Agricultural Economics, and published to acclaim shortly before the civil war.<sup>77</sup> The British economist and social anthropologist, Polly Hill, had also presented her “plea for indigenous economics” at EDI in 1965 before launching her intensive survey of one village in Northern Nigeria. Eicher then director of EDI demonstrated his early appreciation for the power of running his own publishing house by distributing this as an EDI working paper.<sup>78</sup> Finally, at the NAS Abidjan conference, World Bank economist, John de Wilde, had noted a “strong need for farm management studies” since “agricultural planning must be based on solid data.”<sup>79</sup> This was echoed by Eicher at the same conference who observed that “effective agricultural planning cannot proceed unless substantially more attention is devoted to micro studies.”<sup>80</sup>

The year 1970, was also a period when Eicher aged 40 was finally beginning to make his mark in the profession. During the decade of the 1960s he had published very little and had advised only one PhD student. However, in 1970 he published three well-received books and reports. The first was a book edited with Liedholm on the Nigerian economy. Aptly this was titled *Growth and Development of the Nigerian Economy*, in contrast with the recently published book on Liberia titled, *Growth without Development* to convey the contrast between the broad-based smallholder development model in Nigeria and the foreign enclave plantation model in Liberia.<sup>81</sup>

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<sup>75</sup> Seers, 1969.

<sup>76</sup> Zandstra, Byerlee and Lynam, 2023.

<sup>77</sup> Oluwasanmi and Dema, 1966.

<sup>78</sup> Later published as Hill, 1966.

<sup>79</sup> De Wilde also foreshadowed farming systems research a decade later when he noted that “farmers make a fairly rational use of resources available and often display a good practical knowledge of ecology” and agricultural researchers “need to look at the farming system as a whole—farm and nonfarm, men and women.” See de Wilde, 1969.

<sup>80</sup> Eicher, 1969a.

<sup>81</sup> Eicher and Liedholm, 1970; Clower, 1966.

Second, *Research on Agricultural Development in English-Speaking West Africa*, summarized the relevant literature in the four anglophone countries of West Africa and laid out an agenda for agricultural economics research (although it explicitly excluded reference to the 10 francophone countries of the region). Third, Eicher and three AEC graduate students authored the last paper published under CSNRD, *Employment Generation in African Agriculture*, which set up his main research activity for the 1970s.<sup>82</sup>

### **Designing AREP**

Eicher received a USAID planning grant of \$50,000 in 1971 (seemingly his first) that was used to employ me to help write the proposal for the African Rural Employment Project, 1972-1975 (later extended to 1977). The project's objectives were rather vague—a mixture of description of rural household labor use and labor markets, analysis of farm and firm choice of technique and especially capital-labor substitution, and broad advice for agricultural and economic policy. The total budget including various add-on projects funded by the Rockefeller Foundation and others amounted to at least \$1M (about \$10 million in today's dollars).

Microlevel household and firm-level data collection was at the heart of the AREP proposal. On the farming side, we were greatly influenced by the emerging work of David Norman at Ahmadu Bello University in northern Nigeria. Eicher had been in touch for several years with Norman who had initiated detailed village surveys soon after his arrival in Nigeria in 1965. These were designed to describe farm resource use, understand farmers' decision making, and finally to use this information to "guide technological change."<sup>83</sup> Norman and his colleagues collected very detailed data on labor use and output by basing enumerators in each village to visit farmers twice weekly over a whole year—in what was termed the 'cost-route method.'<sup>84</sup> By 1972 the value of this work was demonstrated by its influence on the agronomic research program at the University, in terms of rationalizing farmer decisions on intercropping and on delayed planting of cash crops given farmers' priority to food crops. Elsewhere, Dunstan Spencer, a Sierra Leonean, was employing a similar cost-route approach to collecting data for his PhD thesis on Sierra Leone's major crop, rice, covering the whole country.<sup>85</sup> These experiences as well as Norman and Spencer themselves became pillars of AREP.

The center piece of AREP was the rural household survey including data on both farm and non-farm activities and on consumption expenditures. Liedholm had carried out studies of small-scale industry during his period at EDI and that provided the basis for extending the study of small-scale nonfarm enterprises to towns and urban areas. With AREP driven partly by the mounting urban unemployment problem, analysis of rural-urban migration was a key component of the study. Last, but not least, AREP envisaged linking these studies together using simulation models for purposes of planning and policy analysis, especially for work in Nigeria, but this time based on solid micro-level foundations.

Finally, an important objective of AREP was to create a network of agricultural economists in Africa, building on the model of the Agricultural Development Council in Asia, but with

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<sup>82</sup> Eicher et al., 1970.

<sup>83</sup> Results of these studies were later summarized in Norman, Simmons and Hays, 1982.

<sup>84</sup> Norman, 1973.

<sup>85</sup> Spencer, 1973.

emphasis on supporting African scholars.<sup>86</sup> In 1972 most African agricultural economists were based at the University of Ibadan, which was expected to be the core of AREP research. There was a scattering of other African agricultural economists elsewhere in Nigeria, Ghana, and Sierra Leone but almost none in francophone West Africa or in East Africa. For example, John Cleave at Stanford exhaustively assembled some 45 studies based on farm surveys in anglophone Africa mostly from the 1960s and found only two with African authorship: Oluwusanmi's Uboma study (cited above), and a study in Uganda by Jacob Oloya who in the mid-1970s sadly became a refugee at MSU by fleeing on foot from the increasingly brutal Idi Amin regime.

The network was to operate through annual meetings, interchange visits between projects, and above all, through the publishing and distribution of relevant literature. Building on one of Eicher's signature priorities, an African Rural Employment Library with a periodic newsletter listing acquisitions and an article delivery service were established—a task that occupied an administrative assistant and a good deal of time of graduate research assistants. By the end of the project, the library consisted of several thousand books and articles.

AREP also set up its own publishing house for the African Rural Employment Papers (later African Rural Economy Papers) which were distributed free of charge to a mailing list of over 1,500, especially in Africa. Many of the early papers were literature reviews of themes in African rural development and some had an enduring citation record.<sup>87</sup> Given that they could be quickly published and distributed, the in-house AREP papers and their successors rather than traditional publication of books and journals became the main outlet for much of AEC's work in Africa in the coming decades.

### ***False starts***

Nigeria with its strong base of human resources and AEC's long experience in the field was expected to be a major focus of the AREP, notably Kwara State in the so-called Middle Belt that was identified as a future breadbasket for solving Nigeria's emerging food problem. Norman at Ahmadu Bello had initiated work there and it was also easily reached from Ibadan. Olayide as the Professor of Agricultural Economics at Ibadan was a key contact who had previously collaborated with MSU's simulation modeling, and two MSU PhD graduates, Sunday Essang and Francis Idachaba, were members of the Department. I visited the University of Ibadan and Kwara State in 1973 to help design the study and prepared to move to Ibadan to be part of the team. After waiting for six months for a resident visa, we learned that it would not be processed by the Nigerian government due to its lingering perception of MSU's support to Biafra during the war. Fortunately, Spencer at Njala University College in Sierra Leone came to the rescue and offered me the opportunity to relocate to Njala. The University of Ibadan remained part of the network and the survey(s) in Kwara State did go ahead but I have not found evidence of published output from the work.

Still two contributions to AREP were provided from Nigeria. Although Norman's work at Ahmadu Bello University was not funded by AREP, he was a key collaborator. His work on farmers' food-export crop tradeoffs was included in the final AREP report and more generally he

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<sup>86</sup> A/D/C founded by John D Rockefeller 3<sup>rd</sup> supported the posting of US agricultural economists to Asian universities to develop research and teaching in agricultural economics and identify students for graduate study. Eicher was a member of the Steering Committee of the Research and Training Network of the Council.

<sup>87</sup> For example, my review of rural-urban migration in Africa published as an AREP paper and then in the *International Migration Review* still receives some 10-20 citations annually after 50 years (Byerlee, 1974).

significantly influenced the field methods used in AREP. I also dusted off and updated the Nigerian simulation model to further explore income distribution and employment issues. Although still lacking an improved micro-level base, the additional work did conclude that a balanced strategy of promoting food crops and export crops was needed to stimulate more equitable development.<sup>88</sup>

The Democratic Republic of the Congo (DRC, but then the Republic of Zaire) was a second prospect for implementation of AREP. Eicher and I visited there in late 1972 to explore USAID funding of micro-level research on food crops under AREP. A key contact, Eric Tollens, a Belgian who had completed his PhD course work at MSU was a lecturer in agricultural economics at the Université Nationale du Zaïre in Kinshasa. I was designated to travel to Kisangani deep in the rainforest in the center of the Congo basin to explore options for research on rice. However, I made little progress as soon after arriving, Idi Amin, recently self-installed as president of Uganda via a military coup, flew in for a summit meeting with Mobutu Sese Seko, president of DRC. All government offices, the university and the airport were closed for the week, so I had much free time to explore the city and nearby. I still recall the crowds that lined the main road to cheer what were then African heroes who had dared to thumb their noses at their ex-colonial masters. However, Dean Linsenmeyer, who had been a volunteer in the Kasai region of DRC and then a graduate student at MSU did make detailed plans for his thesis field work in the Kasai in collaboration with a maize team of the International Maize and Wheat Improvement Center (CIMMYT). These plans fell through shortly before his departure and Linsenmeyer was also rerouted to Sierra Leone.

A third major venture was launched in Ethiopia with initial support from USAID officer, Lane Holdcroft, who would develop a strong link with MSU and complete his MS in agricultural economics there in 1976. Geographer, Assefa Mehretu, recently appointed as director of the new Institute of Development Research at the University of Addis Ababa was also a key partner.<sup>89</sup> The Ethiopian venture got off to a rocky start in 1974 with a military coup that toppled Emperor Haile Selassie and led to much uncertainty about Ethiopia's future especially whether it, a vital US ally in the Cold War, would switch to the Soviet Union side. Given this uncertainty, Eicher had difficulty recruiting an experienced agricultural economist to lead the work from the MSU side.<sup>90</sup> The job was eventually filled by Trimble Hedges a retired agricultural economist who had no international experience but had very favorably reviewed the Eicher-Witt book of readings on *Agriculture in Economic Development* a decade earlier. Vincent, another of the AEC-University of Nigeria team in the 1960s provided short-term support in the field along with Spencer from Sierra Leone. In the end, the increasingly leftward shift in the Derg government and the collectivization of smallholder farmers made field work infeasible and the project was abandoned

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<sup>88</sup> Byerlee, 1973.

<sup>89</sup> With further conflict and arrests of intellectuals, Assefa moved to MSU later in the 1970s where he was a Professor of Geography and African Studies for many years.

<sup>90</sup> Kriesel from the Nigerian projects was Eicher's first choice, but he had accepted a position with Johnson to work on the Korean agricultural sector study.

## ***All roads lead to Sierra Leone***

Given the several false starts, Sierra Leone under the very capable leadership of Spencer became the savior of AREP. It was also a highly ambitious effort that grew way beyond even Spencer's lofty expectations especially as some of us assigned to other countries were relocated to Njala. Originally it was conceived as a rural household study that would extend the earlier Spencer rice study to other crops, livestock, and nonfarm activities. It used the same agroecological regions as the rice study but with a larger sample of 24 villages and 20 farm households plus 4 "nonfarm" randomly selected in each village.<sup>91</sup> Given the emphasis on rural labor utilization, the decision was made to collect daily labor hours per person requiring twice weekly visits. Other dimensions of the survey were also larger and more complex than the earlier rice study—for example, rural household consumption expenditures were recorded for half of the sample.

While the rural household study was the largest and most complex, at least six complementary studies were added. Choice of technique in rice milling was a controversial issue stimulated by Peter Timmer's recent study in Indonesia.<sup>92</sup> This study memorably involved time and motion studies of hand pounding of rice that caused much merriment among the participating village women. A rural nonfarm study in towns and cities was implemented through a cost-route approach by Enyinna Chuta, an MSU graduate student who had been a research assistant in EDI before the civil war, working under the guidance of Liedholm. The nonfarm study did not include trading but given the importance of rice, a rice marketing study was conducted by Ibi May-Parker, head of agricultural economics at Njala. Other studies that involved intensive field work were on rural-urban migration by Joseph Tommy, a Sierra Leonean graduate student at Ohio State University, and a marine fisheries survey by the relocated Linsenmeyer. Finally, a macroeconomic model was designed by Hartwig De Haen, a visiting professor in AEC working on the Korean sector study (and a future high-level official in FAO), and implemented by a Tanzanian student, Habib Fatoo.

Overall, the project at Njala employed some 80 supervisors, enumerators, and coders, in 45 locations across the country to implement some 50 different questionnaires to around 1000 households and enterprises over 15 months.<sup>93</sup> In addition, 800 rural-urban migrants were surveyed through both their origin and destination households. This was almost certainly the

The author, Dunstan Spencer, and Carl Eicher in the 1990s



<sup>91</sup> The actual sampling was of census enumeration areas that in some cases included more than one village. Nonfarm households may have received the majority of their income from nonfarm businesses but nearly all operated a farm as well.

<sup>92</sup> Timmer, 1973.

<sup>93</sup> Details of the Sierra Leone study are provided by Dept of Agricultural Economics, 1975 and 1976. I also drew extensively on my own personal records.

most ambitious effort in primary data collection in Africa at the time and the more remarkable since Njala was a small and isolated college with less than 40 staff and 500 students some 60 km from the nearest town. Fortunately, it was located centrally within a relatively small country which minimized travel to the far-flung survey sites. Njala had been partnered with the University of Illinois under USAID's institution-building efforts and the infrastructure was able to accommodate an influx of several graduate students and myself while providing reasonably reliable power and water. Although we all contributed to helping the small faculty teach courses in agricultural economics and extension the project was a strain on a university administration that had to ensure enough cash for monthly payment of field staff as well as absorb a considerable load on the accountants, office supplies, and other services. Even buying supplies such as scales at times taxed the private market supply in Sierra Leone requiring Spencer or May-Parker to scramble to keep the project going.

### ***Vignettes from the field***

Given the difficulty finding suitable research assistance and field supervisors, much of field supervision fell to the researchers. In many ways this greatly enriched our knowledge of Sierra Leone farming systems and village life but also resulted in many adventures. Spencer was rigorous in his randomization of villages allowing no latitude for convenience in supervision. A couple of villages were reached only by boat, and one was cut off during most of the rainy season. One had no road and required a walk of about an hour to reach. In some cases, we stayed overnight in a village and the opportunity to informally converse with farmers provided me personally with many insights beyond the information being collected in the questionnaires. Later in the 1970s with the movement to farming systems research I became an early convert to the value of informal direct interaction with farmers to better understand their decision making.

Although most enumerators had only about three years of secondary schooling, they were generally of high quality and in some cases outstanding.<sup>94</sup> They undertook rigorous training for two weeks before being posted to their village. An incentive was provided in the form of a bicycle and \$11 was deducted from enumerator wages of \$33 monthly to provide a payout on the successful completion of the survey—less the cost of the bicycle. At least one enumerator posted to a village served by a government tractor hire service showed a lot of enterprise by posing as a collector of the tractor hiring fees and then absconding with the cash and bicycle. This is one case where I would have violated the random sampling rule, but Spencer visited to explain to the farmers what had happened, arranged to reimburse the farmers, and hired another enumerator. This site turned out one of our best in terms of quality of data.

A field compass and chain were used to measure field size for about 1000 fields, a difficult task in a bush-fallow system with residual stumps, rapid vegetative regrowth, and irregular field shapes. In the office a specialized protractor and planimeter brigade was employed to draw each field and if there was a closing error of more than ten percent, the enumerator along with a field supervisor was required to remeasure the field—sometimes multiple times. Even with a reliable area measurement, we had to also harvest and weigh yield plots to estimate production. In one remote village, elephants destroyed several carefully selected yield plots before they could be harvested.

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<sup>94</sup> However, in two villages speaking very localized languages it was more difficult to find suitable enumerators.



Field supervisor, Leslie Scott, crossing a tidal creek at low tide	Unidentified enumerator at work in a temporary shelter on a farmers' field
	

There were also (understandably) coordination problems in such a large and complex survey. In one case, Tommy surveyed the demographics of the same households for his migration study as we had for the rural household survey. Given we had two estimates of ages of the same individuals about nine months apart and using the same methodology based on the year of notable local events, this provided an opportunity to analyze differences in age estimates in terms of characteristics of the enumerator, the interviewee, and the subject individual—a paper that was published in the leading demography journal.<sup>95</sup> On a lighter side, Tommy who was from the Mende ethnic group was asked to shore up flagging cooperation in a village in a Mende-speaking village that he claimed to know well. Revealing his future career as an elected politician, he assembled the whole village and gave a rousing one-hour speech about the potential benefits of the project and the importance of cooperation. Only afterwards in informal dialogue with the puzzled village elders did he learn that he had addressed the wrong village!

Supervision was spread across the researchers but with some specialization by region. I focused on the higher rainfall south. Like others I developed my favorite village, Taninahun, located deep in the forest through a very narrow but passable road less than an hour from Njala. In many ways it fitted my ideal of a traditional African village that depended on upland farming in a long bush-fallow rotation of about 20 years. Farmers often worked in cooperative labor groups that sang accompanied by a drummer as they planted a wide mixture of crops, above all rice, in fields newly cleared from the bush. They were largely self-sufficient and even the cotton for their “Sunday-best clothing” was sown, spun, dyed with local substances, and woven in the village. Animal protein was provided by trapping fish and ‘cutting grass’, the greater cane rat. Wild oil palms provided cash from palm kernels and oil as well as the main alcoholic beverage, palm wine. Houses were traditional, constructed of mud, local timber, and thatch—iron roofs were uncommon. Yet the local primary school was well attended and a nearby mission hospital ensured that some major health scourges elsewhere, notably river blindness, were under control—but not malaria which was endemic (as it was also at Njala). Aided by an excellent enumerator, Christopher Koroma, farmers cheerfully cooperated throughout the survey. After

<sup>95</sup> Byerlee and Terera, 1981.

giving so much of their time, at the end they gifted me a “country cloth” woven from the local cotton that I still treasure today.

Travel in Sierra Leone—sealed road (with a warning) and all weather dirt road	Travel in Sierra Leone—almost no road, and boat travel
	
	

Coding of the questionnaires became a huge task since the decision was made to code daily data for each household member in order to preserve detail on labor use. In the end we found a large room and equipped it with benches where 12 coders worked full time under supervision. When we learned the cost of key punching at MSU, Spencer negotiated with the government Statistics Department in Freetown to punch the cards—they had no computer but had a card puncher and reader to do simple tabulations. Even then we finished up with about one million cards. Not surprisingly Eicher became alarmed by rising costs and delays and visited to discuss options and assess ways to contain the budget.<sup>96</sup>

By late 1975 most of the team including Spencer was back at MSU with an impending deadline for delivering its report to USAID by the following June after USAID had extended the contract. However, data processing was delayed by consistency checks and by the challenge of missing data due to enumerator sickness or absence of the household head. This required a special algorithm to fill data gaps based on comparable households in the same village. Even with a full-time programmer, nine months were needed to obtain the first descriptive data from the farm-

<sup>96</sup> The Sierra Leone study received funds from AREP as well as direct funding from the Rockefeller Foundation and the Population Council.





level survey. The final report was delivered in February 1978, nearly two years after the already-extended deadline.

One of the most successful parts of AREP was the creation of a network of agricultural economists in anglophone Africa along with the library delivery service and publication of AREP reports. During the 1970s, some 50 AREP reports and working papers were published and widely distributed. Annual network meetings among the researchers were valuable in building a community of practice but always adventurous. In the first one at Ibadan in 1972, Spencer's flight from Freetown was cancelled so he hopscotched down the West African coast by bush taxi for two days to join the meeting. Meanwhile I was stranded in DRC due to the Mobutu-Amin summit described above and missed the meeting. A second meeting held at a Rockefeller Foundation villa in Bellagio, Italy, was enjoyed by all but led to a protracted debate with the Ibadan team about their participation and especially on the need to use a cost-route approach for data collection. The third meeting in Sierra Leone got off to a rocky start after the minibus carrying many of the participants ran into a petrol tanker; fortunately, it was empty and only minor injuries resulted. The final meeting in 1975 was in Ethiopia at a time when the future of the country was highly uncertain—Emperor Haile Selassie had recently died after a 44-year reign, although we could still view his lions as they roamed the grounds of his empty palace.

### ***AREP's legacy***

Initially, it seemed that AREP had not lived up to its promise. The final report in the form of a working paper was delivered two years beyond the initial closure of the project, it was largely descriptive in terms of household input-output relations, and it was nearly all based on Sierra Leone despite the lofty ambitions of an Africa-wide network. A review of the report and associated papers was also negative concluding that AREP was “suffering from far too much inbred direction.”<sup>97</sup> Finally, the team was quickly disbanding as Spencer headed in 1976 to the West African Rice Research and Development Association and a year later, I headed to CIMMYT. Understandably, we were disappointed by the limited output after so much hard work in the field.

<p>An inauspicious beginning—accident of the new AREP vehicle enroute from the airport with participants in the second AREP annual meeting, 1973</p>	<p>Eicher directing traffic at the accident scene. Miraculously, only minor injuries resulted from the accident</p>
	

<sup>97</sup> Lawson, 1978.

However, with the benefit of hindsight, the legacy is much more positive. For one, students, many of them African, continued to mine the data sets resulting in a total of 11 PhD and MS theses on Sierra Leone at MSU and at least another two at other universities. The MS thesis by Robert King on rural consumption linkages won the AAEA prize for best thesis and his article was published in the leading professional journal.<sup>98</sup> Several other journal articles eventually resulted, including a final synthesis article published in 1983, 11 years after the start of AREP.<sup>99</sup>

In addition, AREP laid the groundwork for three follow-up projects. Eicher obtained funding for the African component of a USAID cross-regional comparative project with Cornell University and Purdue University called Poor Rural Households, Technical Change, and Income Distribution. This project addressed the growing interest in income distribution in development economics and the focus on poverty stimulated by World Bank president, Robert McNamara, in a speech in Nairobi in 1973. The new project resulted in the further analysis of the Sierra Leone data in terms of absolute levels of poverty and factors determining income distribution. When I departed MSU the project was taken over by Peter Matlon who had completed his PhD thesis at Cornell on northern Nigeria in collaboration with Norman and AREP. Covering three villages and building on Norman's extensive experience and the lessons from AREP in Sierra Leone, this was probably the most carefully collected and comprehensive rural household data set available at the time and it became a core part of the new cross-regional project.<sup>100</sup> Besides providing first estimates of rural poverty levels and determinants of income distribution in Africa, it outlined priorities for designing and extending technologies to reach poor households—an entrée into the emerging farming systems approach to research. Matlon too departed for the CGIAR system, joining the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in Upper Volta (now known as Burkina Faso) in 1979, where he conducted on-farm tests of technologies and farm-level studies using the cost-route approach with the same panel of farmers over five years, a direct ripple effect of AREP's earlier work. At the same time Spencer, who had by then also joined ICRISAT, conducted a parallel two-year cost route study of millet farmers in the neighboring Niger Republic.

A second follow-on project was a grant arranged by Eicher through the Overseas Liaison Committee of the American Council on Education to allow Spencer to further analyze the Sierra Leone data to describe the role of women in farming and in household decision making. Along with parallel research in northern Nigeria by Emmy Simmons in collaboration with Norman, this was one of the first serious attempts to understand gender roles in African agriculture and the implications for design of technologies and other interventions.

Third, Victor Smith of the MSU Economics Department, who had explored nutritional dimensions of rural development in Nigeria under CSNRD obtained a USAID grant to convert the Sierra Leone food consumption data into nutrient intake. Although we considered this a heroic use of the data, John Strauss, a student of Eicher, was able to publish several articles in high-impact journals in the 1980s culminating in his seminal article, "Does Better Nutrition Raise Farm Productivity?" in 1986, which has been cited nearly 900 times.<sup>101</sup>

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<sup>98</sup> King and Byerlee, 1976

<sup>99</sup> Spencer and Byerlee, 1976; Spencer, 1979; Byerlee et al. 1983

<sup>100</sup> Matlon et al., 1979.

<sup>101</sup> Strauss, 1986

Finally, AREP through the work in Sierra Leone and northern Nigeria set the standards for micro data collection methods for many years. The cost-route method of collecting data over a whole year and associated physical measurement of field area and yields became standard in MSU's unfolding work in francophone Africa and more generally in the profession. However, in the 1980s, direct participatory interaction with farmers which could provide implications for technology design more cheaply, more quickly, and often more effectively gained traction in the era of farming systems research. Then in the 1990s, the emphasis on baseline and end-of-project surveys for evaluation purposes favored single-visit quantitative surveys often lasting several hours and the lessons from the cost-route approach were forgotten. Ironically, several studies have recently cast doubt on the reliability of farmers' recall data especially for field area and yield.<sup>102</sup> Fortunately, farmers' recording of daily events via smart phones is rapidly becoming possible, while with advances in satellite imagery and artificial intelligence, the cost of direct observation of area and yields is rapidly declining.

## **Consolidating MSU's Leadership in Africa**

### ***Expanding to francophone Africa***

The next critical step in consolidating MSU's leadership role was to expand into francophone sub-Saharan Africa, which accounted for nearly half of the independent countries in sub-Saharan Africa. This step was again orchestrated by Eicher. His attendance at the 1968 conference in Abidjan must have not only sensitized him to the size of francophone Africa but also made him aware of the almost complete dependence of francophone countries on French expatriates for research and education. Compared to the small and dwindling number of expatriate civil servants, university faculty, and business people that he had encountered in Nigeria, there were about 40,000 French citizens in Abidjan alone in the late 1960s—the largest concentration of French nationals outside of France.

Eicher's 1970 paper on employment generation in Africa had been translated into French although most AREP papers in the 1970s were not. Eicher himself did not speak or read French although it was always his ambition to do so. As already described, his first effort to gain a foothold in francophone Africa was in the DRC, a former Belgian colony that had only a handful of graduates in agriculture at the time of independence. This visit did result in the recruitment of AEC's first three francophone African students. One of these, Mulumba Kamuanga, successfully completed his PhD and was then employed in MSU projects in francophone West Africa. Given the difficult economic and political environment, MSU was unable to generate a lasting presence in DRC.

The food crisis in the Sahel in the early 1970s culminating in a tragic famine provided the impetus and the funding to develop research and training programs in the Sahel. From 1973, Eicher was Chair of the Overseas Liaison Council (OLC) of the American Council on Education, and in that role frequently visited Washington where he assiduously cultivated contacts in USAID and other Washington-based agencies. The full-time director of the OLC was Shirley Fischer who was fluent in French; she informally provided vital support to AEC's African ventures after she married Carl Eicher and moved to East Lansing in the mid-1970s.

Running full speed and revealing his outstanding entrepreneurial and networking skills Eicher quickly attracted some large grants related to the Sahel. Some were quite open ended in

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<sup>102</sup> Ayalew et al. 2023; Abay et al. 2023.

supporting MSU to build capacity in the region along with support to an MS training program for some 30 students from the Sahel. Another grant to develop a Sahel Secretariat and Documentation Center built on the experience of the AREP library and publication delivery services. At the field level, Eicher persuaded USAID to insert a sizable research component into a development project for regional planning and evaluation in Burkina Faso.<sup>103</sup> The focus on year-long cost-route surveys built on AREP experience and involved both Spencer and Matlon in the design stage.

The expansion to francophone Africa under Eicher's leadership resulted in a large influx of funding to AEC from 1976 and a growing brand recognition of MSU's special role in agricultural economics in Africa. Since I was not directly involved in AEC's work in francophone Africa, I leave it to others to chronicle the details of this phase. Suffice to say that it would not have been possible without a concerted effort by AEC led by Eicher to attract high caliber PhD students from the region along with American students with excellent French language skills. Much more than in MSU's previous ventures into Africa AEC now depended on its students and graduates to implement its projects in the field.

### ***Diversifying graduate students***

In 1971, after nearly 10 years in Nigeria, AEC still had almost no African students, but this quickly changed over the next ten years. An important first step was the successful application for a USAID institution-strengthening grant to develop AEC's capacity for research and graduate training in international development—the so-called 211d grant. Four universities<sup>104</sup> were successful in receiving these grants and although the amount provided was not large, MSU received additional funds to focus on Africa providing a total of \$125,000 per year from 1970-1976. The value of this grant was its flexibility to support students, faculty and travel related to international work. In return MSU was obliged to provide long and short-term support to USAID programs. For example, I taught short courses in project cost-benefit analysis to USAID development officers in such exotic locales as a peaceful Kabul then still under the monarchy. In 1976, when AEC was concerned about the end of the 211d grant, Eicher negotiated a much larger institutional strengthening grant, Alternative Rural Development Strategies, naturally with a focus on Africa.

The 211d grant supported many US graduate students with interests in Africa for at least part of their studies. African students were also supported through other sources including the USAID projects, the Rockefeller Foundation for students from Nigeria and Kenya, and the Ford Foundation for DRC students. However, the big breakthrough came when Eicher negotiated for up to six annual scholarships for Africans under the African Graduate Fellowship Project (AFGRAD) —a large program of the Africa America Institute with funding from USAID. To ensure quality students, AEC dispatched recruiters to Africa to interview prospective students. I made a memorable trip in early 1974 to Liberia, Cote D'Ivoire, Burkina Faso, and northern Nigeria that resulted in several new recruits. One of these was Edouard Tapsoba, an experienced rural development administrator in Burkina Faso and the first from francophone West Africa—he would later rise to be Minister of Agriculture before moving to high positions in FAO.

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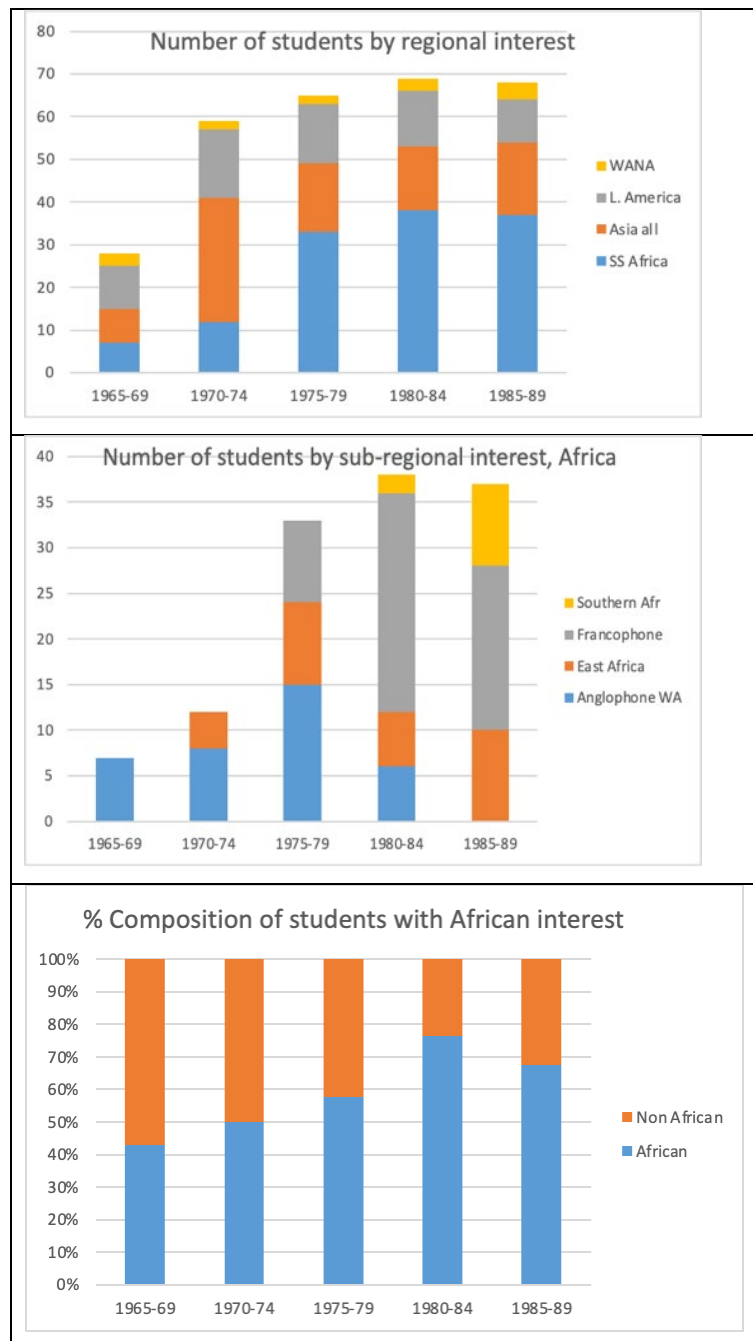
<sup>103</sup> Wilcock, 1981.

<sup>104</sup> The others were Cornell University, Iowa State University, and the University of Minnesota.

In 1973 the first ex-Peace Corps Volunteers from francophone Africa were admitted to the graduate program, assiduously courted by Eicher. Notable among these were Merritt Sargent and

David Wilcock, followed by many others in subsequent years. Many of these students had served in the small country of Benin (then Dahomey) where word spread informally among the volunteers about opportunities for graduate study at MSU. By 1975 AEC had 3 African students from francophone countries plus 4 US students with French language skills out of 28 students in total working on Africa (20 Africans).<sup>105</sup> Many of these students already had extensive field experience in francophone Africa, including Wilcock, Tapsoba and Ismael Ouedraogo, and assumed much of the responsibility for designing projects and later implementing them as part of their dissertations.<sup>106</sup>

Based on dissertation topics and student origins, the graphs trace the composition of students by regional interest.<sup>107</sup> Three trends are evident. First, the number and share of African students in AEC rose steadily especially in the 1976-80 period. Second, the African student composition makes a steady progression from anglophone West Africa to East Africa, and then to francophone Africa, with Southern Africa picking up in the 1980s. The large influx of students from francophone countries in the 1980s reflects the special program for MS



<sup>105</sup> Department of Agricultural Economics (1976).

<sup>106</sup> See for example an overview of the experience in Burkina Faso by Wilcock, 1981.

<sup>107</sup> Based on year of dissertation and country of origin for African students (usually the same as the country of dissertation) and country of dissertation for non-Africans. The database of dissertations was provided by Eric Crawford (pers. comm.)

training. Finally, the share of Americans and other non-Africans in the students interested in Africa falls over time.

### ***Emerging faculty issues***

Such a rapid increase in research and graduate training in international development and Africa in particular, placed pressure on AEC faculty resources and relationships. In 1976, AEC had only 6 faculty specialized in international development out of a total of 45 plus the Chair (Riley). Several others with a focus on domestic agriculture also provided short-term inputs to international projects. Only two of us, Eicher and myself, specialized on Africa, although students from Africa or with African interests made up about one quarter of all students.

These imbalances led to some tensions especially in advising students and supervising their theses. In the first half of the 1970s, Johnson with 21 graduated students carried by far the largest load as students' major professor but in the second half of the decade, Eicher with 18 graduated students assumed the largest responsibility. Given Eicher's many projects, frequent absences, and his lack of quantitative skills, he developed a system of "out-sourcing" his students to others for supervising their theses. African students naturally preferred a professor who knew something about Africa so along with Vincent I took on much of this task—in 1977 I counted 10 students under my supervision.<sup>108</sup> This unequal distribution of students eventually led in the late 1970s to the hiring of additional faculty in international development on tenure track and the initiation of many fixed-term faculty positions paid from project funds.

The increased number of foreign graduate students also led to pressure to offer more courses in international development. Vincent responded by pioneering a course in survey data collection and analysis in developing countries, later co-taught with Matlon. Akter Hamid Khan, a global leader in participatory rural development from Pakistan, taught a course in rural development administration on his annual visits to MSU. Although he was close friend of Eicher and my next-door neighbor, I do not recall that he had much influence on our African programs. More generally, there was surprisingly little cross-fertilization across the faculty working in Africa, Latin America, and Asia in the 1970s.

The distinction between the specialized development faculty and the domestically-oriented faculty went beyond differences in expertise and extended to culture and politics. In the early 1970s with the Vietnam War still raging and continuing protests on campus, there was an ideological split between those who supported and those opposed the war. Most of the international faculty were in the latter group and indeed, Eicher and I and many of the returned Peace Corps registered our sympathies with the protesters by sporting long hair. After the war and my return from Sierra Leone, relations greatly improved. Still various reviews of AEC international work, including one I co-authored in 1977, called for better integration of international and domestic programs.<sup>109</sup>

### **Conclusions**

This history indicates a clear pathway from MSU's AEC involvement in institution building at EDI in the 1960s, to the ascendancy of AEC's leadership of agricultural economics related to Africa by the late 1970s. An external review of the AEC's international programs in 1975 noted

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<sup>108</sup> With my departure most of these students were inherited by Matlon

<sup>109</sup> Byerlee, Harrison and Rossmiller, 1977.



that “because of the deep involvement in Nigeria, MSU is looked upon as having a special interest in Africa, and indeed it does.”<sup>110</sup>

Most of the early credit goes to Johnson for getting beyond the EDI experience to muster expertise from the other US land grant universities engaged in institution building in Nigeria to mount a comprehensive study of the Nigerian agricultural sector. The CSNRD study by constructing scenarios to evaluate the results of different policy and investment alternatives was undoubtedly the most ambitious effort in Africa at that time to develop an integrated view of agricultural development. It was also ahead of its time in moving the focus from public investment (much of it in state-run enterprises) to investment in public goods and institutions, especially research, combined with market incentives aligned with world prices. Although the Nigerian simulation model did not materially affect the CSNRD recommendations it pioneered the use of quantitative modelling for agricultural development policy analysis as well as the integration of the tools of system science into agricultural economics. The impacts of these efforts on Nigerian policy were modest but the modelling work became the basis for MSU’s subsequent large effort in Korea that had a strong institutionalization component.

The major weaknesses of these early Nigerian efforts were the poor micro-level data base as well as the failure to predict a looming food crisis. Several studies in the 1970s led by Eicher partly rectified these gaps. Demonstrating strong research entrepreneurship, brilliant networking skills, and a passion to support Africans and African agriculture, Eicher was the driving force for building on the solid base in Nigeria to expand to other anglophone countries in Africa and then to francophone Africa. He also played a leading role in recruiting graduate students, both Africans and Americans, above all returned Peace Corps Volunteers, many of whom brought extensive field experience to the program. The depth and breadth of AEC’s student body became the bedrock of its research on international development. There were of course, shortcomings. The failure, for example, to build better linkages with other departments in the College of Agriculture meant that its research lacked the multi-disciplinary approach needed for addressing many issues in agricultural development, notably technology design and evaluation, and consequently did not have a strong presence in the farming systems research movement of the 1980s.

Johnson, Eicher and others in the AEC international ventures were also fortunate that top-level leadership at MSU provided continuous and vital support. President Hannah during his long tenure saw the need for MSU to have a global presence and enthusiastically responded to Premier Azikiwe’s request to initiate the University of Nigeria venture. When Hannah left to head USAID in 1969, he was replaced by President Clifton Wharton the first African American to head a major US university. Wharton was a Chicago-trained economist and although he had built his career as an agricultural economist in Latin America and Asia, his African heritage as well as an early childhood in Liberia provided him a natural affinity for Africa.<sup>111</sup> This high-level University support allowed AEC to waive overhead charges on critical grants such as the 211d grant and provide tuition fee waivers for AFGRAD scholars that did much to build the number of African graduate students.

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<sup>110</sup> USAID, 1975, pp. 20.

<sup>111</sup> Wharton had studied under T. W. Schultz and D. Gale Johnson at Chicago and was already well known to AEC faculty Johnson and Eicher. Not co-incidentally, AEC chair Hathaway headed the presidential search and interview committee that recommended Wharton to MSU’s Board.

A theme that runs through this history is the fragility of these early ventures in Africa in the volatile political and Cold War allegiances in the post-independence period. In the face of considerable odds during the Nigerian conflict Johnson tenaciously steered the CSNRD study to a successful conclusion. In the 1970s, Eicher experienced false starts in the DRC and Ethiopia so that the implementation of AREP rested squarely on the Sierra Leone study. Fortunately, Spencer provided outstanding vision and leadership to bring that ambitious study to completion. Tragically, in the 1990s Sierra Leone too experienced a long civil war which had spread from Liberia and much of the infrastructure at Njala University was destroyed and several of our colleagues at the university lost their lives.

Finally, AEC and particularly Eicher, established a professional and social network of alumni that became its ambassadors in many countries. Many of these alumni led the implementation of MSU's growing portfolio of projects in Africa. As recalled by Wilcock, "once you were a member of the Eicher network, you were a member for life."<sup>112</sup> Although I resigned in 1978 and moved to Mexico and then South Asia, I remained in close contact with Eicher and many of his students several of whom worked with CIMMYT in Africa. These alumni have kept AEC and MSU in the mainstream of African rural development until today.

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<sup>112</sup> Wilcock, 2014.

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