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FINAL REPORT

AGRICULTURE RECONSTRUCTION AND DEVELOPMENT PROGRAM FOR IRAQ

ARDI



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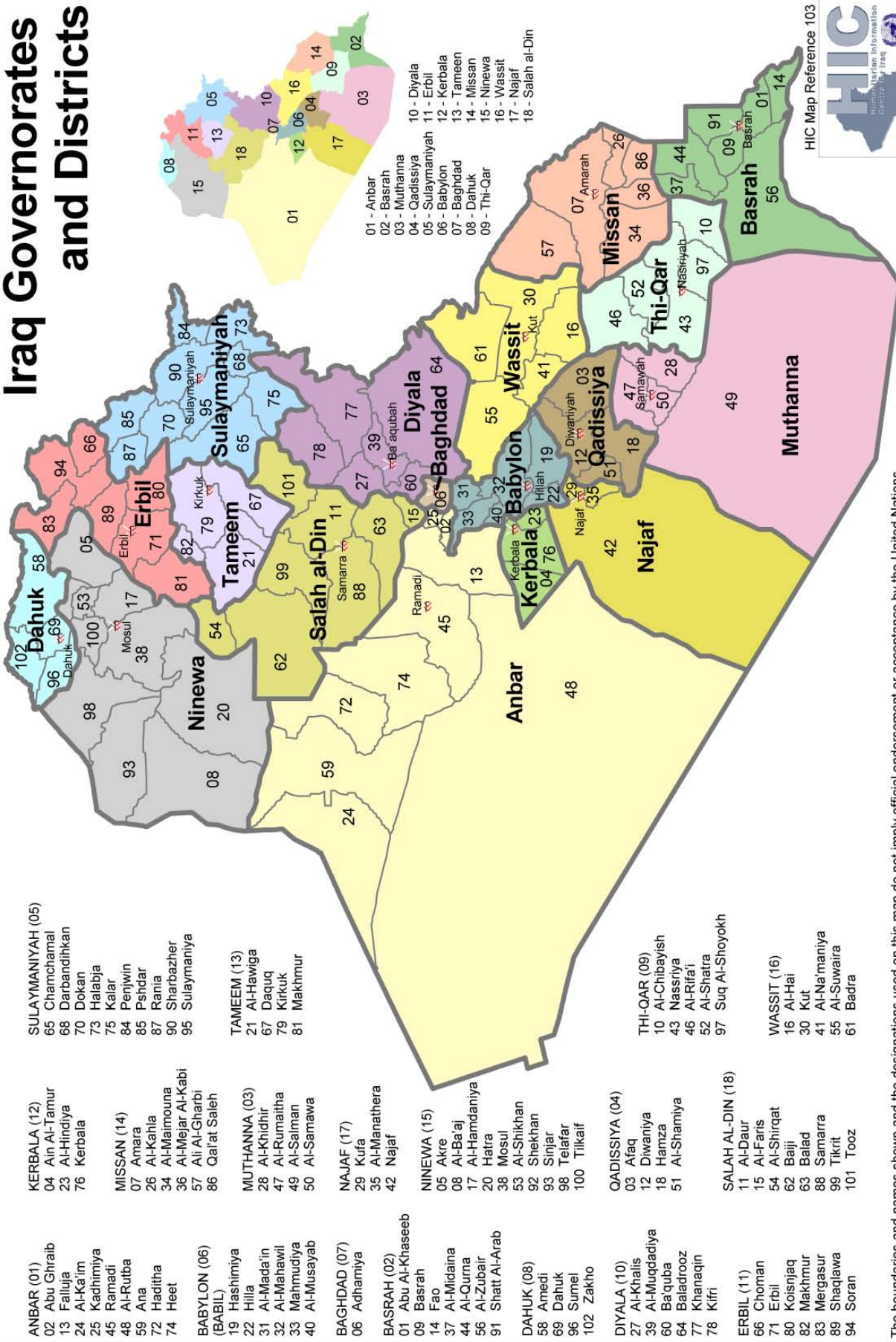


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Iraq Governorates and Districts



HIC Map Reference 103

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations. Produced by the Humanitarian Information Center (HIC). June 1, 2003. To download this map, visit the HIC website: www.humanitarianinfo.org

THE FACES OF ARDI

The many Iraqis who were part of ARDI deserve personal recognition and congratulations for their contributions. Due to security concerns, they remain faceless and nameless in this report to preserve their privacy and protect their identity. This ignominy in no way denigrates or diminishes their dignity or humanity but preserves a certain anonymity to allow them to continue as ordinary citizens in this strife-torn country. They were part of the development process in an extraordinary period in the history of Iraq.

Although ARDI collected specific governorate, district, and village names with GPS coordinates for our activities, these details have been generalized in this report to protect the communities we served.



Throughout this report, we use maps like the above to indicate the governorates where the referenced activities occurred.



Farmer in Basrah

PROGRAM AREAS IN THIS REPORT

ARDI implemented 367 discrete activities (not including individual training events). All were designed to restore and revitalize the agricultural sector, and create new employment and income opportunities for rural residents and businesses. Below is a summary of ARDI project activities by component. More detailed descriptions of activities and results are found in Chapters 2 and 3.

Chapter 4 briefly describes the ARDI's work in Iraq's marshlands. These activities did not form a separate program component, but have been grouped together in this report for clarity. The discussion brings together the results of several activities in the areas of crop demonstrations, fisheries stocking, date palm nurseries, orchard restoration, veterinary clinics, drop irrigation, and canal cleaning into one location.

Chapter 5 presents an evaluation of ARDI's programs against contractually mandated C5 results.

Appendix A list ARDI's 367 program activities, which are organized according to the discussions in Chapters 2 and 3. Appendix B full preliminary report for the *Strategy for Water and Land Resources in Iraq (SWLRI)*. Appendix C is the full version of the Marshlands Monitoring Activities report.

CHAPTER 2

PHYSICAL AND TECHNOLOGICAL IMPROVEMENTS

Agronomic Crop Production: The lack of certified seed, modern farm machinery, pest control methods, soil analysis capabilities, and affordable credit, coupled with unpredictable rainfall and security concerns, have worked to limit the productivity of Iraq's cereal crops.

Improved and cleaned seed leads to increased yields and larger harvests, producing more income for farmers. Improved seed also reduces Iraq's dependence on imported grain, saving the country millions of dollars each year in foreign exchange. ARDI provided technology, inputs, services, demonstrations of improved cultivation methods, and training in all 18 governorates to help Iraq significantly increase the yields of its cereal crops.

Mechanization: One of the major obstacles to developing a modern agricultural system in Iraq is the shortage of properly functioning agricultural machinery. More than 80% of the country's tractor stock is over 16 years old and operating at less than design capacity, which contributes to reduced yields and production.

The use of tractors increases land usage and provides for larger harvests, which results in increased income for farmers and tractor owners, who often rent their tractors during harvest season. ARDI invested in basic repairs to make the tractor fleet operable and trained mechanics to provide these services in the future. This assistance gives both farmers and agribusinesses incentives to invest private equity in a countrywide infrastructure for agricultural machinery.

High-Value Agriculture: The lack of high-quality and affordable planting stock, the reduced capacity of extension services, and farmers' reliance on traditional cultivation methods have hampered fruit and honey production in Iraq. Once orchards and apiaries begin producing, they can help increase farmer incomes, raise revenues for private agribusinesses, meet local demand, replace costly imports, and aid in soil erosion and watershed management efforts.

The program worked with the MOA and farmers to revitalize Iraq's fruit and beekeeping subsectors, which provide livelihood for hundreds of thousands of small farmers. The program established orchards and nurseries, provided seeds and seedlings, and held demonstrations to help farmers, MOA staff, and NGOs learn about improved technologies and horticultural methods.

Water Use Efficiency: The deteriorated water conditions in central and southern Iraq have damaged one of the country's most valuable resources and hurt both farmers and marsh dwellers in the region. Properly functioning irrigation and drainage systems increase land usage, provide for larger harvests, and conserve soil and water, all of which result in increased incomes for farmer.

ARDI worked with the Ministries of Agriculture and Water Resources and farmers to improve water management on agricultural lands. Activities included building the capacity of government staff to plan for the water sector and training farmers to install and operate irrigation systems. The program also directly assisted farmers by rehabilitating thousands of hectares of the country's irrigation infrastructure and increasing access to irrigation systems.

Animal Health and Livestock Production: The lack of previous extension services and breeders' reluctance to give up traditional breeding methods severely limited the productivity of this subsector, which includes thousands of Iraq's poorest farmers.

ARDI focused on working with the MOA and individual livestock breeders to increase production by introducing better breeding methods and training tens of thousands of animal breeders on improved animal care. It also rehabilitated MOA veterinary clinics, established private sector veterinary services, improved sheep dipping tanks, and implemented a large-scale Brucellosis vaccination campaign.

CHAPTER 3

INSTITUTIONAL AND ORGANIZATIONAL IMPROVEMENTS

Capacity Development: Good decisions by the public sector and a proper regulatory framework will form the basis for a sound, market-driven agricultural economy in Iraq, but these decisions must be based on good information and careful analyses.

ARDI trained public officials in such areas as statistical surveys and use of modern tools, and mentored them in advanced mapping and other technologies. Its work on extension and integrated pest management helped both the private and public sectors to move toward national programs in these areas. ARDI's work with the private sector supported the development of

NGOs, cooperatives, and private sector associations to improve the quality of agricultural products and services, while raising local incomes

The remainder of this report presents more comprehensive discussions of ARDI's activities and results. They comport with USAID's Strategic Objectives for the program:

Expanding Private Sector Economic Opportunities: physical and technological improvements: seed production, mechanization, high-value agriculture, water use efficiency, and animal health and livestock production (Chapter 2).

Improve the Capacity of National Government: agricultural information, digitized cadastral system, national extension program, integrated pest management, and water strategy (Chapter 3). This chapter also addresses capacity building activities for the country's non-government organizations, cooperatives, private professional organizations, and other private sector entities.

CHAPTER 4

Restoring the marshlands: This Chapter discusses the major findings of the monitoring team and the activities undertaken in the marshlands to improve the lives of farmers and other marsh dwellers. Fish restocking, restoration and date palm plantation and crop demonstrations are some of the topics in this chapter.

CHAPTER 5

C5 Results:

The results to be achieved by ARDI are listed in Section C5 of the contract. This section identified a series of objectives that will be measured as results of the ARDI program in Iraq. These are discussed in the various chapters in this report. This section and the M&E section discuss these achievements in greater detail.

APPENDIX

APPENDIX A - ARDI GRANTS AND ACTIVITIES

APPENDIX B - STRATEGY FOR WATER AND LAND RESOURCES IN IRAQ (SWLRI) *

APPENDIX C - MARSHLANDS MONITORING ACTIVITIES

* Bound separately

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ANNEX**APPENDIX A - ARDI GRANTS AND ACTIVITIES****APPENDIX B - STRATEGY FOR WATER AND LAND RESOURCES IN IRAQ****Phase I Completion Report**

Volume 1	Executive Summary
Volume 1	Main Report
Volume 2	Phase 2 Work Plan
Volume 3	Annex 1 Review of Phase I Data Sets
Volume 3	Annex 2 Guidance Note 02: Geographic Information Systems and Databases – Strategy for Developing Planning Tools
Volume 3	Annex 3 Guidance Note 05: Opportunities – Data Requirements
Volume 3	Annex 4 Guidance Note 04: Managing Water Resources in Iraq – The Planning Process
Volume 3	Annex 4 Guidance Note 01: Multi-criterion Decision Analysis and Models – Introductory Explanation
Volume 3	Annex 4 Guidance Note 09: Introduction to Cost-Benefit Analysis
Volume 3	Annex 4 Technical Note 05: Possible Water Allocation Model
Volume 3	Annex 4 Guidance Note 10: Preparing Farm Budgets
Volume 3	Annex 4 Guidance Note 03: Irrigation Water Requirements
Volume 3	Annex 4 Technical Report 06: Groundwater
Volume 3	Annex 4 Technical Report 03: Hydraulic and Water Quality Modeling
Volume 3	Annex 4 Technical Report 04: Municipal Water Supply
Volume 3	Annex 4 Guidance Note 06: Forecasting Demand for Municipal and Rural Water Supplies and Wastewater Services
Volume 3	Annex 4 Guidance Note 07: Demand Management for Municipal Supplies
Volume 3	Annex 4 Guidance Note 08: Hydropower Spreadsheet
Volume 4	Annex 16 <i>Technical Report 01: Stream Gage Network Renovation</i>
Volume 4	Annex 1* <i>Technical Report 02: Development of the Tigris-Euphrates Water Management System Model</i>
Volume 4	Annex 18 <i>Technical Report 03: Pilot Trial of ResPRM on Diyala Basin</i>

These technical reports and guidance notes prepared during Phase I are accompanied by a number of associated models and analytical tools. Both the documents and the models are held together on a Claromentis system.

* This report and the final versions of the computer models will be submitted separately.

APPENDIX C - MARSHLANDS MONITORING ACTIVITIES