

“Bringing the Machine to the House”: The IBEC System and Experimental Housing in Baghdad, Iraq, 1953-58

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This report studies the International Basic Economy Corporation (IBEC) Housing Corporation (IHC) and its attempts to build prefabricated housing in Baghdad, Iraq during the 1950s. Architect Wallace K. Harrison experimented with cast-in-place concrete to create “a house built like a sidewalk.” This process came to be known as the “IBEC System,” leading to IHC mass-produced housing projects in Virginia, Florida, Venezuela, Puerto Rico, Iraq, and Iran. In 1955, the Development Board of Iraq hired Greek architect Constantinos Doxiadis to develop a comprehensive five-year plan for the nation’s housing shortages. With Doxiadis urging experimentation in construction technique and with IHC’s desire to secure access to the Middle East, IHC applied for contracts to build mass-produced housing in Iraq under this program. In 1950s Iraq, Pan-Arabism was taking hold. IHC imported expensive equipment into Baghdad and built demonstration housing, with the ambition to build hundreds of houses; however, on July 14, 1958, the reigning monarchy was overthrown and IHC, along with other western firms, left Iraq, abandoning their projects and equipment. This short report summarizes this story.

On January 9, 1947, the International Basic Economy Corporation (IBEC) was incorporated as a private, for-profit business enterprise by Nelson A. Rockefeller, and his siblings, with the ambition of “upgrading the ‘basic economies’ of lesser-developed nations by lowering food prices, building sound housing, mobilizing savings, and fostering industrialization.”¹ IBEC was an outgrowth of the non-profit organization, the American International Association for Economic and Social Development (AIA), established a year earlier in 1946, that focused on education, sanitation, and health in Latin America.² On May 15, 1947, IBEC began its overseas operation when it established a subsidiary, the Venezuelan Basic Economy Corporation (VBEC), overseeing four companies and also establishing another five new ones in Brazil that focused on the farmer, encouraging the increase of production.³ While several of these companies were, in fact, unprofitable, they allowed IBEC to experiment in its approaches and methods during its time in Latin America,

between 1947 and 1955, and eventually develop a comprehensive strategy for its global operations which started in 1956.⁴ Through its experience in Venezuela and Brazil, IBEC was able to develop an entire body of knowledge and expertise in agriculture, healthcare, and logistics that would be used all over the world. By the mid-1960s, IBEC was putting this knowledge into practice in 33 countries via 119 subsidiaries, affiliations, and/or shared ownership operations.⁵ Three other knowledge-producing corporations, IBEC Technical Services Corporation (ITSC), IBEC Research Institute (IRI), and IBEC Housing Corporation (IHC), were established between 1947 and 1949 as an outgrowth of IBEC. While the profound impact of all of these corporations on postwar developmental discourse is examined in detail in my dissertation, this report is focused solely on IHC and its operations in Baghdad, Iraq during the 1950s.

Known as “194x,” the decade of the 1940s was characterized by experimentation in low-cost, mass-produced housing by architects in the United States.⁶ IHC’s mission “to meet pressing housing needs throughout the world by adapting modern industrial processes to cut down construction cost” fits within this larger discourse of prefabricated, low-cost, postwar housing.⁷ Incorporated on January 13, 1948 as a joint venture between IBEC and the ITSC, and chaired by architect Wallace K. Harrison, the IBEC Housing Corporation (IHC) developed a series of experimentations in low-cost housing strategies which could be constructed rapidly, requiring little manual labor.⁸ Harrison began experimenting with mass-production long before the 1940s, when he first developed a prefabricated aluminum house, which proved far too expensive to justify further exploration.⁹ Harrison’s pre-war explorations relied on automated methods of the automobile and aeronautics industries by “bringing the house to the machine;” but for his work with IHC, Harrison envisioned “bringing the machine to the house.”¹⁰ To design the prototypical IHC house, Harrison worked with his friend, concrete engineer Emil H. Praeger, to develop a simple box house with two concrete slabs for floors and roofs with the ducting and plumbing built into the cast-in-place walls.¹¹ Harrison envisioned a “house built like a sidewalk” where both the equipment and techniques used were borrowed from the highway building industry.¹² A thirty-feet wide, four-inch thick concrete strip was laid down, divided every 30 feet with wooden strips. A 35-ton derrick lifted the steel wall-form of the house into place, and concrete was poured into the form using a hopper.¹³ Once cured, the form was lifted and

moved to the next house. The roof was poured in layers at ground level with an oil film separating the layers, and they were lifted into place by a suction lifting device attached to the derrick. Following an initial experiment in Huntington, Long Island, IHC went on to build 204 Federal Housing Administration (FHA) rent insured houses (102 duplexes) in Norfolk, Virginia in 1949, as part of a development by businessman Henry C. Hofheimer, II.¹⁴

Taking the Norfolk project as “proof-of-concept,” IHC sought projects with large corporations such as Creole Petroleum Corporation, Banco Obrero, Aramco, the US Navy, and Matrad Corporation; however, none of these projects came to fruition in the wake of the Korean War (1950-1953).¹⁵ In 1953, Nelson A. Rockefeller was appointed as the undersecretary of the newly created Department of Health, Education, and Welfare, and his younger brother, Winthrop Rockefeller, took over responsibilities of IBEC and the directions it would take. Under Winthrop’s leadership, IBEC diversified its assets and expanded its global reach. With FHA mortgage insurance available and backed by the Puerto Rican Housing Authority, Puerto Rico was chosen by IHC as the first international site to fine-tune the “IBEC System” for construction in Latin America. IHC contracted architect Edward Larrabee Barnes to design two single-family house types: “Belair” and “Tradewinds,” with two model houses built.¹⁶ By June 1956, 1,625 concrete houses, modified with more climate-appropriate lattice brickwork and covered porches, were completed.¹⁷ At a rate of six houses built per day, the IHC program in Puerto Rico grew with another 2,616 houses in Lomas Verdes and 631 houses in Altamesa, two suburbs of San Juan.¹⁸

Also in 1953, IBEC first became interested in pursuing projects in the Middle East. On May 7, 1953, a former Aramco public relations officer, Howard F. Beir, was hired as an external consultant through a Winthrop Rockefeller-ITSC joint venture to examine the feasibility of building a Trans-Arabian Highway that would connect the Mediterranean with the Arabian Gulf. He was also tasked to report back to the board about other opportunities in the Middle East.¹⁹ Upon completing a six-month exploratory trip, Beir identified several projects in Lebanon, Syria, Iraq, Saudi Arabia, and Kuwait.²⁰ While the ITSC’s board did not pursue any projects in the region, ITSC forwarded the housing recommendations to IHC, which hired Beir, again to help the corporation

undertake projects in the Middle East.²¹ Beir identified Kuwait and Iraq as “the best markets for low and middle-class housing in the Middle East,” with Saudi Arabia a close second.²² While the IHC Board explored projects in both Kuwait and Saudi Arabia, through Beir, the company did not secure any commissions. Thus, IHC turned its full attention to Iraq, which ultimately was the only Arab nation where IHC would operate.

The 1950s were a critical period for the Arab nations of the Middle East, especially Iraq, as the notions of Pan Arabism and Arab solidarity were running high. With the creation of the State of Israel, decades-long colonial rule under the British, and the mounting pressure of local populations for self-rule, IHC was entering the region at a time when anti-American sentiments were on the rise.²³ Iraq, by then, had had several revolts since its inception as The Kingdom of Iraq under British Administration, or Mandatory Iraq, in 1921. After Iraq’s independence in 1934, it became the Hashemite Kingdom of Iraq.²⁴ British influence was still strong but there was also a growing cadre of young Iraqis who were against western influences and were very strong advocates of Arab Nationalism.²⁵ Foreign, mainly British, “experts” held key governmental positions and projects in the region were awarded to foreign consultants.²⁶ This led to dissent and dissatisfaction amongst local Iraqis, which would ultimately culminate in the violent coup d’état on July 14, 1958, when the Free Officers, led by Abd Al-Karim Qasim, overthrew the British-imposed Hashemites, following in the steps of Gamal Abdel Nasser’s overthrow of the monarchy in Egypt six years earlier.

When IHC began its explorations in the Middle East, construction projects were rampant in the region, many under the aegis of international development organizations and/or national governments; Iraq was no different. Based on the recommendations and with a loan from the International Bank of Reconstruction and Development (IBRD), the Development Board (Majlis al-I‘mār) was established in 1950, with the aim of “investigating and exploiting Iraq’s many natural resources, increasing the national income, and raising the standard of living of the people.”²⁷ During its first few years, the Development Board undertook very few projects, and by 1955, the Iraqi Government hired British economist and former Governor of the Bank of England, Lord Salter, to undertake a reevaluation of the Board’s scope and projects.²⁸ Salter’s Report,

“The Development of Iraq: A Plan of Action,” called for overhauling the existing program and recommended for the board to develop a focus on human and social development.²⁹ Housing was singled out as “a way to give quickly visible results” and that “a substantial part of development resources” should be allocated to “a large and suitable designed housing scheme.”³⁰ Following these recommendations, a Five Year Program was established; the nation’s first large-scale housing program. Constantinos Doxiadis was hired as a housing consultant and planner.³¹

In August 1955, the Greek architect Doxiadis was appointed by the Development Board based on the advice of IBRD, with a gentle nudge from American housing expert Jacob L. Crane, who recommended Doxiadis to the American “expert” on the board.³² A relatively unknown architect at that time, Doxiadis would eventually become a world renowned development expert. He was the champion of architecture’s “alignment with international development, and [...] the profession's responsibilities towards global environmental exigencies.”³³ Doxiadis developed an ambitious housing program for Iraq which included housing, markets, schools, and civic centers. In his 1959 report, Doxiadis called this first step of his “very long-range plan,” the Basic Foundation Program.³⁴ Doxiadis envisioned a multi-faceted housing strategy that was divided between a “crash” program and an “experimental” program. The former was developed by the Development Board “primarily for political benefit, or at least designed with that in mind,” with the intention of spurring on development by allowing for a rapid burst of building to occur.³⁵ The experimental projects on the other hand, were conceived as a program to allow exploration in building techniques and material. The masterplan was designed by Doxiadis Associates but construction was to be undertaken:

... by contractors who were supplied with the basic plans, but were free to use their own building materials and employ the methods of construction they considered most suitable. Fifteen contractors from eight different countries participated in this construction, and they competed to produce the best construction methods, making use of materials of their own choice. In commenting on this method of consultation, Constantine Doxiadis has said: "We do not seek to impose foreign-conceived solutions on the countries in which we work; we try to find a solution based on the best each country has to

offer, but combined with modern technical achievements and up-to-date methods of construction.³⁶

While IHC applied to both the “crash” and “experimental” programs, it was only able to secure a bid for the latter.

Conceived under the slogan “world-wide experience and local conditions,” the experimental housing program encouraged both laboratory-based testing and practical experimentation in materials, methods, and techniques.³⁷ The Development Board opened the experimental program to bidding in 1956 under two contracts, SPA-4 and SPA-6. Under a joint-venture established on April 16, 1956 with a local construction company, Al-Mansur, IHC bid for both.³⁸ For SPA-4, eight out of eleven contractors won the bid, with IHC being the only American one. IHC-Al-Mansur submitted an unsuccessful bid on May 28, 1956, which served as a driving force for IHC to develop better insulation and more competitive prices.³⁹ On September 11, 1956, IHC-Al-Mansur submitted a bid for the construction of 20 experimental houses in sector 5 of the Western Baghdad Development Experimental Housing and contract SPA-6 was tendered to Al-Mansur Construction Company and IHC.⁴⁰ Designed as middle-income houses, the experimental structures were two-story row houses, each with four rooms, a kitchen, a bathroom, a WC, and a storage room, on a 12 by 18 metre plot. For the construction method, IHC decided to use a special precast sandwich-type wall for exterior use, comprising of two dense concrete layers with a foam concrete core. Interior walls and stairs were constructed using dense concrete with wooden doors and windows. Concrete roofs were topped with asphalt and a chopped straw and clay mixture to mitigate the impact of solar radiation. These design and construction decisions were based on IHC’s in-depth climatic analysis that the company undertook between 1954 and 1955. For this analysis, IHC had hired a series of consultants, most notably Victor and Aladar Olgyay, to develop a bioclimatic analysis of the relationship between people and their environments.⁴¹

The project commenced on January 15, 1957, with an anticipated completion date in mid-August 1957. It should be noted that “[d]espite the use of a building design that departed farther from normal than any of the others used, the IBEC houses were built in the shortest time.”⁴² However, while they were the fastest contractor, they were also the most expensive. For IHC, the costs associated

with the IBEC Methods, especially the expensive equipment, simply could not be justified unless an economy of scale was achieved; as for the Development Board, it just wanted quick and cheap housing. Even with the use of local laborers for all construction, IHC still had to import a twenty-ton crane, lumber carrier, vacuum lift, and six ten-ton lowering jacks to construct the houses. This ultimately drove IHC's prices up and was the main hurdle for IHC in securing bids for low-cost housing in Baghdad.⁴³ The ambition for IHC with the SPA-6 contract was that it would secure more bids and achieve an economy of scale that would justify its investment. This hope was based on the contract, which stipulated:

Participation in a Future Tender 8. Contractors who will succeed in this tender and whose systems will be considered upon completion of the works and under the absolute judgement of the Development Board as having behaved satisfactorily on the field, will be called to participate with the same systems in a tender for the construction of a whole community of average volume double of the one shown in Drwg. QA 56-46 comprising different types of one or two stories houses of various designs, vehicular roads, sidewalks and footways. Participation in this future tender will be exclusively limited to the contractors mentioned above but the Board reserves the right of rejecting the results of this future tender if unsatisfactory from any point of view.⁴⁴

Unfortunately, due to the expensive cost per unit, IHC was not invited to bid on additional houses. This caused great distress to the IHC team who, by then, had invested more than four years and hundreds of thousands of dollars in expensive equipment, labor, and research.⁴⁵ What disappointed IHC even further was that in addition to the “crash” program, it had developed a model demonstration site on lands owned by its local partners, which did not spark much local interest. Urged on by Beir to build prototypes because “[p]eople in the Middle East must be shown; then they accept.”⁴⁶ IHC-Al-Mansur built six model homes that served as a practical field laboratory to test materials and methods in order to improve indoor thermal comfort with the intention of ultimately selling these houses for profit. The demonstration site mimicked IHC's approach in Latin America where it offered both the IBEC System and an array of low-cost mass-produced housing strategies.⁴⁷

While the houses were originally designed by architect Edward Barnes, due to the fact that he could no longer commit to the project, by September 1956, the IHC team had taken over the design.⁴⁸ Architects Phil Laura, Alfred Bush, and Simon Schmiderer served as the main project interlocutors, securing materials, equipment, and all the necessary work for construction. Although the houses were designed with a single client in mind, mainly a single middle-income family, the houses were constructed using different materials, treatments, and finishes in order to determine the heat time lag, U-Value, and to achieve optimal indoor climate.⁴⁹ Constructed in a mere eight months between March 1957 and November 6, 1957, these six houses served multiple purposes: they created scientifically-backed data, calculated accurate costs, demonstrated the IBEC System's versatility, all of which were anticipated to help IHC secure more bids. Even with the invaluable information IHC was able to accumulate with these experimental houses, the results were lackluster, at best. As a for-profit company, IHC was becoming frustrated with the uneven financial responsibilities within the joint venture and it could no longer solely carry the financial burden of the joint venture. Eventually, legal disputes between IHC, Al-Mansur, and their subcontractors ensued, and IHC's involvement in Iraq died out on April 22, 1958, when the IHC-Al-Mansur Joint Venture was dissolved.⁵⁰ By then, pro-Arab sentiment was reaching an all-time high after the establishment of the United Arab Republic (UAR) in February 1958. Soon after, the Free Officers overthrew the British-imposed Hashemite monarchy in a violent coup d'état on July 12, 1958.

Although IHC left Iraq in 1958, leaving behind expensive equipment, IBEC and the Rockefeller Foundation (RF) continued to operate in the Middle East in different capacities. RF entered agreements with Iraq, Egypt, Lebanon, Syria, and Jordan to offer academic scholarships to students, grant-in-aid to schools, institutions, and individuals between 1951 to 1965, with a focus on education, agriculture, and literacy.⁵¹ As for IBEC, it acquired a minority stake in the Middle East Industrial Development Project Corporation (MIDEC) in 1958. It also purchased a worldwide licensing agreement for the brick-making Cinva-Ram press and technique developed by Chilean engineer Raul Ramirez. IBEC bought shares in the US-based Arbor Acres, a firm that introduced poultry breeding to the world, which included a Lebanese subsidiary, Green Leaf.⁵² IHC shifted its operations to Iran by signing an agreement on May 1, 1958 with the

Development and Resources Corporation to undertake the design and construction of prefabricated housing scheme for the Khuzestan Development Services (KDS).⁵³ Moreover, IHC won a bid on January 28, 1959 to build 114 houses for laborers in Pirouz, Abadan for the Iranian Oil Refinery Company, a project which was completed in April 1960.⁵⁴ A third agreement to build 200 to 300 model homes in Tehran was signed on March 3, 1958, with Iranian-based Bank Omran.⁵⁵ However, this project also resulted in near failure when IHC's local area manager was put on trial by Bank Omran for "dishonored checks" on December 14, 1961.⁵⁶ IHC's approach in Iran differed vastly than its operations in Iraq, because instead of establishing a joint venture with a local company, IHC signed direct agreements with Iranian organizations and representatives of the government.

Whilst short-lived, the story of Iraq and IHC is a critical chapter in American involvement in the region and of American postwar development and modernization schemes. Even though IHC's model homes did demonstrate the corporation's willingness to adapt its techniques to suit local conditions, the project itself seemed to have been destined to fail. The overly technical building process was a huge liability, with expensive imported equipment proving far more costly than more traditional building methods. The assumption that what worked in South America would necessarily work in the Middle East was another weakness. The US need to use housing to provide "visible results" for reasons of political influence in the region was pressing. However, the political climate of pre-existing anti-western sentiments, fueled by geopolitical developments in the region, created a rising Arab nationalism and Pan-Arab sentiment. This made the Iraqi project just the wrong moment to be attempting to build these houses in this way. The "house built like a sidewalk" found no path to mass production in Iraq.

¹ International Basic Economy Corporation Annual Report 1947, Folder 109, Box 13, Sub-series 1: General, Series 2: International Basic Economy Corporation (IBEC), Rockefeller Family Public Relations Department Papers, Rockefeller Archive Center, Sleepy Hollow, NY, USA (hereafter RAC).

² Wayne Broehl, Jr., *The International Basic Economy Corporation*, National Planning Association. Case Study in an NPA Series on United States Business Performance Abroad, Thirteenth (Washington, DC: National Planning Association, 1968), xvii.

³ International Basic Economy Corporation Annual Report, 1949, 1950, and 1951, Folder 109, Box 13, Sub-series 1: General, Series 2: IBEC, Rockefeller Family Public Relations Department Papers, RAC. See also Broehl, Jr., chap. 1 and 2; Darlene Rivas, *Missionary Capitalist: Nelson Rockefeller in Venezuela*, The Luther Hartwell Hodges

Series on Business, Society, and the State (Chapel Hill, NC: University of North Carolina Press, 2002). Shane Hamilton, *Supermarket USA: Food and Power in the Cold War Farms Race* (New Haven, CT: Yale University Press, 2018), chap. 3.

⁴ IBEC began operations in Ecuador after the nation received a loan from the Export-Import Bank of Washington to purchase agricultural equipment on June 1, 1950. International Basic Economy Corporation Annual Report, 1949, Folder 109, Box 13, Sub-series 1: General, Series 2: IBEC, Rockefeller Family Public Relations Department Papers, RAC.

⁵Broehl, Jr., *The International Basic Economy Corporation*, xiii. Broehl, Jr., xiii.

⁶ On 194X, see Andrew Shanken, *194X: Architecture, Planning, and Consumer Culture on the American Homefront* (Minneapolis, MN: University of Minnesota Press, 2009); See also Daniel A. Barber, *A House in the Sun: Modern Architecture and Solar Energy in the Cold War* (Oxford: Oxford University Press, 2016), chap. 4; Barry Bergdoll and Peter Christensen, *Home Delivery: Fabricating the Modern Dwelling* (New York, NY: The Museum of Modern Art, 2008); Beatriz Colomina, *Domesticity at War* (Cambridge, MA: MIT Press, 2007); David Smiley, "Making the Modified Modern," *Perspecta* 32, no. Resurfacing Modernism (2001): 39–54.

⁷ Minutes of the First Meeting of the Board of Directors of IBEC Housing Corporation, held February 4, 1948, in New York City, Folder 8.1, Box 8, Series I: Collection I, Wallace K. Harrison Architectural Drawings and Papers, Department of Drawings & Archives, Avery Architectural and Fine Arts Library, Columbia University (hereafter WKH Papers).

⁸ Harrison was the Chairman of the Board of IHC until 1951, when he was replaced by Winthrop Rockefeller. Vice Presidents of IHC in 1948 include Louis P. Corbetta and Roger H. Corbetta, of the Corbetta Engineering Company; Morrison G. Tucker, banker and Nelson A. Rockefeller's advisor; and William V. Reed, formerly with the National Housing Authority.

⁹ IBEC Housing Corporation, dated October 25, 1949, page 3, Folder 8.1, Box 8, Series I: Collection I, WKH Papers.

¹⁰ Broehl, Jr., *The International Basic Economy Corporation*, 204.

¹¹ Victoria Newhouse, *Wallace K. Harrison, Architect* (New York: Rizzoli, 1989), 77–78.

¹² "House Built Like a Sidewalk," *Life*, October 10, 1949.

¹³ "Concrete House," Memorandum from W. D. Bradford, IBEC Vice President, to Board of Directors - IBEC, dated December 4, 1947, Subject: Proposed Housing Company, Folder 8.2, Box 8, Series I: Collection I, WKH Papers.

¹⁴ IHC also developed a large-scale project in Margate, FL in 1957. IBEC Housing Corporation Annual Report, 1948, Folder 239, Box 23, Sub-series 4: IBEC Housing Corporation, Series 2: IBEC, Rockefeller Family Public Relations Department Papers, RAC.

¹⁵ IBEC Housing Corporation Annual Report Draft, December 1948, Folder 239, Box 23, Sub-series 4: IBEC Housing Corporation, Series 2: IBEC, Rockefeller Family Public Relations Department Papers, RAC.

Folder 256, Box 25, Sub-series 5: IBEC Research Institute, Series 2: IBEC, Rockefeller Family Public Relations Department Papers, RAC. The only project IHC was able to pursue during that time was part of the El Salvadorian reconstruction efforts after a devastating earthquake in 1951 in Valle de la Esperanza. On this project, see Andrea Renner, "Housing Diplomacy: US Housing Aid to Latin America, 1949-1973" (PhD Dissertation, Columbia University, 2011), 181–83.

¹⁶ Descriptions of Photographs, Folder 10, Box 1, Series 1: General, Sub-series 1027: American International Association for Economic and Social Development (AIA) Photographs, American International Association for Economic and Social Development (AIA) Records, RAC. See also Renner, 183–91.

¹⁷ Renner, 183–91; See also Broehl, Jr., *The International Basic Economy Corporation*, 206–12.

¹⁸ International Basic Economy Corporation Annual Report, 1957, page 8, Folder 111, Box 13, Sub-series 1: General, Series 2: IBEC, Rockefeller Family Public Relations Department Papers, RAC; Broehl, Jr., *The International Basic Economy Corporation*, 210.

¹⁹ After serving in the Air Force from 1940 to 1945, Howard F. Beir was hired by Aramco in 1946 as a Public Relations officer, first in Saudi Arabia and from 1948 in their Long

Island Training Center in New York, where he served in that position until 1953. “A Hard Worker Advanced,” *Arabian Sun and Flare*, December 1, 1948. On the Trans-Arabian Highway, see Nicolas E. Manasseh, “A Pan-Arab Highway System. A Report on the Economic and Engineering Criteria for the Location and Design of the Pan-Arab Highway,” Advanced Study Report (Berkeley, CA: Division of Transportation Engineering, University of California, 1958).

²⁰ H.F. Howard Report 1953-1954, Folder 259, Sub-series 4: IBEC Housing Corporation, Series 2: IBEC, Rockefeller Family Public Relations Department Papers, RAC.

²¹ Letter from George A. Dudley to Winthrop Rockefeller, dated November 17, 1953, subject: Trans-Arabian Highway - Proposed Letter to Mr. Howard Beir, Folder 232, Box 23, Sub-series 4: IBEC Housing Corporation, Series 2: IBEC, Rockefeller Family Public Relations Department Papers, RAC.

²² Memorandum from Howard F. Beir to IBEC Executive Committee, dated November 4, 1953, subject: Middle East Operations, Folder 259, Sub-series 4: IBEC Housing Corporation, Series 2: IBEC, Rockefeller Family Public Relations Department Papers, RAC.

²³ For a thorough account on US-Iraqi relations between the Second World War and the 1958 coup d'état, see Frederick W. Axelgard, “U.S. Policy Towards Iraq, 1946-1958” (PhD Dissertation, Tufts University, 1988); Naim Joseph Salem, “The Drama of U.S. Iraq Relations: From World War II to the Gulf War” (Ph.D. Dissertation, University of South Carolina, 1992).

²⁴ For a thorough history of Mandatory Iraq see Toby Dodge, *Inventing Iraq: The Failure of Nation-Building and a History Denied* (New York: Columbia University Press, 2005), chap. 1 and 2. Stacy E. Holden, ed., *A Documentary History of Modern Iraq* (Gainesville: University Press of Florida, 2012), chap. 2; Paul W. T. Kingston, *Britain and the Politics of Modernization in the Middle East, 1945-1958*, Cambridge Middle East Studies 4 (New York: Cambridge University Press, 1996), chap. 5; Ernest Main, *Iraq: From Mandate to Independence*, Kegan Paul Arabia Library (London: Kegan Paul, 1935); Phebe Marr, *The Modern History of Iraq*, 3rd ed. (Boulder, CO: Westview Press, 2012), chap. 2. For a detailed account of the modern history of Iraq, see Hanna Batatu, *The Old Social Classes and the Revolutionary Movements of Iraq: A Study of Iraq's Old Landed and Commercial Classes and of Its Communists, Ba 'thists, and Free Officers* (London: Saqi Books, 2004); Dodge, *Inventing Iraq*; Holden, *A Documentary History of Modern Iraq*; Main, *Iraq*; Marr, *The Modern History of Iraq*; Malik Mufti, *Sovereign Creations: Pan-Arabism and Political Order in Syria and Iraq* (Ithaca, NY: Cornell University Press, 1996); Charles Tripp, *A History of Iraq*, 3. ed., 3rd print (Cambridge: Cambridge Univ. Press, 2010).

²⁵ On Arab Nationalism, see for example George Antonius, *Arab Awakening* (Safety Harbor, FL: Simon Publications, 1939); Rashid Khalidi, *The Origins of Arab Nationalism* (New York: Columbia University Press, 1991); Youssef M. Choueiri, *Arab Nationalism, A History: Nation and State in the Arab World* (Oxford ; Malden, MA: Blackwell Pub, 2000); Fawaz Gerges, *Making the Arab World: Nasser, Qutb, and The Clash That Shaped The Middle East* (Princeton, NJ: Princeton University Press, 2018); Tawfic Farah, ed., *Pan-Arabism and Arab Nationalism: The Continuing Debate* (Boulder, CO: Westview Press, 1987); Malik Mufti, *Sovereign Creations: Pan-Arabism and Political Order in Syria and Iraq* (Ithaca, NY: Cornell University Press, 1996).

²⁶ In Iraq, the Development Board sent an Iraqi delegation overseas in 1951 to select experts for its project. The mission selected eighteen experts from the United Kingdom, Netherlands, Switzerland and the United States. See Mahmud Al-Habib, “The Iraqi Development Board,” *The Southwestern Social Science Quarterly* 36, no. 2 (September 1955): 185–86. See also Norman Burns, “Development Projects in Iraq: I. The Dujaylah Land Settlement,” *Middle East Journal* 5, no. 3 (Summer 1951): 362–66; Brad Fisk, “Development Projects in Iraq: II. The Wadi Tharthar Flood Control Project,” *Middle East Journal* 5, no. 3 (Summer 1951): 366–70; Gerwin Gerke, “The Iraq Developmental Board and British Policy, 1945-50,” *Middle Eastern Studies* 27, no. 2 (April 1951): 245–47. On the role of the British in Iraq, see Dodge, *Inventing Iraq*.

²⁷ Al-Habib, “The Iraqi Development Board.” On the early beginnings of the Development Board and its formation, see Kingston, *Britain and the Politics of Modernization in the Middle East, 1945-1958*, 101–20; Dale Stahl, “The Two Rivers: Water, Development and Politics in the Tigris-Euphrates Basin, 1920-1975” (Ph.D.

Dissertation, Columbia University, 2014), 113–28. Gerke, “The Iraq Developmental Board and British Policy, 1945-50.”

²⁸ Kingston, *Britain and the Politics of Modernization in the Middle East, 1945-1958*, 108–12; Stahl, “The Two Rivers: Water, Development and Politics in the Tigris--Euphrates Basin, 1920-1975,” 180-.

²⁹ In his report, Salter indicates fourteen points that constitute A Development Program: I. A Plan of Action and Programme; II. The Desirable Shape and Balance of the National Economy; III. Finance; IV. Inflation; V. Man-Power and Materials; VI. Conditions for Successful Development; VII. Water Control and Use; VIII. Agriculture; IX. Communications; X. Industry; XI. Housing; XII. Health; XIII. Education; XIV. Administrative Method and Machinery. Lord Salter, “The Development of Iraq: A Plan of Action” (Baghdad: Iraq Development Board, 1955), 5-8.

³⁰ Salter, 79.

³¹ Fisk, “Development Projects in Iraq: II. The Wadi Tharthar Flood Control Project”; Stahl, “The Two Rivers: Water, Development and Politics in the Tigris-Euphrates Basin, 1920-1975,” 128–30; World Bank, “Iraq - Wadi Tharthar Flood Control Project,” Asia Series (Washington, DC: World Bank, 1954); World Bank, “Iraq - Wadi Tharthar Flood Control Project” (Washington, DC: World Bank, 1950); Waldo Bowman, “A Modern Mesopotamia Is Molded,” *Engineering News-Record* 159, no. 14–26 (December 12, 1957): 34–54.

³² Crane would eventually also serve as a foreign consultant for Doxiadis’ plan for Iraq. Lefteris Theodosis, “‘Containing’ Baghdad: Constantinos Doxiadis’ Program for a Developing Nation,” in *Ciudad Del Espejismo: Bagdad, de Wright a Venturi = City of Mirages: Bagdad, from Wright to Venturi*, ed. Pedro Azara Nicolás (Barcelona, Spain: Universitat Politècnica de Catalunya, Departament de Composició Arquitectònica, 2008), p. 168. Panayiota Pyla, “Back to the Future: Doxiadis’s Plans for Baghdad,” *Journal of Planning History* 7, no. 1 (February 2008): 6, <https://doi.org/10.1177/1538513207304697>.

³³ Panayiota Pyla, “Ekistics, Architecture and Environmental Politics, 1945-1976: A Prehistory of Sustainable Development” (PhD Dissertation, Massachusetts Institute of Technology, 2002), 18. On Doxiadis, see also Pyla, “Back to the Future”; Panayiota Pyla, “Gossip on the Doxiadis ‘Gossip Square’: Unpacking the Histories of an Unglamorous Public Space,” *Architectural Histories* 1, no. 1 (December 20, 2013): 28, <https://doi.org/10.5334/ah.bb>.

³⁴ C.A. Development Board of the Government of Iraq, “Five Year Basic Foundations Programme: Iraq Housing,” *Ekistics* 16, no. 94 (September 1963): 157–58; Doxiadis Associates, “The National Housing Program of Iraq,” *Ekistics* 7, no. 44 (June 1959): 507. For a comprehensive description of Doxiadis’ National Housing Program of Iraq, see Samah A. Abraham, “Typology of Urban Housing and Politics in Baghdad: From State-Subsidized Housing to Privatized Gated Communities” (Ph.D. Dissertation, University of Cincinnati, 2018), 68–108.

³⁵ Letter from Howard F. Beir to John P. Riley, dated April 2, 1956, subject: Iraq - Development Board Program, H - 48 Iraq - Correspondence Development Board Programs, Reel R 82, Series R: IBEC Microfilm, International Basic Economy Corporation (IBEC) records, RAC.

³⁶ Doxiadis Associates, “Housing and Community Development in Iraq,” *Ekistics* 6, no. 36 (October 1958): 107.

³⁷ Doxiadis Associates, “Experimental Housing Projects” (Baghdad, Iraq: Iraq Development Board, March 1957), 2.

³⁸ Al-Mansur is also spelled Al-Mansour. Letter from Howard Beir to John P. Riley, IHC Chief Engineer and Vice President, dated February 21, 1956, subject: Al-Mansur Construction Co., H - 48 Iraq Al-Mansur Construction Co., LTD. 1956-, Reel R 82, Series R: IBEC Microfilm, International Basic Economy Corporation (IBEC) records, RAC.

³⁹ Letter from John P. Riley to William H. Godson, IHC Area Manager, dated August 30, 1956, subject: 1-Story Experimental Housing Project, , H - 48 Iraq Experimental HAG.SPA/4/56, Reel R 82, Series R: IBEC Microfilm, International Basic Economy Corporation (IBEC) records, RAC.

⁴⁰ Letter from Directorate of Legal Affairs and General Contracts, Development Board and Ministry of Development, Government of Iraq to Al-Mansur Construction Company Ltd. and IBEC Housing Corporation, dated December 12, 1956, subject: 2nd Housing

Experimental Project in Baghdad Contract No. SpA/6/1956, Iraq Experimental Housing SPA/6/56, Reel R 82, Series R: IBEC Microfilm, International Basic Economy Corporation (IBEC) records, RAC.

⁴¹ Cash Required, Iraq Housing, dated October 14, 1954, H - 48 Iraq Financial (Guarantees, Deposits, etc - Insurance), Reel R 82, Series R: IBEC Microfilm, International Basic Economy Corporation (IBEC) records, RAC. The resulting report, "Low-Cost Housing Study for Iraq," included studies and recommendations on climate, orientation, color, wind, shading, and materials. See, Iraq Low-Cost Housing Study for Iraq, IHCORP Projects, Card 2033-16-01, Series J: IBEC Microforms, International Basic Economy Corporation (IBEC) records, RAC. On the Olgyay brothers see Aladar Olgyay, *The Work of Architects: Olgyay and Olgyay* (New York, NY: Reibold Publishing Corporation, 1946); Victor Olgyay et al., *Design with Climate: Bioclimatic Approach to Architectural Regionalism*, New and expanded edition (Princeton: Princeton University Press, 2015). See also Daniel A. Barber, "The Nature of the Image: Olgyay and Olgyay's Architectural-Climatic Diagrams in the 1950s," *Public Culture* 29, no. 1 81 (January 2017): 129–64, <https://doi.org/10.1215/08992363-3644433>.

⁴² Bowman, "A Modern Mesopotamia Is Molded," 52.

⁴³ Untitled document, dated May 6, 1957, Folder 240, Box 23, Sub-series 4: IBEC Housing Corporation, Series 2: IBEC, Rockefeller Family Public Relations Department Papers, RAC.

⁴⁴ Quoted in Letter from John P. Riley to George A. Dudley, dated October 17, 1957, subject: Proposed Meeting with Dr. Doxiadis, H - 48 Iraq - Correspondence Development Board Programs, Reel R 82, Series R: IBEC Microfilm, International Basic Economy Corporation (IBEC) records, RAC.

⁴⁵ Letter from John P. Riley to George A. Dudley, dated October 17, 1957, subject: Proposed Meeting with Dr. Doxiadis, H - 48 Iraq - Correspondence Development Board Programs, Reel R 82, Series R: IBEC Microfilm, International Basic Economy Corporation (IBEC) records, RAC.

⁴⁶ Memorandum from Howard F. Beir to George A. Dudley, dated October 28, 1955, subject: Middle East, Page 3, Reel R 84, Series R: IBEC Microfilm, International Basic Economy Corporation (IBEC) records, RAC.

⁴⁷ On the experience of IHC in Latin America, see Broehl, Jr., *The International Basic Economy Corporation*, 210–18; Renner, "Housing Diplomacy: US Housing Aid to Latin America, 1949-1973," 183–98 and 213–34. On IBEC in Puerto Rico, see Dick O'Neill, "Puerto Rico's Industrial Revolution in Housing," *House & Home* 20, no. 3 (September 1961): 164–65.

⁴⁸ Letter from John P. Riley to George A. Dudley, dated September 28, 1956, subject: Design - Model Houses - Mansur Estates, H - 48 Iraq Al- Mansur Co. Ltd. Model Homes, Reel R 82, Series R: IBEC Microfilm, International Basic Economy Corporation (IBEC) records, RAC.

⁴⁹ Letter from Simon Schmiderer, IBEC architect, to John P. Riley, dated February 2, 1957, subject: Test Panels - Baghdad Houses, H - 48 Iraq Al- Mansur Co. Ltd. Model Homes, Reel R 82, Series R: IBEC Microfilm, International Basic Economy Corporation (IBEC) records, RAC.

⁵⁰ Letter from Harry T. Newcomb to Thurston R. Ackerbloom, dated April 22, subject: Iraq and Iran, 1958 IHC Middle East - General - 1951-1955 - 1956 -, Reel R 84, Series R: IBEC Microfilm, International Basic Economy Corporation (IBEC) records, RAC.

⁵¹ See Box 1, Record Group 1.2, Series 470 Iraq, Series 804 Near East Region Series 812 Egypt, Series 816 Jordan, Series 820 Syria, Series 833 Lebanon, Rockefeller Foundation records, RAC.

⁵² See Peter Relyea Bales, "Nelson Rockefeller and His Quest for Inter-American Unity" (PhD Dissertation, State University of New York at Stony Brook, 1992), 316–31. Centro Interamericano de Vivienda y Planeamiento, "El Cinva-Ram, Maquina Portatil Para Fabricar Bloques de Tierra Establizada," *Ekistics* 5, no. 28 (January 1958): 18–20; Dale Wiehoff, "How the Chicken of Tomorrow Became the Chicken of the World," *Institute for Agriculture & Trade Policy* (blog), March 26, 2013, <https://www.iatp.org/blog/201303/how-the-chicken-of-tomorrow-became-the-chicken-of-the-world>.

⁵³ Agreement between IHC and Development and Resources Corporation, dated May 1, 1958, Iran - Development & Resources Corp, IHC Agreement, Reel R 81, Series R: IBEC Microfilm, International Basic Economy Corporation (IBEC) records, RAC.

⁵⁴ Agreement between IHC and Iraanse Aardolie Raffinage Maatschappij (Iranian Oil Refining Company), dated January 28, 1959, Iran - Iranian Oil Refinery Co. (Contract #CR-002-57) Abadan, Reel R 81, Series R: IBEC Microfilm, International Basic Economy Corporation (IBEC) records, RAC.

⁵⁵ Agreement between IHC and Bank Omran, dated March 3, 1958, Folder 33, Box 33, RG III.4 B, Nelson Rockefeller Personal Papers, RAC.

⁵⁶ Cable from Asdollah Alam, Pahlavi Foundation, to IBEC, dated December 14, 1961, Folder 33, Box 33, RG III.4 B, Nelson Rockefeller Personal Papers, RAC.