1 Locating ICARDA

The Geopolitics of International Agricultural Research in the Middle East and North Africa

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In the summer of 2012, armed gangs began raiding the headquarters of the International Center for Agricultural Research in the Dry Areas (ICARDA) in Tal Hadya, Syria, stealing vehicles, computers, and other equipment at night. Within a few months, ICARDA's field trials were abandoned and the experiment station dismantled. In November, a video uploaded to YouTube showed a group of armed men in front of ICARDA's vacant headquarters, declaring the institution a fallen bastion of Bashar al-Assad.[1] An international research organization applauded for its advances in the interest of struggling farmers was recast as an instrument of oppression and corruption. In the following years, the facility remained occupied by the anti-Assad groups al-Nusra and Ahrar al-Sham. By November, ICARDA had relocated operations to Amman, Tunis, and Beirut. The seizure, evacuation, and uncertain symbolism of ICARDA, however marginal to the story of the Syrian civil war, was a stark reminder of the embeddedness of international public organizations in nation-states, and of the sometimes fraught relationship of international research to global geopolitics.

This chapter explains how ICARDA came to be located in Syria by examining the broader geopolitical logic of international agricultural research. Ironically, Beirut had been the intended site of ICARDA's headquarters in the early 1970s, but planners deemed Lebanon's political situation too volatile as the country erupted into war in 1975. Ultimately ICARDA, then the newest of the Consultative Group on International Agricultural Research (CGIAR) centers, took root thirty-two kilometers from Aleppo in the village of Tal Hadya. Its mandate was to improve the livelihoods of resource-poor farmers in dry areas through research, working within national agricultural research systems and directly with farmers. Over the next thirty years, ICARDA became a research hub and home to a major international gene bank[2] (Figure 1.1).

[1] ادلب تحرير حاجز الاردكاي-الشام احرار بتائك ("Idlib Liberation Roadblock ICARDA – Freedom Brigades of al Sham"), November 24, 2012, http://youtu.be/TzE49m1Tbzk (no longer available).

[2] This chapter originated in research conducted: at ICARDA in Aleppo, Syria in 2010; during a series of seed-collecting missions in the Southern Caucasus and Central Asia

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Figure 1.1 A view of ICARDA's facilities in Tal Hadya, Syria, 2007. Photo by Global Crop Diversity Trust/Cary Fowler. By permission of Global Crop Diversity Trust.

Born of the Cold War, ICARDA emerged from exercises of European imperialism, Great Power rivalries, and the concomitant restructuring of a patchwork of modern nation-states in Western Asia and North Africa. In the aftermath of World War II and European withdrawal from formal governance, newly independent nation-states became battlegrounds of the Cold War. The southern rim of Asia, which provided a buffer to the Soviet Union, became a focus of US strategies of containment from the 1950s. Scholars have attended to the global movement of soldiers, arms, and aid that fueled Cold War conflict in the "killing fields" of the Asian rim.[3] They have paid less attention to the ways in which the institutional development of international research organizations served Cold War objectives.[4] The founding of ICARDA was part and parcel of the

between 2010 and 2015, which were facilitated by ICARDA staff; and at a site visit to the new headquarters of the Genetic Resources Unit in Rabat, Morocco.

[3] Paul Thomas Chamberlin, *The Cold War's Killing Fields: Rethinking the Long Peace* (New York: HarperCollins, 2019).

[4] For exceptions see, e.g., Nick Cullather, *The Hungry World: America's Cold War Battle against Poverty in Asia* (Cambridge, MA: Harvard University Press, 2010); Daniel Immerwahr, *Thinking Small: The United States and the Lure of Community Development* (Cambridge, MA: Harvard University Press, 2018). The phrase "killing

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American effort to domesticate Western Asia and North Africa according to the geopolitical terms of the Cold War, bringing Syria from the sphere of Soviet influence and into the American one. Designated the "Middle East and North Africa" (MENA), the region ultimately became synonymous with the extraction of oil resources.[5]

The framing of ICARDA in relation to the postwar MENA region grafted a political geography onto a broad range of ecological areas. Under the charge of CGIAR, agronomists characterized these regions in the vocabulary of ecology, establishing them as a terrain for "dryland" agricultural science.[6] Planners, drawing on climatic models, classified the region in agro-ecological terms devised in reference to the tropics. Functionally, their logic shored up a focus on rainfed, or unirrigated, agriculture in semi-arid and arid lands. But this rendering of dry areas masked the geopolitical framing of international agricultural research in the postwar period. The remainder of this chapter charts the imperial origins of international agricultural research in Syria, the Cold War on hunger, and CGIAR's classification of arid regions, towards an account of how dryland agricultural science became the ground for technological and political intervention in decolonized lands.

Imperial Prehistories of International Agricultural Research

Orientalism suffused the disciplines of environmental science as they developed in the late nineteenth and early twentieth centuries, as the historian Diana Davis has noted, "hiding power relations in specific

fields" was also invoked in Latin America, and Chapters 3 and 8 in this volume by (respectively) Timothy W. Lorek and Wilson Picado-Umaña track the institutional development of international research in such Cold War spaces.

[5] Like other entities administering, or hoping to administer, post-independence projects in the region, ICARDA planners referred to its intended domain as the "Near East and North Africa" or the "Middle East and North Africa." It is the work of this chapter to understand how international agricultural research contributed to the construction of the MENA region as a geopolitical category within West Asia and North Africa. I use each term advisedly.

[6] Diana K. Davis, *Resurrecting the Granary of Rome: Environmental History and French Colonial Expansion in North Africa* (Athens: Ohio University Press, 2009); Diana K. Davis, *Arid Lands: History, Power, Knowledge* (Cambridge, MA: MIT Press, 2016). The geographer Omar Tesdell has written that "from the perspective of Palestine, what might be called the 'global drylands assemblage' emerges as an uneven field of political and technical activity constituted in the Middle East, and also through its relations within North America and beyond"; see Omar Loren Tesdell, "Shadow Spaces: Territory, Sovereignty, and the Question of Palestinian Cultivation," Ph.D. dissertation, University of Minnesota (2013).

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forms of knowledge production."[7] Europeans invoked biblical rhetoric to portray the dry lands of the Near East and North Africa as barren, desolate places of trial and suffering, in need of imperial intervention to reverse centuries of deforestation and desertification. European observers attributed environmental conditions to human degradation of the natural environment. In fact, the extent of both deforestation and desertification were exaggerated and often misrepresented a regional history of coping with the high temperatures and low rainfalls. As a region, Western Asia and North Africa can be characterized by thousands of years of sophisticated water control systems and agricultural practices adjusted to the natural environment.[8]

Europeans reiterated myths of environmental degradation to justify imperial projects. Across the region, narratives of overgrazing and excessive irrigation facilitated imperial goals of improvement and resource management. In Algeria, the French rendered themselves the heirs of Rome, there to restore a deteriorated environment to its rightful state.[9] In Egypt, British colonizers saw land that needed to be made productive and irrigated for cotton production in the late nineteenth century.[10] Meanwhile the French invested heavily in the Eastern Mediterranean, including the port of Beirut, railroads, and industry in the coastal region.[11]

The collapse of the Ottoman Empire further emboldened orientalist and biblically inflected interpretations of the landscape. In Palestine, the British justified control of Bedouin populations with a mandate to counter deforestation and blamed environmental deterioration on Arab land use and Ottoman mismanagement. Reforestation projects, and the broader commitment to "make the desert bloom," motivated early Zionists in the same region.[12] International wheat-breeding initiatives and a focus on Palestine as a site of domestication helped remake drylands as targets of colonization.[13] Iraq, in turn, figured as a battered and

[7] Diana K. Davis, ed., *Environmental Imaginaries of the Middle East and North Africa* (Athens: Ohio University Press, 2013), 22.
[8] Davis, *Arid Lands*; Davis, *Environmental Imaginaries*; Alan Mikhail, *Under Osman's Tree: The Ottoman Empire, Egypt, and Environmental History* (Chicago: University of Chicago Press, 2019).
[9] Davis, *Resurrecting the Granary of Rome.*
[10] Jennifer L. Derr, *The Lived Nile: Environment, Disease, and Material Colonial Economy in Egypt* (Redwood City, CA: Stanford University Press, 2019).
[11] Elizabeth R. Williams, *States of Cultivation: Imperial Transition and Scientific Agriculture in the Eastern Mediterranean* (Redwood City, CA: Stanford Ottoman World Series, 2023).
[12] Shaul Ephraim Cohen, *The Politics of Planting: Israeli–Palestinian Competition for Control of Land in the Jerusalem Periphery* (Chicago: University of Chicago Press, 1993).
[13] Omar Tesdell, "Wild Wheat to Productive Drylands: Global Scientific Practice and the Agroecological Remaking of Palestine," *Geoforum* 78 (2017): 43–51.

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degraded Babylonia, waiting to be restored to its former glory as a cradle of civilization.[14]

Syria's construction as a modern nation-state was the collateral damage of World War I, as European powers jockeyed for control of the former lands of the Ottoman Empire. British and French designs led to an array of shoddy plans to divide the region into spheres of influence, ultimately resulting in the interwar ordering that placed Palestine, Trans-Jordan, Mesopotamia (Iraq), Egypt, and the Gulf within a British zone of influence, and Syria (including present-day Lebanon) within a French zone of influence. The mandate system established by the League of Nations in 1922 placed Palestine under British control and Syria under French control. These agreements, which fragmented traditional trade networks and cultural continuities, were accompanied by often disingenuous gestures towards Arab independence. The British and French "mandate" was a fig leaf for renewed imperial designs in a moment of political and economic disarray. Ostensibly installed to usher their charges into a new era of self-government, neither the British nor the French had any interest in stewarding national independence.[15]

Ultimately, the modern nation-states of Syria and Lebanon were carved from the broader region stretching from the north of the Arabian desert through contemporary Israel–Palestine and Lebanon to the Tigris–Euphrates river system. The area, alternately christened Suri (old Babylonian), the Levant (Italian traders), and *Bilad al-Sham* (the "country of Damascus"), comprises the lands of the so-called "Fertile Crescent": a term coined on the eve of World War I to describe the birthplace of agriculture in Western Asia. Amid a concerted policy of fragmentation, the French made sluggish and inconsistent gestures towards Syrian independence. This flip-flop exacerbated tensions between various groups who aspired to government and who expressed markedly different visions for Syria's future as a nation-state. In 1946, the French, hobbled by war, formally withdrew from Syria, leaving a nation-state mauled by European invasion and mismanagement. Lebanon, too, emerged as an independent state with borders that had been drawn by the French mandatory government.

[14] Priya Satia, "A Rebellion of Technology Development: Policing and the British Arabian Imaginary," in Davis, ed., *Environmental Imaginaries*, pp. 23–59.

[15] My account of Syrian history throughout this chapter benefits from concise histories by David W. Lesch, e.g. *Syria* (Cambridge: Polity Press, 2019); Patrick Seale, *The Struggle for Syria: A Study of Post-War Arab Politics, 1945–1958* (London: Tauris, 1987); and Philip Shukry Khoury, *Syria and the French Mandate: The Politics of Arab Nationalism, 1920–1945* (Princeton, NJ: Princeton University Press, 2016).

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In the wake of World War II, as Britain and France ceded their spheres of influence in the former Ottoman Empire, the MENA region emerged as a theater of conflict between the USSR and the United States. The United States regarded the MENA region primarily as an oil-producing zone, with a handful of independent nation-states supplying newly insatiable Western European and American appetites. In 1956, fearing a loss of access to oil reserves in the likelihood of a Soviet invasion of the region, the United States repudiated a secretive British-Franco-Israeli invasion to reverse Nasser's nationalization of the Suez Canal. In the wake of the Suez crisis, the United States entered a perceived vacuum of power in the Middle East, courting new governments as building blocks in its nascent strategy to contain global communist influence. As Nikita Khrushchev made overtures to support Arab states against lingering British colonialism and contain Israeli influence, the United States, under the direction of President Dwight D. Eisenhower and Secretary of State John Foster Dulles, promised aid to any country requiring assistance to thwart communist infiltration. Anti-communism provided the conceptual language through which Americans framed their interest in the region. In practice, the Eisenhower Doctrine led the United States into successive machinations and interventions to impede Soviet influence and stave off pan-Arab realignment.[16] Syria and Lebanon found themselves tangled in these superpower rivalries, which in turn complicated regional relationships.

In the background, diplomats and their technical advisors reframed the region as the terrain of international development. Depictions of Western Asia and North Africa as degraded and in need of restoration continued during the postwar period, with little reference to the role of European invasion in their de-development. These characterizations, sketched by the United States Agency for International Development (USAID) and other foreign assistance agencies, were shored up by novel social and economic theories. Modernization theorists such as Walt Whitman Rostow posited that all civilizations proceeded through one path of

[16] In the broader context of an "Arab Cold War," the United States, for example, recognized the short-lived union of Syria and Egypt as the United Arab Republic (UAR) in 1958, then intervened militarily on behalf of the Maronite Christian leadership in Lebanon to prevent a potential expansion of the UAR. See, e.g., Peter L. Hahn, "Securing the Middle East: The Eisenhower Doctrine of 1957," *Presidential Studies Quarterly* 36, no. 1 (2006): 38–47; Maurice M. Labelle, "A New Age of Empire? Arab 'Anti-Americanism', US Intervention, and the Lebanese Civil War of 1958," *The International History Review* 35, no. 1 (2013): 42–69; Richard J. McAlexander, "Couscous Mussolini: US Perceptions of Gamal Abdel Nasser, the 1958 Intervention in Lebanon and the Origins of the US–Israeli Special Relationship," *Cold War History* 11, no. 3 (2011): 363–385; Douglas Little, "His Finest Hour? Eisenhower, Lebanon, and the 1958 Middle East Crisis," *Diplomatic History* 20, no. 1 (1996): 27–54.

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development and looked, at the end, eerily like the United States. In this reading, agriculture was a pit stop between nomadism and industrialization in the progress of civilizations.[17] The need to restore land could justify a wide range of interventions, from agricultural and economic reforms to sedentarization and military force. Nor were these arguments the sole province of colonizers. As Egyptian President Gamal Abdel Nasser's leadership would demonstrate, these same reforming projects could be reclaimed for nationalistic ends.[18] Nasser's land reclamation projects were of a piece with his nationalization of the Suez Canal, and he played American and Soviet interests against one another.

Superpower rivalry and regional competition over the future of Arab nationalism exerted further pressure on Syria's weak and dysfunctional government. In this climate, and amid successive coups, the secular, socialist Ba'ath Party took power in March 1963, with a slogan of "freedom, unity and socialism." Within the party, traditionally marginalized minorities such as Alawite and Druze had entered positions of power, to the resentment of the Sunni majority. Two such figures were Salah Jadid and Hafez al-Assad, who would jockey for power within the Ba'ath Party. In 1970, following the disastrous 1967 Arab–Israeli war, Assad, then minister of defense, wrested power from Jadid. Assad's seizure of power was an outcome of long rivalry between an urban mercantile class dominated by Sunni Muslims, French, Islamists, and fascists, and a younger generation of Marxists (soon to form the Ba'ath Party) who rejected accommodations to imperial rule. As Assad faced growing isolation within the Middle East, global recession, and persistent sectarian and economic division within Syrian society, pragmatism over idealism was to be his governing strategy.[19]

The rivalries that brought Assad to power superimposed a deep divide between urban and rural Syria. Prior to World War I, the southerly city of Damascus had been linked to Beirut, Haifa, Jerusalem, and Baghdad, all

[17] W. W. Rostow, *The Stages of Economic Growth: A Non-Communist Manifesto* (Cambridge: Cambridge University Press, 1960), esp. chapter 2. See also Mark Mazower, *Governing the World: The History of an Idea* (New York: Penguin Books, 2012); David C. Engerman, *Staging Growth: Modernization, Development, and the Global Cold War* (Amherst: University of Massachusetts Press, 2003); Michael E. Latham, *Modernization as Ideology: American Social Science and "Nation Building" in the Kennedy Era* (Chapel Hill: University of North Carolina Press, 2000); Michele Alacevich, *The Political Economy of the World Bank: The Early Years* (Stanford, CA: Stanford University Press; World Bank, 2009). On USAID in Egypt, see Timothy Mitchell, "Afterword," in Davis, ed., *Environmental Imaginaries*, pp. 265–274.

[18] Jeannie Sowers, "Remapping the Nation, Critiquing the State: Environmental Narratives and Desert Land Reclamation in Egypt," in Davis, ed., *Environmental Imaginaries*, pp. 158–191.

[19] Lesch, *Syria*, pp. 87–111.

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of which fell within the British zone of influence. Meanwhile, Aleppo, in the north, shared with its Turkish, Armenian, and Kurdish neighbors an orientation towards Central Asia along the path of the Silk Road, as well as to the Iraqi city of Mosul. Modern-day Syria is made up of semi-arid and arid land (the Syrian desert), along with a narrow coastal plain on the Mediterranean Sea. Populous urban centers constitute a vertical line from north to south, linking Aleppo, Hama, Homs, and Damascus. Syria's agricultural sector consisted of cotton, wheat, barley, sugar beet, and olive production. Rainfed agriculture predominated, as it does to this day. The gulf in wealth between the cities of the west and the rural land to the east contributed to longstanding tensions in Syrian society, compounded by the balkanization of historical trade routes to constitute French and British spheres of influence.

The CGIAR network came into being as Assad seized power; legacies of empire, Cold War development, and Arab nationalisms shaped its agenda. Withdrawing from formal empire, Europe and the United States competed to be the dominant exporters of food, then of agricultural inputs, based on a model of input-intensive industrial agriculture. As several contributors to this volume chart, the 1950s and 1960s saw the export of high-yielding seeds and agricultural methods, attributed to American agronomists and celebrated as the Green Revolution (see Prakash Kumar, Chapter 2, and Gabriela Soto Laveaga, Chapter 4, this volume). Aiming to build on the alleged successes of the Green Revolution, the United Nations Food and Agriculture Organization (FAO) supported programs of agricultural modernization and the free exchange of germplasm between countries for the use of breeders. By the 1970s, decolonized lands were the sites of modernization projects premised on genetically uniform, high-yielding monocultures and the prospective hosts of CGIAR centers for research on food security, rural poverty, and sustainable development. It fell to CGIAR's technical advisors to justify their designs.

At the inaugural meeting of its scientific advisory body, the Technical Advisory Committee (TAC), in November 1971, the FAO director general and Dutch agronomist Addeke Hendrik Boerma applauded the "new international approach to agriculture" for its promise to build on Green Revolution successes in "other regions of the world maintained on a global basis."[20] On behalf of the International Bank for Reconstruction and Development (IBRD), Director of Development Services Richard

[20] CGIAR Technical Advisory Committee, "Report of the First Meeting of the Technical Advisory Committee. 29 June–2 July 1971," November 5, 1971, 2, https://cgspace.cgiar.org/handle/10947/1422.

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Demuth envisioned an application of the model "developed by the international cereals institutions" to other crops and livestock.[21] Focused initially on the increased production of cereal crops in the "Third World," the TAC attended to regions not yet served by CGIAR's four established research centers. After a series of TAC, working group, subcommittee, and donor meetings, ICARDA was established, with the Canada-based International Development Research Centre (IDRC) as executing agency. In January 1977, ICARDA assumed operations to pursue research into the agricultural systems of the MENA region. The technocratic process through which the center was founded and administered obscured the extent to which the war on hunger in which CGIAR centers participated was an aspect of an anti-communist project. Its architects and technical advisors linked the perceived successes of the Green Revolution to a vision of international development that would make Asia and North Africa after a Western European and American image.

Classification of Dry Areas

In institutional terms, the CGIAR TAC's recommendations determined the site and remit of ICARDA. As it mapped priority areas onto the world, the committee flagged the semi-arid and arid regions of the Near East and North Africa as "a major research problem which had not yet received adequate study."[22] It anticipated that a single center could not address the diversity of conditions of the region but nevertheless speculated that centralized research could accelerate agricultural development in low-rainfall areas.[23] By identifying low rainfall as the primary source of low agricultural productivity in the region, the committee incidentally disregarded institutional and political conditions, including colonial and post-colonial fragmentations of landholding and technocratic projects to exert greater control over agricultural resources.[24]

Although the TAC flagged the MENA region as understudied, the region was already populated by international organizations. The International Maize and Wheat Improvement Center (CIMMYT) had outreach programs there, as well as links with the FAO Near East Wheat and Barley Program. The Ford Foundation–funded Arid Land Agricultural Development program (ALAD) operated in the Beka'a Valley in Lebanon. Meanwhile, FAO was in the midst of a survey of existing

[21] Ibid. [22] Ibid., 12. [23] Ibid.

[24] Rafaelle Bertini and Abdallah Zouache, "Agricultural Land Issues in the Middle East and North Africa," *The American Journal of Economics and Sociology* 80, no. 2 (2021): 549–583; Williams, *States of Cultivation*.

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research organizations in the Near East. As the TAC planned an exploratory mission, observers noted an upcoming meeting in New York attended by FAO, United Nations Development Programme (UNDP), USAID, and Ford and Rockefeller Foundation representatives to discuss "responsibilities and means of improving collaboration" among organizations pursuing agricultural projects in the region.[25] All of these activities marked the longer history of Euro-American involvement in the MENA region, and the persistent interest in its development.

To evaluate the research needs and priorities, the TAC commissioned a team led by Professor Dunstan Skilbeck of Wye School of Agriculture, University of London to visit countries in the MENA region in spring 1973.[26] The Skilbeck Committee, reporting in June 1973, recommended the establishment of a new center, internationally supported and multidisciplinary in approach, to serve the needs of the region. It recommended that the center assume global responsibility for select staple crops, including barley and durum wheat, and that it take a holistic approach to the needs of farmers on arid lands.[27]

The Skilbeck mission's report designated the region as a coherent one for reasons that were equal parts environmental and political. While the Near East and North Africa shared some problems of development with other regions, it also had a unique "agricultural environment and consequent research needs" arising "partly from its geographical location and partly from its long and sometimes turbulent history."[28] Moreover, these conditions were ones of degradation and marginality with social and cultural roots:

> As a result of historical processes rather than any strong evidence of climatic change, much of the region, which was once the granary of ancient civilization, is now barely able to support a low population density at the subsistence level and there is extensive deforestation and degradation of natural grazing reflected in serious erosion and desert encroachment. Once fertile land has been abandoned, ancient irrigation systems have silted up or fallen into disuse and there is widespread salinity. The proportion of arable land to total area (only 6.3 percent for the Region as a whole) is lower than that in other developing regions, but the

[25] CGIAR Technical Advisory Committee, "Report of the Fourth Meeting of the Technical Advisory Committee, 2–4 August 1972: Draft," September 1972, 32, https://cgspace.cgiar.org/handle/10947/1434.

[26] CGIAR Technical Advisory Committee, "Report of the Fifth Meeting of the Technical Advisory Committee, 30 January–2 February 1973: Draft," March 1973, 41, https://cgspace.cgiar.org/handle/10947/1411.

[27] CGIAR Technical Advisory Committee, "Report of the Sixth Meeting of the Technical Advisory Committee, 25 July–2 August 1973: Draft," September 1973, https://cgspace.cgiar.org/handle/10947/1451.

[28] Ibid., 4.

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balance is not largely composed of grazings or forests as in Latin America or Africa, but of unusable desert and wasteland.[29]

The committee attributed low yields, even in irrigated areas, to "social and structural rigidities and the persistence of traditional cultural practices."[30] The vague reference to Ottoman institutions and folkways omitted a more granular discussion of French and British interventions to restructure local landholdings and productivity.[31] Instead, the committee leapfrogged over recent colonial and postcolonial history to assert that population growth and urbanization exerted further pressure on resources. In the face of growing deficits, attempts to expand cultivation intensified conflicts between farmers and pastoralists shepherding sheep and goats.[32]

The region's agro-ecology defied reduction to climate classifications, combining a Mediterranean climate zone with harsh, arid conditions and searingly hot summers. While the majority of the target region, apart from Sudan and the southern Arabian peninsula, was within a Mediterranean climate zone characterized by rainfall in the winter and early spring, its environment was harsh and arid rather than temperate, marked by severe winters and unreliable precipitation.[33] The designation of a Mediterranean climate zone misrepresented agro-climatic conditions. In spite of this climatic diversity, there were many common features of the countries surveyed: chiefly, "searing summer temperatures" with low precipitation, making irrigation "pre-requisite for the production of most summer crops."[34] In the view of the committee, these common conditions should be made into a single culture of production: that is, "the ecological complementarities between zones of different production potential must be translated into production complementarities if the overall productive capacity of the region's agriculture is to be mobilized to meet its socio-economic goals."[35] This oblique analogy of production and ecology omitted a discussion of politics in structuring production, including the historical roots of inefficiencies and the capacity of states, land legislation, or specific configurations of land tenure to manage access to resources.

The struggle to name the center signaled a mismatch between the political and ecological orderings of the landscape. In its November 1973 meeting, the TAC adopted the working title International Center

[29] Ibid., i. [30] Ibid., 5.
[31] Williams, *States of Cultivation*; Bertini and Zouache, "Agricultural Land Issues in the Middle East and North Africa."
[32] CGIAR Technical Advisory Committee, "Report of the Sixth Meeting of the Technical Advisory Committee," i–iv.
[33] Ibid., 4. [34] Ibid. [35] Ibid., 11.

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for Research in Arid Lands.[36] It was a short-lived designation. In successive meetings, members of both the Skilbeck mission and the TAC Working Group on the Research Needs of the Near East and North Africa, which was appointed to review the mission's findings, objected to the inclusion of the terms "Arid Lands" or "Arid Zone" in the title. On the one hand, it portended conflict or redundancy with CGIAR's International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), which had been founded the year prior to address the requirements of arid lands in the tropics (see discussion in the chapters by Prakash Kumar, Chapter 2, and Lucas M. Mueller, Chapter 5, this volume), as well as the Institute for Arid Zones in New Delhi managed by the Indian government. Moreover, many contended that the designation "arid" was "inaccurate as applied to the agro-ecological areas under consideration," inasmuch as these areas encompassed a diverse range of climate conditions in the Mediterranean. While some suggested the inclusion of "Mediterranean" in the title, others objected that parts of the region were outside the Mediterranean climate zone and that such a designation applied a "narrowly regional connotation to a centre whose work might have much wider application." The committee eventually accepted the term "dry areas" as the "most descriptive of the probable focus of the centre's work," and the title "International Research Centre for Agriculture in Dry Areas" was suggested.[37]

Although the TAC had noted that a single center could not address the diversity of ecological conditions in the region, the Skilbeck mission nevertheless reiterated the TAC's preference for a centralized organization to address major problems in low-rainfall areas. Following the Skilbeck mission, the TAC appointed a subcommittee to make recommendations for the location and staffing of the prospective center. The subcommittee sought "proximity to a broadly representative range of ecological conditions."[38]

Since it defined water as the limiting factor of agricultural production in the region, it elected to prioritize climate in choosing a site. Its agro-ecological mapping borrowed the Troll climate classification, which had also been used in the mission that established the parameters for

[36] CGIAR Technical Advisory Committee, "Report of the TAC Working Group on the Research Needs of the Near East and North Africa," November 1973, 14, https://cgspace.cgiar.org/handle/10947/1171.

[37] CGIAR Technical Advisory Committee, "Report of the Seventh Meeting of the Technical Advisory Committee, 4–8 February 1974: Draft," February 1974, 10, https://cgspace.cgiar.org/handle/10947/1439.

[38] CGIAR Technical Advisory Committee, "Location of the Proposed International Centre for Research in the Near East and North Africa," June 1974, 2, https://cgspace.cgiar.org/handle/10947/730.

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ICRISAT.[39] Carl Troll and Karlheinz Paffen's 1965 classification of the "Seasonal Climates of the Earth" (Figure 1.2) divided tropical climates by the number of humid months, where humid months were defined as those in which mean rainfall exceeded potential evapotranspiration.[40] The tropics of South America and Africa provided the reference point for the model.

The Troll classification imperfectly represented the broad range of climate conditions in the MENA region. These included tropical dry climates with 2 to 4.5 humid months (in summer) and tropical dry climates with 2 to 4.5 humid months (in winter). The zones included a narrow strip of true Mediterranean climate and the semi-arid zone, and constituted "a certain degree of uniformity over the bulk of the area defined under this classification, which stretched from Afghanistan to Morocco."[41] In a quinquennial review of ICARDA, conducted by the TAC in 1984, the review panel found the division by altitude oversimplified, preferring distinctions which had relevance for crops and livestock: for example, between areas suitable for autumn sowing of wheat versus those with winter and spring plantings, or between those areas where livestock could graze in winter and those where they must be protected and fed.[42] ICRISAT agro-climatologists, too, later disputed the applicability of the Troll classification to the climate of India, framed as it was in relation to the tropics of Africa and the Americas.[43]

However imprecise, the very capaciousness of the Troll classification recommended it as an umbrella for the broad range of climate conditions in Western Asia and North Africa. ICARDA would ultimately address agricultural practices in littoral areas at altitudes of up to 1,000 meters, which had a Mediterranean climate of cool, moist winters and hot, dry summers, as well as areas with altitudes of 1,000 to 2,000 meters, which had extreme winter cold and summer heat and snow cover for up to five months of each year. The precipitation of the latter ranged from 200 to 600 mm rainfall equivalent per year. As the quinquennial review committee later described, ICARDA's work involved a "spectrum of

[39] CGIAR Technical Advisory Committee, "Report of the Fourth Meeting of the Technical Advisory Committee," 34, 42.
[40] Carl Troll, "Karte der Jahreszeiten-Klimate der Erde [The Map of the Seasonal Climates of the Earth]," *Erdkunde* 18, no. 1 (1964): 5–28.
[41] CGIAR Technical Advisory Committee, "Report of the Fourth Meeting of the Technical Advisory Committee," 34.
[42] CGIAR Technical Advisory Committee, "Report of the Quinquennial Review of the International Centre for Agricultural Research in the Dry Areas (ICARDA)," Report, January 1984, 6, https://cgspace.cgiar.org/handle/10947/1390.
[43] International Crops Research Institute for the Semi-Arid Tropics, ed., *Climatic Classification: A Consultants' Meeting, 1980* (Andhra Pradesh, India: ICRISAT, 1980).

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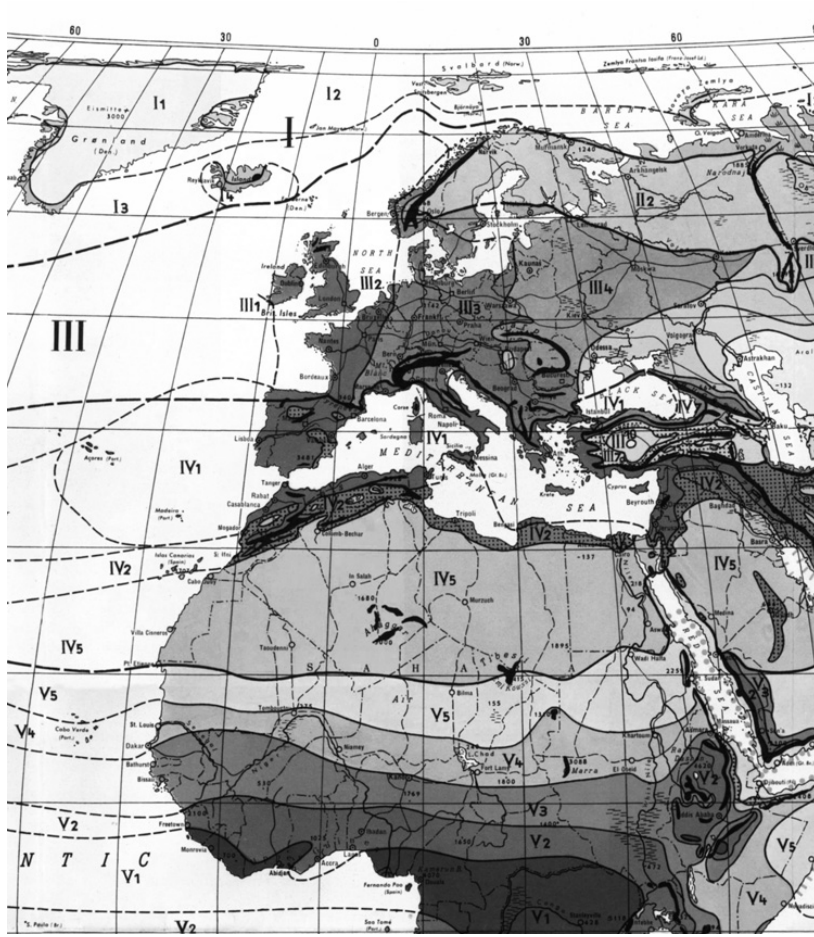


Figure 1.2 Detail of Troll and Paffen's "Seasonal Climates of the Earth." C. Troll, "Karte der Jahreszeitenklimate der Erde, mit einer farbigen Karte von C. Troll und K. H. Paffen," *Erdkunde* 18 (1964): 5–28. By permission of *Erdkunde*.

environments," including the "warm winter littorals of North Africa, the medium altitude environments, such as the Algerian steppe, Syria and Iraq, and the true high altitude highlands of Afghanistan, Iran and Turkey."[44]

[44] CGIAR Technical Advisory Committee, "Report of the Quinquennial Review of ICARDA," 6–7.

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In the absence of agro-ecological uniformity, the subcommittee charged with recommending a location for the new center asserted that political criteria were likely to outweigh ecological ones, although the exact nature of the former remained unspecified. The subcommittee identified "no single country in which an International Research Centre would be able to conduct a programme representative of the entire range of climate, soil, and resultant agricultural usage in the Near East and North Africa."[45] Since multiple substations were bound to be required for coverage, the subcommittee concluded that no "technical evaluation [would] produce a more definitive answer."[46] Rather, the decision was likely to be made according to "other criteria involving political, ethnical and other factors; external accessibility; working and living conditions; local availability of research infrastructures, and facilities such as universities; and the adequacy of land and water resources to support a major station."[47]

The Skilbeck report had also readily acknowledged that site selection for the center was likely to be made for reasons other than environmental ones, but these reasons went largely unnamed. There were exceptions, as when Z. H. K. Bigirwenkya, secretary general, East African community, suggested to the acting regional vice president of Europe, Middle East, and North Africa for IBRD that "assuming that there are no scientific reasons to the contrary, establishing the center in Iran could facilitate tapping of the oil financial resources to benefit all the three states [Algeria, Lebanon, and Iran]."[48] That financial interests, and the region's identification with oil resources, were not routinely named does not indicate their absence. On the contrary, the effort to fund ICARDA accompanied multiple overtures to Iran to join CGIAR as a member state. For some time, Abdul Majid Majidi, minister of plan and budget in Iran, expressed Iran's interest conditional to its designation as headquarters for ICARDA.[49] A number of donors also expressed the conditionality of

[45] CGIAR Technical Advisory Committee, "Location of the Proposed International Centre for Research in the Near East and North Africa," 7.
[46] Ibid. [47] Ibid., 8.
[48] Z. H. K. Bigirwenkya to Martijn J. W. M. Paijmans, September 12, 1974, "Re: Cable from Price on ICARDA," Folder 1761726, CGIAR – G-10 – International Center for Agricultural Research in the Dry Areas (ICARDA) – Correspondence 72/74–01, Records of the Consultative Group on International Agricultural Research (CGIAR), World Bank Group Archives.
[49] Folder 1761726, CGIAR – G-10 – International Center for Agricultural Research in the Dry Areas (ICARDA) – Correspondence 72/74–01, Records of the Consultative Group on International Agricultural Research (CGIAR), World Bank Group Archives.

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their funds based on contributions from oil-rich states.[50] CGIAR also made overtures to Saudi Arabia and Kuwait to join as donor members during site visits in search of a host country for ICARDA.[51] The financial underpinnings of international agricultural research and its geopolitical constitution were a matter of ongoing discussion, and this was especially the case in the context of the Organization of the Petroleum Exporting Countries (OPEC) crisis of 1973.

The subcommittee tasked with siting the new center nevertheless proceeded through prospective locations by process of elimination, presenting its recommendations "excluding political considerations, except for an assumption that the headquarters should be in an Arab country."[52] Iraq was eliminated because Kurdistan, which had the best ecological profile, was comparatively inaccessible. Iran and Turkey were eliminated because they were not Arab countries. The subcommittee saw merit in an Algerian or Tunisian location, but in the subsequent discussion regarded the Maghreb as a secondary research area to the Near East. Syria, like Tunisia, did not possess the full range of climate conditions, but it did have representative soils and both irrigated and rainfed agriculture. Aleppo provided a good site with a strong university and was home to Ford Foundation–funded development. Damascus boasted a new Arab League–funded center that planned to research agriculture in arid lands.[53] Although air access was poor, Beirut was a five-hour drive from Damascus. Lebanon had far and away the easiest access, living conditions, facilities, schooling, and university system, as well as a cooperative government interested in hosting a center. Many governments were amenable to hosting an international center, but established relations of European and American organizations with the Lebanese government made its availability apparent from the outset. However, Lebanon was considerably smaller, lacked irrigated land, and only represented a certain range of growing conditions. None of the options considered, with the possible exceptions of Iran and Algeria, had conditions ecologically representative of the entire region, largely because of the absence of cold plateau areas. Ultimately the subcommittee offered as recommendations

[50] CGIAR ICARDA Subcommittee and Daniel Ritchie, "ICARDA Subcommittee: Draft Minute of October 29, 1975 Meeting," November 19, 1975, 4, https://cgspace.cgiar.org/handle/10947/607.

[51] Warren C. Baum, "Memorandum on Progress in the Establishment of ICARDA," May 7, 1975, 2, https://cgspace.cgiar.org/handle/10947/859.

[52] CGIAR Technical Advisory Committee, "Location of the Proposed International Centre for Research in the Near East and North Africa," 2.

[53] The Arab League–funded Arab Center for the Studies of Arid Zones and Dry Lands (ACSAD), founded in 1971, served all member states.

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several groupings of headquarters and substations in Algeria, Syria, Lebanon, Tunisia, Turkey, and Iran.

Although the subcommittee ranked Algeria first among options for headquarters, the working group chose Lebanon.[54] Located in the most prosperous region of early twentieth-century greater Syria on the Eastern Mediterranean, Lebanon's independence had been recognized with the removal of the last French troops in 1946. Dominated by a Christian Maronite government, the country was an ally of the United States, and among the most diverse and prosperous of the new nation-states of the Middle East. By the early 1970s, Beirut had become a destination for tourists, banks, and diplomats.[55] It prevailed as a choice of headquarters largely because of the maturity of existing research networks and ease of living, including issues of staffing, communication, and international transportation. ALAD had a station in Lebanon's Beka'a valley; ICARDA would take over the station's operations. The committee recognized "that conditions in the valley, although offering a fairly wide range of elevation and rainfall (from 200 to 600 mm), were not typical of the area, particularly with regard to rainfed farming systems and cropping patterns." Therefore, it determined to establish a subsidiary site, probably near Aleppo, Syria, where land was abundant and the agro-ecological conditions were more typical of the region as a whole.[56] The committee also emphasized the need for a station to address the conditions of winter rainfall and snowy areas typical of mountainous Iran, Turkey, and Afghanistan, with Iran as a prime candidate due to its robust research network, abundant capital, and a government amenable to cooperation.

[54] The merits and demerits of various host countries were debated exhaustively following multiple site visits: CGIAR Technical Advisory Committee, "Report of the Eighth Meeting of the Technical Advisory Committee, 24 July–2 August 1974: Draft," September 1974, https://cgspace.cgiar.org/handle/10947/1408, 36–42; CGIAR Technical Advisory Committee, "Report of the Ninth Meeting of the Technical Advisory Committee, 3–7 February 1975: Draft," May 1975, 57–68, https://cgspace.cgiar.org/handle/10947/1436. A decision in favor of Lebanon, with substations planned for Syria and Iran, was announced by Warren Baum in May 1975: Baum, "Memorandum on Progress in the Establishment of ICARDA," 1.

[55] My account of the Lebanese civil war draws on the following: Chamberlin, *The Cold War's Killing Fields*, pp. 366–392; Paul Thomas Chamberlin, *The Global Offensive: The United States, The Palestine Liberation Organization, and the Making of the Post-Cold War Order* (Oxford: Oxford University Press, 2015); Itamar Rabinovich, *The War for Lebanon, 1970–1983* (New York: Cornell University Press, 2019); and Jonathan C. Randal, *The Tragedy of Lebanon: Christian Warlords, Israeli Adventurers, and American Bunglers* (Charlottesville, VA: Just World Books, 2016).

[56] CGIAR Technical Advisory Committee, "Report of the Seventh Meeting of the Technical Advisory Committee," 5; CGIAR Technical Advisory Committee, "TAC Quinquennial Review of ICARDA, 1984," 28.

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Between Beirut and Aleppo

So it was that ICARDA was planned in 1974 as a tripartite center, with its headquarters in Beirut, a main station in Lebanon's Beka'a valley, a substation for low-altitude research in Aleppo, Syria, and a substation for high-altitude research in Tekmeh Dash (Tabriz) in northwest Iran – and a possible third substation in the Maghreb. However, the Iranian Revolution of 1979 summarily terminated CGIAR plans to establish a substation of ICARDA in Iran and scuttled plans to bring the country to CGIAR as a member state.[57] Plans to locate in Lebanon, too, would run aground, leaving only two small stations at Terbol and Kfardane in the Beka'a Valley.

Beirut's prosperity and diversity concealed the extent of rural poverty and the fragility of its representative government. On the basis of decades-old census data, the form of government granted Maronite Christians a permanent majority over Sunni Muslims. Territorial redistribution during the French mandate period had added large Muslim and Druze populations to the Maronite Christian communities on the coast, but the latter continued to enjoy the greatest political and economic power. The persistent privilege of Maronite Christians sowed discontent that ultimately undermined the fledgling nation's stability. Tensions had already once boiled over into civil war in 1958, leading the United States to intervene on behalf of the standing government. The move had deepened the alliance between the two countries, contributing to its large community of European and American foreign service personnel and its advancement as a likely base for an international research organization in 1974.

In 1975, the country plunged again into civil war. Jordan's expulsion of the Palestine Liberation Organization (PLO) from its borders in 1970 hastened its relocation to Lebanon. Lebanon's 100,000 Palestinian refugees tipped the country's demographic balance, lending credence to claims that new census data would require a new representative government acknowledging a Muslim majority. Commitments to Palestinian liberation and pan-Arab nationalism more broadly threatened to destabilize the Maronite Christian government and remake the political landscape of the Middle East. Closer to home, tensions with the PLO demonstrated the weakness of governments assembled according to European imperial designs. In 1975, Maronite and Palestinian forces

[57] CGIAR Technical Advisory Committee, "Report of the Seventh Meeting of the Technical Advisory Committee," 5. ICARDA struggled to find a suitable location for a high-altitude station, ultimately pursuing Pakistan (Baluchistan), the headquarters of its high-altitude program: CGIAR Technical Advisory Committee, "TAC Quinquennial Review of ICARDA, 1984," 92.

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clashed. Leftist and pan-Arabist groups joined the Palestinians. The commercial heart of Beirut near the port was destroyed within months as the country descended into sectarian violence. The PLO came to patrol the "Green Line," a buffer zone between the Muslim West and the Christian East. Syria, which entered the conflict to check the growing power of the PLO, emerged as a guarantor of security in Lebanon.

Lebanon had become a failed state and a symbol of sectarian violence in the postcolonial world. The Iranian Revolution in 1979 only reinforced Western fears of sectarianism and religious fundamentalism. By comparison, Ba'athist Syria, a secular regime with progressive aspirations, appeared to move away from its Marxist origins in the direction of accommodation to international capital. With Arab unity as its guiding principle, Ba'ath leadership had initially rejected the existence of Israel as a Western puppet and paid lip service to the Palestinian Arab cause as married to its own. This doctrinaire foreign policy concealed rivalries within the Ba'ath party between the older urban elite and the younger rural population, who had been empowered by their military training to rise through the ranks of the party. Hafez al-Assad's seizure of power in an intra-Ba'athist coup ushered in a retrenchment away from radical foreign policy predicated on anti-imperial, anti-Western, pro-Palestinian, and pan-Arab nationalist ideology. His pragmatism ultimately translated into a more moderate foreign policy. Rather than throw Syria's lot in with the cause of Palestinian Arabs and pan-Arab nationalism, he broached a more moderate stance towards Israel and the West.

It was in this context that Assad invited ICARDA to set up operations in Syria. An agreement with the Syrian Arab Republic was signed in 1975 for the establishment of a principal station in Syria, with a separate agreement for a long-term loan of land in Aleppo province, spanning "a rainfall transect from an average of 200 mm per year in the south-east to 600 mm per year in the northwest." In November 1981, ICARDA's headquarters were formally moved from Beirut to Aleppo, leaving only the Terbol station operational (Figure 1.3).

But what was Syria to ICARDA, and ICARDA to Syria? A frank answer to this question requires more attention to the "turbulent history" to which the Skilbeck report alluded. For if it was too little to attribute the destruction of the "granary of ancient civilization" to "historical processes" or "social and structural rigidities," neither was it sufficient to assert that agricultural development projects could translate "ecological complementarities [into] production complementarities" without reference to political power.

The political economy of Syria as a modern nation-state was a collage of state-centered and imperial colonial Ottoman, French, and British

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Figure 1.3 A row of greenhouses at ICARDA's research station and "temporary headquarters" (since 2012) in Terbol, Lebanon, 2018. Photo by Michael Major/Crop Trust. By permission of Global Crop Diversity Trust.

projects to make agrarian networks in the Eastern Mediterranean amenable to extraction. As the competition of Ottoman and French visions for agricultural productivity was made inert by the post–World War I fracture of the land into French and British mandate regions, the succeeding order facilitated intensified extraction according to technocratic and capitalistic forms of land and resource management.[58] The cumulative destabilization of land tenure systems, fragmentation of trade networks, and reintegration of territory into a nation-state divided between Mediterranean coastal plain and Syrian desert had created the preconditions for political, economic, and sectarian crisis. These same conditions provided the justification for renewed attention to agricultural development projects, framing the problem as one of low productivity with climatic and cultural causes.

Hafez al-Assad came to power as an outcome of sectarian and parliamentary rivalries; and ICARDA implanted itself into a Greater Syria dedeveloped by imperial reconstructions. Each provided the overall structure in which ICARDA would operate in Syria proper, as a polity marked by ethnic rivalry and economic inequality entered a period of rapprochement to Western capital. Assad was no liberal progressive. He ruled through military force, a secret police apparatus, and patronage arrangements rife with corruption that placed the merchant class, and anyone else who would

[58] Williams, *States of Cultivation*, esp. p. 14; Bertini and Zouache, "Agricultural Land Issues in the Middle East and North Africa," esp. p. 22 on "Colonial Legacies and the Legislative *Millefeuille*."

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deign to do business, in the pocket of the state. When Assad faced a challenge from the Islamist forces of the Muslim Brotherhood, he responded by shelling the city of Hama for days, sending in infantry and tanks to finish the job and pick through the rubble for surviving militants. Initial diplomatic reports understated the death toll at around 1,000. The actual loss was in the tens of thousands.[59]

In many respects, the embrace of Assad's Syria as a home for an international research organization mirrored US support of authoritarian governments that furthered national interests. After the outbreak of civil war in Lebanon, US President Gerald Ford, with Henry Kissinger at the helm of foreign policy, had concluded that Assad's defeat would threaten geopolitical security in the Middle East. Kissinger further held that Syria's intervention in Lebanon had the added benefits of challenging PLO leader Yasser Arafat's supremacy and widening a rift between Syria and the USSR, which disapproved of Assad's attack on the PLO. Syria's antipathy to Israel and ongoing conflict over the Golan Heights gave Kissinger little pause. US support of the Assad regime was consistent with Kissinger's realpolitik approach to managing Cold War rivalries and served a broader project of containment of Soviet influence in the Middle East and southern Asia.

For Assad, international organizations had other potential benefits. In a narrow sense, the presence of an international agricultural research institute offered practical solutions for an agricultural sector besieged by successive droughts, offering to bridge the gap between the urban elite and the impoverished rural areas to the east. More broadly, it offered the prospect of foreign investment and alliances to counter Syria's increasing isolation in the Arab world. In either sense, it was a potential source of capital for a deeply divided country. Even so, the terms of the agreement did not always favor local people. Apart from the potential for foreign investment and benefit to the agricultural sector, the exchange rate for ICARDA was set at 3.9 Syrian lira per USD, instead of roughly 5.4 SL per USD as of the time of the quinquennial review in 1984. This agreement had a detrimental effect on local staff and purchasing arrangements

[59] Estimates of fatalities provided by witnessing journalist Robert Fisk, Amnesty International, the Syrian Human Rights Committee, and the Syrian Network for Human Rights range from 10,000 to 40,000. Robert Fisk, *Pity the Nation: Lebanon at War*, updated edn. (Oxford: Oxford University Press, 2001); "SHRC.Org | Massacre of Hama (February 1982) Genocide and a Crime against Humanity | 2005 Reports," archived May 22, 2013, https://web.archive.org/web/20130522172157/http://www.shrc.org/data/aspx/d5/2535.aspx; "Syria: 30 Years on, Hama Survivors Recount the Horror," Amnesty International, February 28, 2012, www.amnesty.org/en/latest/news/2012/02/syria-years-hama-survivors-recount-horror.

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within Syria.[60] Could such an institution heal the rift between the urban west and the rural east inscribed by Ottoman, European imperial, and postcolonial designs on the landscape?

Farming Systems

While the FAO director general had applauded CGIAR for its promise to build on Green Revolution successes, members of the Skilbeck mission and other observers saw no such revolution forthcoming. Those who had studied the agricultural conditions of the MENA region warned that social and political factors, rather than technical ones, constrained production, even as they rarely specified the nature of those factors. Asserting stagnation due to traditional cultural practices, they counseled a primary emphasis on farming systems as a whole, rather than genetic improvement of selected crops. In his commentary on the Skilbeck mission, Professor M. Nour of the FAO office in Cairo warned that "socio-economic realities must be taken into account if technical transplants were not to be rejected." He lamented a general neglect of rainfed areas, which constituted a "long history and tradition which would not be easily changed." Nour's commentary included only the most glancing reference to Ottoman, French, or British institutions or agronomic styles. He observed in passing that "in the past, there had been too much emphasis on technical solutions, and too little thought concerning the social and economic factors constraining and conditioning the successful use of technology."[61] The details of colonial and postcolonial territorial realignments, expropriation of land, fragmentations of landholdings and trade networks, nationalization of resources, and general evolution of land tenure went unremarked in the mission's report and the TAC's review.

By the time an official proposal was framed for the center, the priority areas for research were crop improvement, soil and water management, and animal production systems. ICARDA, in its mandate, sought "to develop appropriate technologies which, when integrated into improved farming systems, will increase the production of staple food commodities, especially cereals, food legumes, and sheep." Its research program consisted of four programs: Farming Systems, Cereal Improvement, Food Legumes Improvement, and Pasture and Forage Improvement. The broadest objective of research and training was to "increase and stabilize food production in the region." Specifically, ICARDA would "serve as an

[60] CGIAR Technical Advisory Committee, "TAC Quinquennial Review of ICARDA, 1984," 9.

[61] CGIAR Technical Advisory Committee, "Report of the TAC Working Group on the Research Needs of the Near East and North Africa," 10.

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international center for research into and the improvement of barley, lentils and broad beans (*Vicia faba*)," as well as any other crops designated by CGIAR, and would serve a relay role for other international centers for research in other important crops in the region, such as bread wheat and chickpeas. In addition to crop improvement, ICARDA would "conduct research into and develop, promote and demonstrate improved systems of cropping, farming and livestock husbandry," facilitating connections between national, regional, and international researchers.[62]

The mandate was notable for its emphasis on farming systems over crop improvement. The Farming Systems Program (FSP) was a multidisciplinary, systems-oriented approach to agriculture, consisting of crop agronomy, agricultural economics, and livestock and soil science. Such an approach required attention to "the physical, biological and socio-economic problems which impose constraints on the widespread adoption of improved systems of cropping, farming and livestock husbandry." Rather than isolate plant or animal material, a farming systems approach considered the entire process of production, including attention to pre- and post-harvest factors and a robust program of research and training with a broad range of stakeholders. Broadly, the center's programs concerned both farming systems and genetic improvement, but planners viewed all "as components of improved farming systems, which should be the ultimate aim of the new Centre."[63]

Even as its mandate obscured colonial and postcolonial disruptions in rural lands, the insistence of ICARDA's architects on attending to socio-economic realities and farming systems, as opposed to single crops, distinguished the center from its predecessors. In priority and methodology, ICARDA took a new approach to the CGIAR mandate to reduce rural poverty, insisting on persistent and dynamic interaction between researchers and farmers. TAC members noted the extent to which a center in the MENA region would depart from "the narrowly defined commodity approaches of the earlier centers."[64] Five years into operation, the FSP was the largest and most complex of the research programs, often also taking the largest share of the budget.

[62] "Proposal for the Establishment of an International Centre for Agricultural Research in the Near East and North Africa," 139–146, Folder 1761726, CGIAR – G-10 – International Center for Agricultural Research in the Dry Areas (ICARDA) – Correspondence 72/74–01, Records of the Consultative Group on International Agricultural Research (CGIAR), World Bank Group Archives.

[63] CGIAR Technical Advisory Committee, "Report of the Seventh Meeting of the Technical Advisory Committee," 10; "Proposal for the Establishment of an International Centre for Agricultural Research in the Near East and North Africa."

[64] CGIAR Technical Advisory Committee, "Report of the Seventh Meeting of the Technical Advisory Committee," 7.

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The commodity focus, and genetic improvement within it, nevertheless remained a principal aspect of the new center's mission. The interaction between the commodity programs of different CGIAR centers required careful management. Both barley and durum wheat were the province of CIMMYT, headquartered in El Batán, Mexico. The details of ICARDA's potential relationship to CIMMYT troubled early plans for the center. CIMMYT opposed removing barley as one of its mandate crops, even as the working group charged with establishing the dryland agricultural center concluded that CIMMYT could not meet the needs of the MENA region. For similar reasons, it recommended the possible transfer of the durum wheat program once the center was at full operating capacity.[65] A decade later, the quinquennial review reiterated the arguments for both transfers: 11 million hectares of barley were grown within the ICARDA region, as opposed to 700,000 in Latin America. Forty-four percent of the world's total durum area was within the ICARDA region, as opposed to 1.6 percent in Latin America, mostly in Argentina, where the crop was declining. Moreover, 97 percent of the durum wheat sown within the ICARDA region was rainfed, as opposed to irrigated.[66] This protracted negotiation indicates the extent to which a commodity focus remained central to CGIAR's overall program of research, troubling attempts to remake international agricultural development to serve the needs of local economies.

The Skilbeck Committee had recommended agro-climatological studies, a focus on rainfed agriculture, irrigated agricultural systems, and special problems of gypsiferous and saline soils. When pressed to reduce the mandate, members countered that each was a fundamental aspect of farming systems in the region. Rainfed and irrigated agricultural systems, for example, were closely intertwined. The final proposal nevertheless restricted the mandate to rainfed agriculture, noting that the distinguishing agro-ecological characteristic of the region was winter rainfall distribution. Rainfed agriculture was the practice that held the otherwise unwieldy mandate region together. Additionally, as of the quinquennial review in 1984, ICARDA had no lines of research in water management, which had been a component of the Skilbeck recommendation. The review panel found it "odd" that the mandate of ICARDA contained "so little reference to the study of soil-water relationship," citing the case made so strongly in the Skilbeck report for its centrality to

[65] Ibid., 4.

[66] CGIAR Technical Advisory Committee, "TAC Quinquennial Review of ICARDA, 1984," 24–25. After 1980, ICARDA began limited programs in supplementary irrigation, focused on winter-planted crops.

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dryland agricultural systems.[67] Even so, the panel acknowledged that "the heterogeneity of the mandated area," between rainfed and irrigated agriculture and high and low elevation, for example, "posed a number of problems in interpretation of the mandate and program development."[68]

The limited scope of ICARDA's approach suggested the unwieldiness of a mandate region that was framed first in geopolitical terms and secondarily in agro-ecological ones. While ICARDA's commitment to farming systems did partial justice to the aspirations of its planners to address the roots of rural poverty, the winnowing of its mandate to exclude irrigated agriculture and soil and water management signaled its limited capacity to address some of the principal problems of agriculture in the region as a whole, and in Syria itself.

Economic liberalization failed to save Syria, even as it led to geopolitical realignment in Western Asia and the world. Hafez al-Assad had pursued liberalization to invest oil money flowing from the Gulf States in the form of aid and remittances from Syrian laborers in the Gulf. These windfalls proved short-lived. In the 1980s, oil prices plummeted. Aid and remittances declined accordingly. A global recession further hampered foreign investment, while Soviet withdrawal from the region deprived the country of substantial military and financial aid. Driven by economic necessity, Assad moderated the country's stance to the United States. This shift culminated in Syria's 1991 decision to join the coalition against Iraq's invasion of Kuwait and to participate in the Madrid Conference in pursuit of Palestinian–Israeli peace. To Assad's frustration, the process failed to return the Golan Heights to Syria. It nevertheless indicated his willingness to participate in international negotiations that could further territorial and economic interests.[69]

None of this geopolitical maneuvering was sufficient to address the underlying conditions of inequality and sectarianism within Syrian society. The Syrian civil war, begun in 2011, fulfilled the warnings of those who had alerted CGIAR planners to the political and socioeconomic roots of crisis in the region, even as they fell short of a full critique of imperial de-development of greater Syria. While decades of drought provoked significant public investment in irrigation in the early twenty-first century, it was not enough to reverse the impact on farmers in the country's rural center, who had long resented the political and economic supremacy of the western cities. As drought and increasing fuel prices plunged Syria's agriculture into crisis, Syrian farmers became some of the fiercest opponents of the regime of Bashar al-Assad, who had become

[67] Ibid., 6. [68] Ibid., xxv. [69] For a summary of these shifts, see Lesch, *Syria*, chapter 6.

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president after his father's death in 2000. The son followed the example of his father, Hafez, in crushing dissent. The outcome was civil war.

Throughout these turbulent transitions, ICARDA was less important for its work in the field than as an institution that symbolized a Western vision for international agriculture. In the inaugural meeting of the TAC, the CGIAR chairman defined international research as "research which, while located in a specific country, was of wider concern regionally and globally, independent of national interest or control, and free from political dictates of anyone government whilst retaining appropriate links with national research systems to ensure necessary testing of results and feedback both of results and needs."[70] This vision of progressive, scientific agriculture, which provided the context for the proliferation of CGIAR centers across the globe, belied the fundamental commitments of donors to international commodity cultures and the formation of a coalition of states amenable to Western technical assistance. In establishing ICARDA, donor countries staked a claim to West Asia and North Africa as regions of influence, and a base and proxy for arid and semi-arid regions of strategic interest across the globe. ICARDA was part of a globalized vision for agricultural development that made poverty alleviation into a single project and poverty itself into a uniform condition. While international research organizations have made escalating claims to operate at a global scale, and on behalf of universal interests, the landscapes they traverse are more complex in agro-ecological and historical terms.

The post–Cold War history of ICARDA provides an instructive coda to this history. In the 1990s, ICARDA inaugurated plant genetic resources collecting expeditions and collaborations in the countries of the former Soviet Union, focusing on biodiverse regions of the Caucasus Mountains and Central Asia. Thus the end of the Cold War provided new geographies for the complex of international research and development within the geography of Central and West Asia and North Africa that had first characterized Eisenhower's southern rim strategy of containment. Ostensibly, these missions brought new regions into the fold of the CGIAR system, offering farmers membership in a network of international technical assistance. But it is also intentional that these missions were situated on the periphery of the Soviet Union, which had long structured the geography of the CGIAR network. Rural lands were not simply grounds of poverty: they were the fields of empire, recast in the aftermath of World War II as buffers against communism. In the collapse

[70] CGIAR Technical Advisory Committee, "Report of the First Meeting of the Technical Advisory Committee."

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of the Soviet Union, they became the grist for a globalized vision of market-led development, a dream imagined rather than realized in the winds of change.

Since the outbreak of civil war in Syria in 2011, ICARDA's operations have decentralized across the Middle East and North Africa, with headquarters back in Beirut. Decentralization realized the initial orientation of planners towards a broad range of territories and enabled renewed claims that international agricultural research can address the needs of small farmers across the globe. Orientation towards the world's farmers nevertheless requires us to be lucid about the ways in which the imperial prehistory of international scientific research continues to structure neocolonial power relationships, often concealing or abetting conflict.

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