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An Agricultural Law Research Article

**Planting Peace: Agriculture and
Post-War Reconstruction in Iraq**

by

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PLANTING PEACE: AGRICULTURE AND POST-WAR RECONSTRUCTION IN IRAQ

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I. INTRODUCTION

Agriculture is a means to economic growth, social stability, and individual income in countries around the world. It has become an increasingly complex and demanding endeavor, as well as one of enduring importance. While agriculture, in the best of circumstances, is a challenging trade, a post-conflict environment significantly multiplies both the reliance on its product and the extreme difficulty in its production.¹ Virtually every country has dealt with such challenges and in the multi-conflict world of today, post-conflict agriculture demands immediate attention and analysis.

This Note will discuss the importance of addressing a nation's agricultural sector in post-war reconstruction. It will do so by outlining the historic role of agriculture in Iraq, its gradual decline, and the devastating effects war has manifested on agriculture. The Note will then discuss the efforts that have been made in Iraq to revitalize the nation's agriculture, the problems that will continue to demand attention, and the historic lessons of other post-war agricultural reconstruction successes that may be drawn from and applied in Iraq's ongoing efforts.

II. THE SIGNIFICANCE OF AGRICULTURE POST-CONFLICT

A. *The Devastating Effects on Agriculture Due to War-Time Neglect*

The necessities of life to which agriculture is essential to sustain, such as food, income, and stability, are put under significant strain by the weight of war.² During war, leaders' attentions are drawn from social issues, and the agricultural sector will often be neglected, leaving malnourished citizens and a vacillating economy.³ In Liberia, for example, public health was severely compromised by the devastating effects of fifteen years of war and conflict on its drinking water and sewage systems.⁴ Money that may have otherwise found its way into stabi-

1. Fred Pearce, *Return to Eden*, NEW SCIENTIST, Jan. 22, 2005, at 35.

2. *See Iraqi Harvest up but Half the People Still Hungry*, THE NEW FARM, Sept. 24, 2003, http://www.newfarm.org/international/news/090103/092203/ir_harvest_print.shtml.

3. *Id.*

4. Press Release, United Nations Environment Programme, *Restoring the Battered and Broken Environment of Liberia One of the Keys to a New and Sustainable Future* (Feb. 13, 2004), available at <http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=384&ArticleID=4411&l=en>.

lizing the nation's infrastructure, like clean water and food, is diverted to fund the war effort.⁵ As war lingers, attention and money continue to stray from concerns such as agriculture.⁶ Poverty and lack of food security are inevitable by-products of the destruction left in the wake of an advancing army's complacent boot.⁷ These footprints scar the farmable land, leaving behind significant damage to be remedied by the healing hand of the reconstruction effort.⁸

B. An Unstable Agriculture May Lead to Further Conflict

Revitalizing a war-torn agricultural sector is essential to establishing a landscape in which peace may flourish.⁹ The by-product of war is often a highly volatile nation, uniquely susceptible to fueling the flames of conflict with a single spark of dissension.¹⁰ Money and food are often scarce, and citizens are impelled by their survival instincts.¹¹

The lack of a stable infrastructure, or the ability to tend to the basic needs of the people, can often trigger further conflict.¹² The Russian revolution, for instance, was in part an answer to the immediate need for survival of Russian citizens who were faced with a bread shortage in Moscow and Leningrad.¹³ In Afghanistan, where eighty-five percent of the population makes their living in agriculture, the prospect for a lasting peace could not be realized without first reaching resolution of the land-tenure problem that faced many of the nation's

5. See generally Bill Berkowitz, *Dan Amstutz: Iraq's Agriculture Czar*, WORKING FOR CHANGE, June 25, 2003, available at <http://www.workingforchange.com/article.cfm?Itemid=15213> (discussing the \$3 billion in loans Iraq owes the USDA and the poor state of Iraqi agriculture).

6. Forrest Laws, *Rebuilding Iraq's Agriculture Will Be Major Challenge*, DELTA FARM PRESS (May 9, 2003), http://deltafarmpress.com/mag/farming_rebuilding_iraqs_agriculture/.

7. M TAEB, UNITED NATIONS UNIVERSITY – INSTITUTE OF ADVANCED STUDIES, AGRICULTURE FOR PEACE: PROMOTING AGRICULTURAL DEVELOPMENT IN SUPPORT OF PEACE 13 (2004).

8. See KLAUS TOEPFER, UNITED NATIONS ENVIRONMENT PROGRAMME, IN DEFENCE OF THE ENVIRONMENT, Putting Poverty to the Sword, <http://www.unep.org/Documents/Default.Print.asp?ArticleID=3810&DocumentID=288> (last visited Nov. 9, 2005) (discussing environmental consequences, the loss of human life, and the suffering of individuals to be a first concern in the post-war country).

9. See M TAEB, *supra* note 7 (discussing relation of agricultural development to a peaceful and stable environment).

10. See Craig Raborn, *Rebuilding Post-War Iraq with Livable Communities and Democratic Local Governance*, PRAGUE INST. FOR GLOBAL URBAN DEV., <http://www.pragueinstitute.org/iraq.htm> (last visited Nov. 9, 2005).

11. See *id.*

12. *Id.*

13. *Id.*

farmers.¹⁴ A similar realization was reached regarding Iraq: “If these property disputes are not addressed as a matter of urgency, rising tensions between returning Kurds and Arab settlers could soon explode into open violence.”¹⁵ The principle is simple: the promise of peace and democracy is empty without first meeting the basic needs of human beings.¹⁶

C. Addressing Post-War Agriculture Improves “Livability”

Craig Raborn champions a derivative theory suggesting that reconstruction should focus on the concept of “livability,” which refers to the core needs of people to be safe, educated, empowered, and to live in healthy environments.¹⁷ As of 2000, thirty percent of the world’s urban residents lacked access to safe drinking water and fifty percent had inadequate sanitation facilities.¹⁸ Waterborne diseases that result from such conditions are responsible for five to twelve million deaths each year.¹⁹ This type of infrastructure instability is often the result of prolonged conflict and continues to escalate, as it did in Liberia, as war marches on.²⁰ According to Raborn, “communities that are overcome by conflict and disruption, lacking technical knowledge, resources, and the rule of law can become centers of strife and societal unrest.”²¹ Revitalizing post-conflict agriculture goes to the core of Raborn’s concept of livable communities by providing answers to economic, health, and environmental concerns.²²

Agriculture’s role in post-war reconstruction is a vital one.²³ It addresses the demands of the citizenry for security in food and income, clean drinking water, and a healthy environment.²⁴ Efforts to rebuild the agricultural sector also

14. LEIF OHLSSON, ENVIRONMENT & DEVELOPMENT CHALLENGES NEWS, AFGHANISTAN: LAND DISPUTES MAJOR SOURCE OF CONFLICT, May 15, 2003, <http://www.edcnews.se/Cases/AfghLandDisputes.html>.

15. Press Release, Human Rights Watch, Iraq: In Kurdistan, Land Disputes Fuel Unrest (Aug. 3, 2004), available at http://hrw.org/english/docs/2004/08/03/iraq9174_txt.htm (quoting Sarah Leah Whitson, Executive Director of Human Rights Watch’s Middle East and North Africa division).

16. See generally M TAEB, *supra* note 7 (discussing food insecurity and suffering of people leading where violence is inevitable).

17. Raborn, *supra* note 10. Craig Raborn has been an American Planning Association’s Fellow and a political analyst for the United States Army in Bosnia in 1998 and 1999. He is a community planning consultant and a member of the American Institute of Certified Planners.

18. *Id.*

19. *Id.*

20. See United Nations Environment Programme, *supra* note 4.

21. Raborn, *supra* note 10.

22. *Id.*

23. See *id.*

24. *Id.*

serve to decrease the likelihood of further conflict in a volatile, war-torn nation by providing for these basic human needs of sustenance and stability.²⁵

III. IRAQI AGRICULTURE

The significance of agriculture in post-war reconstruction escalates vis-à-vis that sector's role in the nation antebellum.²⁶ Those nations which rely heavily on agriculture for their prosperity will certainly shoulder a great weight in its destruction.²⁷ Likewise, in countries where agriculture has been neglected and allowed to decline, the effects of war will serve as catalysts to send an already failing sector deeper into a state where revitalizing it will be further complicated by the lack of a successful model.²⁸

In Iraq, agriculture employed more than half the total labor force and contributed to about eight percent of the country's gross domestic product ("GDP") in 1976.²⁹ However, continuing Iraqi efforts to modernize and develop their agricultural sector have proved ineffective.³⁰ Ten years later, in 1986, and after more than \$4 billion spent on agricultural development, the agricultural sector still constituted only 7.5% of the country's total GDP, and this was still expected to decline.³¹ Iraqi manpower devoted to agriculture had declined by this time to only thirty percent of the total labor force.³² The country's agriculture began to be eclipsed by its expanding oil sector, which was responsible for boosting the total GDP.³³

Iraq's fruitless disregard of its agriculture is illustrated by its increased dependence on food imports.³⁴ The nation strayed from being self-sufficient in agricultural production in the 1950s, to importing fifteen percent of its food sup-

25. *Id.*

26. See Press Release, USAID Press Office, USAID Awards Contract for Agricultural Reconstruction and Development (Oct. 21, 2003) (discussing the program for agricultural reconstruction in Iraq), available at <http://www.usaid.gov/press/releases/2003/pr031021.html>.

27. See USAID, ASSISTANCE FOR IRAQ, AGRICULTURE, (Sept. 14, 2005), <http://www.usaid.gov/iraq/accomplishments/agri.html> (describing Iraq's agricultural sector).

28. See AGROECOLOGY RESEARCH GROUP, CASE STUDIES: POST-WAR RECONSTRUCTION USING SUSTAINABLE AGRICULTURE IN CHALATENANGO, EL SALVADOR, Oct. 1, 2003 (discussing the effects of war on the agriculture of Chalatenango, El Salvador), available at <http://www.agroecology.org/cases/montanona.htm>.

29. U.S. LIBRARY OF CONG., IRAQ-AGRICULTURE, available at <http://countrystudies.us/iraq/57.htm>.

30. *Id.*

31. *Id.*

32. *Id.*

33. *Id.*

34. *Id.*

plies in the 1960s, thirty-three percent in the 1970s, and allowing food imports in the 1980s to account for twenty-two percent of its total imports.³⁵ Despite this trend, some promise was seen in production levels of Iraq's key grain crops, which remained stable from the 1960s through the 1980s, by increasing yields while cultivating less land.³⁶ The situation, however, did not improve in the years that followed.³⁷ Agriculture levels in Iraq have declined by 2.6% each year since 1990.³⁸ In addition, food imports have risen to fifty percent.³⁹

Agriculture has always been at the forefront of the Iraqi economy as a result of twenty-seven percent of its land being suitable for cultivation, more than half of this land usually enjoying plentiful rainfall.⁴⁰ Unfortunately, this landscape did not prove enough to thwart the decline of Iraq's agriculture.⁴¹ The country suffered a severe drought from 1999 through 2001, and the variability in rainfall attributed to fluctuations in harvests.⁴² While Iraq has the ingredients necessary for successful agricultural growth, the restriction on water supply, caused by Syrian and Turkish dam building on the Tigris and Euphrates rivers, has also limited some of the nation's potential.⁴³ Furthermore, Iraq's lack of resource utilization can be traced to a lack of adequate farm machinery and equipment, outdated technology, and a lack of economic incentive.⁴⁴

IV. THE EFFECTS OF A DICTATOR ON IRAQI AGRICULTURE

Most of the factors that have contributed to the decline of Iraqi agriculture can be traced back to a single source: Saddam Hussein's reign over the country and the years of conflict that punctuated his tenure.⁴⁵ "Wherever war breaks out, farmers are forced off their land."⁴⁶ Iraq was no exception; farmers

35. *Id.*

36. *Id.*

37. See IRAQ DEVELOPMENT PROGRAM, AGRICULTURE & ENVIRONMENT (2005), <http://www.iraqdevelopmentprogram.org/idp/industry/agricul.htm>.

38. *Id.*

39. *Id.*

40. *Id.*

41. *Id.*

42. THE NEW FARM, *supra* note 2; U.S. LIBRARY OF CONG., *supra* note 29.

43. U.S. LIBRARY OF CONG., *supra* note 29.

44. IRAQ DEVELOPMENT PROGRAM, *supra* note 37.

45. See generally Toepfer, *supra* note 8 (discussing the environmental destruction of warring factions and displaced civilian populations). See United Nations Environment Programme, Governing Council, *Updated Scientific Report on the Environmental Effects of the Conflict Between Iraq and Kuwait*, ¶ 43, UNEP/GC.17/Inf.9 (March 8, 1993) (discussing the impacts of war and Saddam Hussein's rule on farmable land and environment).

46. Pearce, *supra* note 1.

were forced off their land both by the destructive winds of war and the violent hand of Hussein's government.⁴⁷ The government, under the dictator's rule, exercised perilous control over the nation's farmers and set prices so low as to drain the agricultural incentive, as well as the ability to purchase and apply necessary inputs like phosphate and potassium fertilizer, saline-resistant feedstock, and good veterinary practices.⁴⁸ The regime essentially created a failing "collective farming" state.⁴⁹ Although the callous hand of the dictator insisted upon control over the nation's agriculture, "Hussein clearly had his mind on other things."⁵⁰

A. *Sanctions and the Economic Effect*

The effects of war and the drain on Iraq's economy through economic sanctions imposed as a result of Saddam Hussein's defiance proved detrimental to the standard of life that many Iraqi citizens would endure.⁵¹ Hussein's misuse of funds earmarked for agricultural development is demonstrated by the \$3 billion in bad loans and interest charges that Iraq owes the United States Department of Agriculture (USDA),⁵² but the rapid decline in agricultural production after the Gulf War is a direct result of the United Nations sanctions placed on Iraq.⁵³ The United Nations Security Council adopted Resolution 661 in August, 1990, which imposed sanctions on Iraq following its invasion of Kuwait and its refusal to adequately disarm.⁵⁴ The sanctions prevented all importation of commodities and products originating in Iraq (or Kuwait) and exportation or sale of any commodities or products to Iraq (to include monetary funds), with the limited exception of humanitarian aid.⁵⁵ In the aftermath of the Gulf War (in the early 1990s), Iraqis were enduring significant food shortages and paid \$0.12 a

47. *Iraqi Paper Says Energy Crisis Threatens Agriculture*, BBC MONITORING INT'L REPORTS, Jan. 19, 2005 (discussing how farmers were forced to desert their land because of war damage). See also *Iraqi Farmers Hope for Land Returns*, AUSTRALIAN BROAD. CORP. – RURAL NEWS, Jan. 28, 2005, available at <http://www.abc.net.au/rural/news/stories/s1291124.htm> (last visited Nov. 11, 2005) (quoting a man who was forced off his land by Saddam Hussein's government).

48. Laws, *supra* note 6.

49. Berkowitz, *supra* note 5.

50. Laws, *supra* note 6.

51. See *Iraqi THE NEW FARM*, *supra* note 2 (discussing the population's access to food).

52. See Berkowitz, *supra* note 5.

53. *Id.*

54. U.N. OFFICE OF THE IRAQ PROGRAMME, OIL FOR FOOD: ABOUT THE PROGRAMME (2005), available at <http://www.un.org/Depts/oip/bankground/index.html>. See also S.C. Res. 661, U.N. Doc. S/RES/661 (Aug. 6, 1990).

55. S.C. Res. 661, *supra* note 54, at ¶ 3.

month for their food ration, which consisted of flour, rice, vegetable oil, and poultry.⁵⁶

In 1991, the United Nations proposed measures to allow Iraq to sell limited quantities of oil in order to meet the needs of its people, which Hussein's government declined.⁵⁷ In April, 1995, the Security Council adopted Resolution 986, establishing the oil-for-food program and again offered Iraq the opportunity to sell oil to finance humanitarian needs.⁵⁸ The program began with the first oil export from Iraq in December, 1996, and permitted Iraq to sell \$2 billion worth of oil every six months, with two-thirds of that amount to be used for Iraq's humanitarian needs.⁵⁹ The ceiling on the amount of oil Iraq was allowed to sell was raised by the Security Council to \$5.26 billion in 1998, and was completely removed in 1999.⁶⁰ Theoretically, this meant that Iraqi citizens' need for food and other necessities of life would be addressed and alleviated with the increasing revenues from the oil-for-food program.⁶¹ In reality, "[t]he arrangement actually helped strengthen [Saddam Hussein's] chokehold at home."⁶²

Under the program, Hussein would negotiate his own contracts to sell the oil, allowing him to choose his own foreign customers; he would then determine what humanitarian supplies he would purchase, strike his own deals to do so, and choose the bank that would handle the funds.⁶³ There was also no requirement for disclosure of such basic information as the names of individual contractors or the price, quality, or quantity of goods involved in any deal.⁶⁴ The U.N. also did not disclose interest paid on the oil-for-food accounts, which held balances of more than \$12 billion toward the end of the program.⁶⁵ This structure allowed Hussein to sell oil at below-market prices to his hand-picked customers, who could then sell the oil to third parties at a large profit, part of which they would kick back to Hussein as a "surcharge."⁶⁶ Hussein's government ultimately

56. Laws, *supra* note 6 (quoting Dan Amstutz, U.S. senior ministry advisor for agriculture in Iraq).

57. U.N. OFFICE OF THE IRAQ PROGRAMME, *supra* note 54.

58. *Id.*

59. *Id.*

60. *Id.*

61. *See id.* (stating that the purpose of the program is to be a "temporary measure to provide for the humanitarian needs of the Iraqi people").

62. Claudia Rosett, *The Oil-for-Food Scam: What Did Kofi Annan Know, and When Did He Know It?*, COMMENTARY, May 1, 2004, at 15.

63. *Id.*

64. *Id.*

65. *See id.* (discussing the secretariat's responsibilities in the oil for food project).

66. *Id.*

skimmed off billions of dollars for itself in proceeds that were supposed to have been spent on food and the humanitarian needs of Iraqi citizens.⁶⁷

B. *The Physical Effects of War*

Furthermore, constant air-raids and bombing runs from Hussein's opposition led to the complete destruction of Iraq's infrastructure.⁶⁸ Once one of the largest exporters of dates, Iraq became an importer of fruits and vegetables as farmers were forced to desert their land due to excessive damage caused by war.⁶⁹ The food shortages, due in large part to the sanctions imposed on Iraq, were exacerbated by the lack of refrigeration coupled with the crippling effects of war on Iraq's electricity-dependent and highly mechanized agriculture.⁷⁰ As a result of the Iraq/Kuwait conflict, power stations were inoperable, water installations were devastated, and the country's oil production and storage facilities were seriously ailing.⁷¹ Inoperable water drainage pumps led to an accumulation of water and increased soil salinity in many agricultural fields.⁷² Iraq was virtually void of fertilizers and other important agricultural inputs⁷³ as a result of the destruction of the factories that produced them.⁷⁴ Bombing of industrial plants spilled toxic chemicals into the country's soil and streams.⁷⁵ The lack of pesticide production led to pest infestation of the crops, causing a forty percent reduction of Iraq's main wheat crop.⁷⁶ Livestock suffered from serious epidemics like rinderpest.⁷⁷

67. *Id.*

68. *See* Laws, *supra* note 6 (discussing the current task of the U.S. Army engineers in rebuilding Iraq's infrastructure due to war-caused damage).

69. *Iraqi Paper Says Energy Crisis Threatens Agriculture*, *supra* note 47.

70. Henry Shue & David Wippman, *Limiting Attacks on Dual-Use Facilities Performing Indispensable Civilian Functions*, 35 CORNELL INT'L L.J. 559, 568 (2002) (citing *Needless Deaths in the Gulf War, Civilian Casualties During the Air Campaign and Violations of the Laws of War*, available at www.hrw.org); *see also* Report to the Secretary-General on Humanitarian Needs in Kuwait and Iraq in the Immediate Post-Crisis Environment, U.N. Doc.S/22366, at 5, ¶ 8 (1991)).

71. United Nations Environment Programme, *supra* note 45.

72. *Id.* at ¶ 43(a).

73. *See* Laws, *supra* note 6.

74. United Nations Environment Programme, *supra* note 45, ¶ 43(b).

75. *Id.* at ¶ 43(c).

76. *Id.* at ¶ 43(d).

77. CBWinfo.com, *Secondary Biological Agents: Rinderpest to Substance P*, <http://www.cbwinfo.com/Biological/Pathogens/SecondaryBW/SecRS.html> (noting that rinderpest is a highly infectious disease of a wide range of cattle, buffalo, antelopes, and other cloven-hoofed animals).

Furthermore, sheep were over-slaughtered or taken to bordering countries in seeking higher prices.⁷⁸

V. THE POST-WAR STATE OF IRAQI AGRICULTURE

A. *A Nation in Need of Food*

Iraq is a nation in need. As of September 24, 2003, nearly half of the country's 26.3 million people were estimated to be poor and faced insecurity over food.⁷⁹ Chronic malnutrition encompassed several million citizens and refugees.⁸⁰ The World Food Programme ("WFP") estimated that by 2004, 3.5 million Iraqis would need supplemental food at a cost of \$51 million.⁸¹ The organization specified that malnourished children, their families, and pregnant mothers were most in need of such assistance.⁸²

The WFP and the United Nations Food and Agriculture Organization ("FAO") reported that a devastating sixty percent of the population was unemployed and depended largely on food rations purchased through the oil-for-food program, which was falling short of the people's needs under Hussein's covetous clutch.⁸³ The market had seen prices either double or triple, further undercutting even the scarce working family.⁸⁴ Although one obvious goal was to eventually phase out the highly subsidized food basket policy, the report recognized that the program would need to remain in place for a considerable time until progress could be made in the reconstruction of the nation's agriculture.⁸⁵

B. *A Nation in Need of Water*

In addition, the availability of sanitized water was an immediate problem for post-war Iraq.⁸⁶ A maximum of seventy liters of water per person per day was available to the five million inhabitants of Baghdad, and the situation was worse in southern Iraqi cities.⁸⁷ In fact, only forty-six percent of Iraqis in rural

78. United Nations Environment Programme, *supra* note 45, ¶ 43(d).

79. See THE NEW FARM, *supra* note 2; see also IRAQ DEVELOPMENT PROGRAM, *supra* note 37 (noting that over 50% of the population is affected by insecurity over food).

80. THE NEW FARM, *supra* note 2.

81. *Id.*

82. *Id.*

83. *Id.* See also U.N. OFFICE OF THE IRAQ PROGRAMME, *supra* note 54.

84. See THE NEW FARM, *supra* note 2.

85. See *id.*

86. See *id.*

87. *Id.*

areas had access to *potable* water, and a large percentage lacked safe sewage facilities.⁸⁸ Waterborne diseases are imminent threats in these conditions.⁸⁹

C. *A Nation in Need of Agriculture*

Military and political incidents during the war also impacted the sowing of summer cereals and crops such as cotton and sunflower seeds.⁹⁰ Analysts expected the 2003 barley and wheat harvests to drop from the pre-Gulf War levels of 1.8 million tons and 1.2 million tons, respectively, to 700,000 and 800,000 tons.⁹¹ Although 600,000 tons of fertilizer was projected to be needed for cereals alone in 2004, two fertilizer factories were no longer operating.⁹² Only half of Iraq's 29.7 million acres were under cultivation, and farmers were only irrigating half of the 8.1 million acres of land that could be watered.⁹³

The potential existed for a strong agriculture, but the evident neglect of the sector had been multiplied by the tides of war, and recession of these effects would take considerable time.⁹⁴ There had been a serious lack of agricultural inputs, farm machinery, and equipment.⁹⁵ The increased soil salinity required attention, and economic incentives for farmers to modernize had not been inspiring.⁹⁶ There was no shortage of agricultural issues awaiting those who would choose to address them.

VI. THE SEEDS OF RECONSTRUCTION

A. *Operation Iraqi Freedom and the Commitment to Reconstruction*

On March 20, 2003, the first of what would ultimately amount to 300,000 coalition troops began the march toward Iraq's capital city of Baghdad under the banner of Operation Iraqi Freedom.⁹⁷ Hussein's government had again invited war, and it took coalition forces until May 1, 2003 to secure the capital

88. Press Release, M2 Presswire, Iraq: World Bank Grant to Help Address Water Shortages in Rural Communities, (Dec. 18, 2004), <http://web.worldbank.org>.

89. *Id.*

90. THE NEW FARM, *supra* note 2.

91. Laws, *supra* note 6.

92. THE NEW FARM, *supra* note 2.

93. Laws, *supra* note 6.

94. *See id.* *See also* THE NEW FARM, *supra* note 2.

95. Laws, *supra* note 6.

96. *Id.*

97. INFOPLEASE, *Fact Sheet: Iraqi War*, <http://infoplease.com/ipa/A0908900.html> (stating that the coalition consisted of about 255,000 U.S., 45,000 British, 2,000 Australian, and 200 Polish troops).

city and ultimately eradicate the iniquitous regime.⁹⁸ Following major combat operations in Iraq (which officially ended on May 1, 2003), it was the United States which chose to shoulder the mass of Iraq's agricultural burden, devoting both time and money to its reconstruction.⁹⁹ Many departments and agencies within the United States have aided in the project to rebuild Iraq.¹⁰⁰ Then U.S. Agriculture Secretary Ann M. Veneman¹⁰¹ selected Dan Amstutz to serve as the senior ministry advisor for agriculture in the reconstruction effort and to act as liaison between her and military officials on the ground. Amstutz was appointed under the belief that he would help achieve the national objective of creating a democratic Iraq.¹⁰² Amstutz has held positions with agricultural corporations and organizations along with U.S. government positions.¹⁰³

Control over Iraq's economy essentially fell into the United States' hands after the United Nations lifted its sanctions on Iraq.¹⁰⁴ Upon securing the country, a coalition authority took charge, and the U.N. Security Council adopted Resolution 1483, which recalled all previous resolutions imposing economic sanctions on Iraq and gave the Secretary General the authority to appoint a representative to work with the Coalition Authority in rebuilding Iraq.¹⁰⁵ As a result, the U.S.-led reconstruction effort would benefit from the freeing of billions of dollars in previously frozen oil revenues which would now be used in the rebuilding process.¹⁰⁶ However, the country was war-torn and the non-operating oil fields promised scarce future revenues.¹⁰⁷ Amstutz, an advocate of a market-oriented agri-

98. *See id.*

99. *See* Press Release, USDA, Amstutz Named to Lead U.S. Agricultural Reconstruction Efforts in Iraq (Apr. 21, 2003), available at <http://usinfo.state.gov/xarchives/display.html?p=washfileenglish&y=2003&m=April&x=20030421173959ennocmk0.3930475&t=xarchives/xarchitem.html>.

100. *Id.* The U.S. Departments of Agriculture, Defense, Health and Human Services, Interior, Treasury, Justice, and State, and the Office of Management and Budget ("OMB"), the Army Corps of Engineers, and the U.S. Agency for International Development have all significantly contributed to the rebuilding of Iraq.

101. Mike Johanns was confirmed as the new U.S. Secretary of Agriculture in January, 2005. *Profile: Secretary of Agriculture Mike Johanns*, ABC NEWS, Jan. 20, 2005, <http://www.abcnews.go.com/Politics/print?id=298086>.

102. USDA, *supra* note 98.

103. *Id.* Amstutz has worked for Cargill, Goldman Sachs and Company, the International Wheat Council, the North American Export Grain Association, and the U.S. government as both the USDA Undersecretary for International Affairs and Commodity Programs, and Ambassador and Chief negotiator for agriculture during the Uruguay Round General Agreement on Tariffs and Trade ("GATT") talks.

104. Berkowitz, *supra* note 5.

105. S.C. Res. 1483, ¶¶ 8, 10, U.N. Doc. S/RES/1483 (May 22, 2003).

106. Berkowitz, *supra* note 5.

107. *See id.*

cultural system that equates to open and fair competition in agricultural products, believed that the future of food production in Iraq was dependent upon getting those fields up and running.¹⁰⁸ The oil, fuel, and turbines were necessary to generate the power required to mill wheat into flour and pump water to irrigation areas.¹⁰⁹

B. *The Agriculture Reconstruction and Development for Iraq Program*

The U.S. Agency for International Development (“USAID”) has primarily spear-headed the United States’ effort to rebuild Iraq, hoping to expand economic opportunities throughout the country.¹¹⁰ Recognizing the importance of agriculture in this objective, USAID developed the Agriculture Reconstruction and Development for Iraq program (“ARDI”).¹¹¹ The program’s intention was to restore or rebuild old markets and build new markets that allow for private sector growth.¹¹² The program’s approach was to accept bids on the overall agricultural reconstruction effort from private and state-sponsored organizations from around the world, based on a one-year program and a \$40 million budget.¹¹³ A pre-bid conference answered questions from potential bidders, and indicated that, to a great extent, the winning bidder would exercise significant freedom in its decision making.¹¹⁴

On October 21, 2003, USAID awarded the ARDI contract to Maryland-based Development Alternatives, Inc., with an initial award of \$5 million.¹¹⁵ The reconstruction effort would follow a two-phase system prescribed by USAID.¹¹⁶ The first phase would last three months and focus on quick-impact activities to stimulate agricultural production and contribute to food security, such as the supply of critical agricultural inputs including seeds, fertilizer, and irrigation equip-

108. *Id.*

109. *Id.*

110. See U.S. Agency for International Development, Pre-Bid Conference on the Agriculture Reconstruction and Development for Iraq (“ARDI”) RFP (June 17, 2003) (transcript available at http://www.usaid.gov/iraq/vid_live061703_t.html).

111. *See id.*

112. *See id.*

113. *Id.*

114. *See id.* (answering questions regarding field and laboratory methods, ways to improve mechanization of Iraqi agriculture, and dealing with soil salinity problems with indications that these issues will be decided by the grantee of the contract).

115. USAID Press Office, *supra* note 26.

116. *Id.*

ment.¹¹⁷ The next eight months, phase two, would focus on long-term rehabilitation and sustainability of the agricultural sector.¹¹⁸

C. *The Seeds Begin to Sprout: Successes in Agricultural Reconstruction*

1. *Grains and Livestock*

These strategies showed some early signs of success.¹¹⁹ The 2003 cereal production in Iraq was forecasted at 4.12 million tons, a twenty-two percent increase from the 2002 estimation.¹²⁰ The increase was credited to favorable rains, as well as timely distribution of agricultural inputs in some of the primary producing areas.¹²¹

The following year, USAID awarded two grants to Iraqi-operated organizations in order to further agricultural development in northern Iraq.¹²² In addition to renovating several veterinary clinics in Kirkuk, Fallujah, and other cities, a grant was awarded to a state-owned veterinary clinic in As Sulaymaniyah to install four sheep dipping tanks in four local villages in efforts to improve livestock breeding.¹²³ The dipping tanks were expected to increase wool value by up to fifty percent, which would significantly increase the quality of life for the area's nearly 500 shepherds who tend to more than 30,000 sheep.¹²⁴ Technology grants were awarded to the Iraqi Ministry of Agriculture and university agriculture and veterinary science programs to equip computer centers for research and consultation capacity.¹²⁵ USAID also gave money to a nongovernmental organization in As Sulaymaniyah to rehabilitate an orchard station.¹²⁶ Forty thousand elite date palm offshoots are being used to establish mother orchards in regions throughout Iraq to establish a national register of elite varieties.¹²⁷

117. *Id.*

118. *Id.*

119. See THE NEW FARM, *supra* note 2.

120. See *id.*

121. See *id.*

122. See generally ASSISTANCE FOR IRAQ, *supra* note 27 (discussing the implementation of activities to stimulate Iraq's agricultural sector).

123. USAID, IRAQ RECONSTRUCTION WEEKLY UPDATE, AGRICULTURE (Oct. 28, 2004), www.usaid.gov/iraq/updates/mar05/iraq_fs18_030305.pdf; see also ASSISTANCE FOR IRAQ, *supra* note 27 (discussing broader aspects of USAID's initiatives in Iraq's agricultural sector).

124. USAID, IRAQ RECONSTRUCTION WEEKLY UPDATE, AGRICULTURE (Oct. 7, 2004), www.usaid.gov/iraq/; see also ASSISTANCE FOR IRAQ, *supra* note 27.

125. ASSISTANCE FOR IRAQ, *supra* note 27.

126. USAID, IRAQ RECONSTRUCTION WEEKLY UPDATE, AGRICULTURE (Oct. 28, 2004), http://www.usaid.gov/iraq/updates/oct04/iraq_fs04_102804.pdf.

127. ASSISTANCE FOR IRAQ, *supra* note 27.

2. Water

In December 2004, USAID announced the completion of its “\$23 million rehabilitation of southern Iraq’s [149-mile] Sweet Water Canal.”¹²⁸ The massive cleansing and repair project included refurbishment of thirteen water treatment plants and the repair of a pumping station that sends water from the canal’s reservoir to residential, commercial, and agricultural users.¹²⁹ This success improves the quality and nearly doubles the quantity of potable water available to the 1.75 million inhabitants of the Basrah region.¹³⁰ The World Bank proposed to continue attacking the water problems in Iraq by providing a \$20 million grant to Iraq in order to fund about “twenty-five water development programs to upgrade water supply, sanitation, irrigation, and drainage infrastructure” elsewhere in the country.¹³¹ As of February 2005, “irrigation [was] flowing over more acres, and more crops [were] blooming.”¹³²

3. Education

USAID’s efforts also included a wide range of educational initiatives aimed at improving the skills of Iraqi farmers.¹³³ A project to improve beekeeping drew eighty-eight farmers and beekeepers to a six-day training course in As Sulaymaniyah.¹³⁴ In addition, more than 150 Iraqi farmers, including women, attended six field days of demonstrations on new practices and technologies for improving the growth of the popular, leafy vegetable known as Swiss chard.¹³⁵ Similar summer and winter crop technology demonstrations were going on throughout the nation.¹³⁶ In January 2005, USAID agreed to continue the educa-

128. Press Release, USAID, Sweet Water Canal Restriction Complete (Dec. 16, 2004), <http://www.usaid.gov/press/releases/2004/pr041216.html>.

129. *Id.*

130. *Id.*

131. Press Release, M2 Presswire, Iraq: World Bank Grant to Help Address Water Shortages in Rural Communities (Dec. 18, 2004), <http://worldbank.org>.

132. James Flanigan, *Hussein’s Legacy Still Mars Iraq’s Economy*, L.A. TIMES, Feb. 6, 2005, at C1.

133. USAID, IRAQ RECONSTRUCTION WEEKLY UPDATE, AGRICULTURE (Oct. 7, 2004), <http://www.usaid.gov/iraq>; *see generally* ASSISTANCE FOR IRAQ, *supra* note 27 (discussing the broader aspects of the Iraqi assistance program).

134. *Id.*

135. *Id.*

136. *Id.*

tional demonstrations in Iraq by establishing over 100 demonstration sites throughout the country to reinvigorate crops and increase rural jobs.¹³⁷

4. *The Military Contribution*

United States servicemen and women have also contributed to the agricultural reconstruction effort in Iraq.¹³⁸ The 256th Brigade Combat Team, as of December 2004, had brought in 434 tons of very high grade wheat seed, which it was distributing as part of Operation Amber Waves, a program to revitalize agriculture in an area just west of Baghdad.¹³⁹ As an incentive for farmers to sell their harvest internationally, the Iraqi Ministry of Agriculture guaranteed to purchase all of the grain produced after the harvest at a price set slightly below what farmers could get at the world market.¹⁴⁰ Soldiers of the 1st Cavalry Division have also parceled out hundreds of tons of seed and fertilizer in eastern Baghdad through a farmers' co-op it formed there.¹⁴¹ The soldiers were also building an equipment storage building for the co-op to serve as a place for farmers to gather and exchange ideas, to coordinate the amount and type of produce they grow, and to attend training.¹⁴²

VII. WEEDS OF RESISTANCE

A. *The Enduring Struggles of the Iraqi Farmer*

Undoubtedly, the reconstruction efforts and the successes realized through these efforts have continued since the time that research ceased for this Note. Despite the notable efforts and improvements in Iraqi agriculture listed above, and those that followed, it is certain that this is a struggle that will continue for perhaps as many years as did the conflicts that devastated the sector. In fact, years after efforts began in the reconstruction of the agricultural sector, none

137. Press Release, States News Service, Iraq Enjoys Successes, Meets Challenges as It Rebuilds Economy and Rejoins World Marketplace (Jan. 5, 2005).

138. See Spc. Erin Robicheaux, 'Amber Waves' Giving Wheat Seed to Iraqi Farmers, ARNEWS, Dec. 29, 2004, available at http://www4.army.mil/ocpa/print.php?story_id_key=6697; see also AMERICAN FORCES INFORMATION SERVICE, *Baghdad Farmers Get Helping Hand From 1st Cavalry Division*, Dec. 28, 2004, available at http://www.defenselink.mil/news/Dec2004/n12282004_2004122803.html (discussing the military's efforts in constructing storage facilities for farm equipment).

139. Robicheaux, *supra* note 136.

140. *Id.*

141. American Forces Information Service, *supra* note 136.

142. *Id.*

of the problems that ailed it have been completely alleviated.¹⁴³ Local farmers still struggle with the effects of fuel shortages and the excessive cost of a barrel of fuel, which is more than 50,000 dinars (approximately \$34.24).¹⁴⁴ The fuel is essential for the pumps used in irrigation, and some farmers need four barrels a month.¹⁴⁵ At this expense, local farmers point out that all their proceeds from agricultural output will go to fuel and they will gain nothing, forcing some farmers to stop irrigation.¹⁴⁶

The cost of much needed pesticides and fertilizers has also risen, making it difficult for farmers to treat the palm orchards and vegetable gardens that require them.¹⁴⁷ With no other alternative to sustain their families, many farmers are still forced to migrate to the cities to find work.¹⁴⁸

B. *Land Disputes*

Perhaps the most intricate dilemma that persists, however, is the ongoing disputes over the land itself.¹⁴⁹ The tide of war destroyed property and agricultural land for thousands of Iraqis and forced several thousand more to abandon their homes and farms.¹⁵⁰ Some buildings were used for supply lines for the advancing military forces, but much of the land and the livestock that lived on it was destroyed by tanks and other military vehicles.¹⁵¹

Long before the recent Operation Iraqi Freedom, as many as 250,000 Kurds and other non-Arabs were forced from their homes in northern Iraq by the corrupt government.¹⁵² Since April 2003, thousands of these displaced Kurds, as well as Turkomans and others, have returned to their homes which had been occupied by landless Arabs from central and southern Iraq, whom the government

143. Press Release, M2 Presswire, Iraq: World Bank Grant to Help Address Water Shortages in Rural Communities (Dec. 18, 2004), <http://worldbank.org>; see also *Iraqi Paper Says Energy Crisis Threatens Agriculture*, *supra* note 47 (noting an Iraqi citizen's frustration with the situation in Iraq).

144. BBC Monitoring Int'l Reports, *supra* note 47.

145. *Id.*

146. See *id.* (noting Iraqi citizens concerns over the cost of fuel for irrigation).

147. *Id.*

148. *Id.*

149. See Human Rights Watch, *supra* note 15 (stating that the failure of authorities to resolve property disputes could undermine security in the region).

150. James Thuo Gathii, *Foreign and Other Economic Rights Upon Conquest and Under Occupation: Iraq in Comparative and Historical Context*, 25 U. PA. J. INT'L ECON. L. 491, 530 (2004).

151. *Id.* at 530-31.

152. Human Rights Watch, *supra* note 15.

had brought in to settle in their place.¹⁵³ For over a decade, many of those expelled have lived in camps, enduring desperate conditions as they waited to reclaim the titles to the rich agricultural lands that were seized and invalidated by Hussein's government.¹⁵⁴ The Human Rights Watch acknowledged the urgency in settling these increasingly violent land disputes in a lengthy 2004 report.¹⁵⁵

The struggle and violence continues not only for those stripped of their land under Saddam Hussein's regime but also those who try to help them.¹⁵⁶ Fern Holland, a philanthropist and lawyer from Oklahoma, and her Iraqi translator, Salwa Ourmaishi, were run off the road and shot to death while trying to help a poor Iraqi woman reclaim her land that was taken under Saddam Hussein's direction.¹⁵⁷ Holland described the situation in an e-mail to her friend, Stephen Rodolf, five days before she was killed: "One of Saddam's thugs grew crops on their land, and they thought they could remove him upon liberation. No such luck. He built a house on their land and refused to leave. They have court orders and everything, and nobody will move the guy."¹⁵⁸

C. The Rule of Law

Such calamitous incidents and their unmistakable illustration of the need for rule of law in Iraq have not gone unaddressed in the reconstruction efforts. The U.S. Air Force ran a program under the Foreign Claims Act to compensate for losses of land and livestock that were unrelated to combat.¹⁵⁹ Determinations of claims were made by the Judge Advocate, who applied local law and custom.¹⁶⁰ When the Coalition Provisional Authority governed Iraq, they set out laws covering all aspects of Iraqi business and agriculture.¹⁶¹ Ambassador Paul

153. *Id.*

154. *Id.*

155. See generally HUMAN RIGHTS WATCH, CLAIMS IN CONFLICT: REVERSING ETHNIC CLEANSING IN NORTHERN IRAQ, Vol. 16, No. 4(E), (2004), available at <http://www.hrw.ru/reports/2004/iraq0804/iraq0804.pdf> (discussing the citizens who were forced from their land and the increasing violence in settling these disputes).

156. See generally Aamer Madhani et al., *Compelled to Help, Idealists Pressed on Despite Danger; Before They Were Slain in an Ambush, Two Americans and an Iraqi Translator Hoped to Create a Better Life for Women*, CHI. TRIB., Mar. 19, 2004, at p. C1 (discussing the death of an American woman and her Iraqi translator as they tried to help an Iraqi woman regain control of her land).

157. *Id.*

158. *Id.*

159. Gathii, *supra* note 148, at 531.

160. *Id.*

161. Morning Edition, *Agricultural Law Provokes Protest in Iraq*, (NPR radio broadcast Nov. 24, 2004) (transcript on file with author).

Bremer signed a memorandum in January 2004, in conjunction with the Iraqi Governing Council, which established an Iraq Property Claims Commission (“IPCC”).¹⁶² The Commission laid out the policy for dealing with land disputes in Iraq, requiring registration for such disputes.¹⁶³ Unfortunately, as of August 2004, while more than 6,000 claims had been brought to IPCC offices in ten of the eighteen governorates, authorities had yet to implement the judicial mechanisms required to adjudicate the disputes.¹⁶⁴

Local leaders also heeded the call for law and order in settling land disputes.¹⁶⁵ Recognizing the need for ease in reconciling violent land disputes, Kirkuk Governor Abd-al-Rahman al-Mustafa began working with Coalition authorities in February 2004 to open a Kirkuk branch of the IPCC.¹⁶⁶ Officials in Kirkuk anticipated tens of thousands of claims, and they allocated oil revenues to compensate those who would be ordered to vacate their homes.¹⁶⁷

The implementation of such legal mechanisms, along with the continued existence of violent backlash like that which befell Fern Holland,¹⁶⁸ leads to the obvious conclusions that the reconstruction effort will be a struggle for some time to come, and that the introduction of law is not the only necessary ingredient.¹⁶⁹ Indeed, the introduction of law has provided fuel to the fire in some instances.

Linda Lourie helped write laws that would let Iraq meet the standards required to join the World Trade Organization (“WTO”), one of which is protection of plant varieties.¹⁷⁰ The WTO standard requires new plant varieties created by breeders to be treated like inventions, giving plant breeders or seed companies exclusive rights to the varieties they create.¹⁷¹ In April 2004, an order that Lourie

162. Press Release, M2 Presswire, 4th Infantry Division Commanding General’s Briefing from Iraq (Jan. 22, 2004); see also Human Rights Watch, *supra* note 15 (discussing the problems faced in Iraq by the forcibly displaced individuals).

163. *Id.*

164. Human Rights Watch, *supra* note 15.

165. See generally Nicolas Pelham, *A Search for Common Ground in Battle-Scarred Kirkuk: Coalition Administrators Are Struggling to Meet the Conflicting Demands of Ethnic Communities in the North as They Try to Decide on the Structure for a Federal Iraq*, FIN. TIMES, Feb. 11, 2004, at Middle East & Africa (describing steps taken by local authorities in settling land disputes).

166. *Id.*

167. *Id.*

168. See Madhani et al., *supra* note 154.

169. See USAID, *Iraq Reconstruction and Humanitarian Relief*, July 1, 2004, www.usaid.gov/iraq/updates/jul4/iraq_fs38_070104.pdf (discussing implementing education, health care, food security, construction and other efforts for reconstruction).

170. Linda Lourie is an attorney advisor with the U.S.P.T.O. Morning Edition, *supra* note 159.

171. *Id.*

helped write went into effect, prohibiting farmers from saving and replanting any seeds from varieties that breeders have claimed as their own.¹⁷² Groups are now protesting the order, which is far more restrictive than the American law that allows farmers to save part of their harvest and use the seed on their own farms.¹⁷³ One advocacy group, known as Grain,¹⁷⁴ ridiculed the law as a declaration of war against the Iraqi farmer because it encourages private control over plant varieties.¹⁷⁵ Although the order doesn't restrict the use of traditional varieties that Iraqi farmers have been planting, the advocacy group is worried that the traditional varieties might begin to disappear, and Iraqi farmers would not be allowed to save or share seed from new varieties.¹⁷⁶

The repercussions of this and other laws do not end here.¹⁷⁷ In 1996, plant scientists in the Baghdad suburb of Abu Ghraib put together a "black box" containing more than 1000 vital seed varieties.¹⁷⁸ Abu Ghraib, known to most Americans as the home of the notorious prison, was known to Iraqis as the home of the main seed bank and plant breeding program.¹⁷⁹ The seed bank was destroyed in the war, but scientists had shipped the box containing everything from ancient wheat to chickpeas, lentils, fruits, and varieties with built-in resistance to extreme heat, drought, and salinity to Aleppo until they were needed.¹⁸⁰ Although this agricultural treasure trove will certainly prove useful, the gene bank's curators fear that while the contents of the box are public property, the seeds developed using the genetic material will fall under the new law banning the exchange of patented seeds, and will become private property.¹⁸¹

VIII. POST-WAR AGRICULTURE IN OTHER NATIONS: IMPLICATIONS FOR IRAQ

A. Afghanistan

The necessity of law, especially in regard to land disputes, has been illustrated in many other nations, and those bearing the duty of reform in Iraq would be remiss not to consider some of these cases. Recently, in Afghanistan, similar

172. *Id.*

173. *Id.*

174. "Grain is an international non-governmental organization which promotes the sustainable management and use of agricultural biodiversity based on people's control over genetic resources and local knowledge." GRAIN, <http://www.grain.org/front/>.

175. Morning Edition, *supra* note 159.

176. *Id.*

177. *See* Pearce, *supra* note 1.

178. *Id.*

179. *Id.*

180. *Id.*

181. *Id.*

violent disputes arose over land as refugees returned to their homes, and competition grew amongst settling farmers.¹⁸² A report by the Afghanistan Research and Evaluation Unit (“AREU”) quickly identified the need for stability in post-war reconstruction and the impact that clarifying property law would have on this necessary goal.¹⁸³ In Afghanistan, like Iraq, the laws themselves were a matter of debate.¹⁸⁴ At the time of the AREU report, there were four separate legal systems governing land tenure, ranging from custom to civil law.¹⁸⁵ A special court created in Afghanistan to hear land claims, similar to that established in Iraq, was not enough to put an end to these disputes because of the lack of comprehensive laws on which courts could base their judgments.¹⁸⁶

The AREU report acknowledged that land security is critical to agriculture and can inspire people to invest in farming.¹⁸⁷ The report also questioned the likelihood of establishing land security before peace and stability have completely been restored.¹⁸⁸ This is certainly a concern for authorities in Iraq where the threat of improvised explosive devices, or IEDs, was described in March 2005 by Army General John Abizaid, commander of U.S. Central Command, as “an ongoing battle.”¹⁸⁹ A single blast killed seven soldiers on January 5, 2005, and in the last ten days of February 2005, IEDs alone caused fifteen deaths.¹⁹⁰ The estimated 3,500 insurgents who took part in election day violence in Iraq on January 30, 2005, raise the question of whether the nation is stable enough to realize substantial land stability and, in turn, agricultural growth.¹⁹¹

As officials began to write a new constitution for Afghanistan, as others were elected to do in Iraq in January 2005, citizens pushed for a comprehensive set of land-rights policies to be included.¹⁹² Heeding this advice, the International Rescue Committee (“IRC”) hired a property law expert to make recommendations and draft a chapter on land rights, suggesting fair distribution of land to landless returnees and alternative mechanisms for courts to resolve property disputes.¹⁹³

182. See Ohlsson, *supra* note 14.

183. *Id.*

184. *Id.*

185. *Id.*

186. *See id.*

187. *Id.*

188. *Id.*

189. Robert Burns, *Official: Pentagon Must Stop Iraq Blasts*, TIMES UNION, Mar. 1, 2005 (on file with the author).

190. *Id.*

191. *See id.* See also Ohlsson, *supra* note 14.

192. Ohlsson, *supra* note 14; INTERNATIONAL RESCUE COMMITTEE, IRC PUSHES FOR PROPERTY RIGHTS IN AFGHANISTAN (2003), <http://www.theirc.org/index.cfm/wwwID/1901>.

193. INTERNATIONAL RESCUE COMMITTEE, *supra* note 190.

B. *El Salvador*

Although efforts in Afghanistan may be too recent to accurately gauge their success, the strife of post-war agriculture has been conspicuously overcome in other nations.¹⁹⁴ Conflict ended in El Salvador in 1992, bringing home thousands of ex-combatants and refugees who settled in agricultural communities as part of the National Land Transfer Program (“PTT”).¹⁹⁵ The program formed a new community, La Montanona, where the new inhabitants, in conjunction with national NGOs, forged a series of village and regional agricultural plans based on agroecological, economic, and community strategies that met the local goals of food security, social stability, and sustainable land management.¹⁹⁶ The community worked as a whole to meet their collective goals and adapted to the economic and ecological realities they faced.¹⁹⁷ Obstacles, including the necessity for a legal system to settle disputes, were reached with community participation.¹⁹⁸ The community also worked with municipalities toward an initiative that required the water company to pay farmers for water conservation realized through improved soil protection practices on the farm.¹⁹⁹

Perhaps the greatest lesson from the Montanona illustration is that researchers, NGOs, governmental bodies, and communities must form alliances and work together in information exchange in order to overcome the demands of post-war agricultural reconstruction.²⁰⁰ The community must be careful to ensure that the decision making process remains under their control because the objectives must be firmly rooted in their own locally identified priorities.²⁰¹ Outside groups should be drawn on to ensure that the local decisions are based on all available information and ideas, but the stake in the outcome is a local one and should thus be driven by the locals.²⁰²

194. See generally AGROECOLOGY RESEARCH GROUP, *Post-War Reconstruction Using Sustainable Agriculture in Chalatenango, El Salvador*, Oct. 1, 2003, <http://agroecology.org/cases/montanona.htm> (describing the progress the Montanona community has made).

195. *Id.*

196. *Id.*

197. *Id.*

198. *See id.*

199. *Id.*

200. *See id.*

201. *See id.*

202. *See id.*

C. *The United Kingdom*

Perhaps a more simplistic approach proved effective for the United Kingdom after World War II.²⁰³ Since 1945, British agriculture has been production oriented, encouraging farmers to maximize yields through the use of increased artificial inputs and improved plant and animal genetics.²⁰⁴ The U.K., like Iraq, faced issues in achieving stability and addressing the nation's short supply of food.²⁰⁵ Food rationing did not end in the U.K. until 1953, resulting in the continuation of generous guaranteed prices for agricultural products.²⁰⁶ Also like Iraq, the U.K. needed to maximize food production.²⁰⁷ The government rested its agricultural policy on stability and efficiency while performing annual price reviews to fix prices of the main crops for eighteen months ahead.²⁰⁸ They set minimum prices for meat, milk, and eggs between two and four years ahead and planned to raise agricultural output by sixty percent over pre-war levels.²⁰⁹ The long term result was inspiring; the stability in prices and guarantees caused farm incomes to rise, providing farmers with incentive to invest and utilize new technology.²¹⁰ New seed varieties, better herbicides, and fertilizers improved crop yields, and labor use and costs went down as the level of mechanization increased.²¹¹ The U.K. focused on its immediate demand for food and focused its attention to inputs and strategies that would meet this demand.²¹² The concern was on short term gain, which led to long term success.²¹³ Price fixing strategies gave incentive to farmers, which led to better inputs and greater crop yield, creating a cyclical pattern of success and stability.²¹⁴

Despite the U.K.'s obvious success with this generous price-fixing strategy, recall that the Iraqi Ministry of Agriculture set prices *lower* than farmers

203. See generally Environmental Challenges in Farm Management, Agriculture in Post War Britain, <http://www.ecifm.rdg.ac.uk/postwarag.htm> (discussing post World War II "production oriented" agriculture in Great Britain).

204. *Id.*

205. See *id.* (noting that at the end of World War II the U.K. needed to maximize food production).

206. *Id.*

207. *Id.*

208. *Id.*

209. *Id.*

210. *Id.*

211. *Id.*

212. See generally *id.* (discussing U.K.'s agricultural plan that set guaranteed prices for products).

213. See *id.*

214. See *id.*

could expect to receive in the world market, so as to inspire international trade.²¹⁵ Also, without pricing structures on things like fuel that farmers need for irrigation and the necessary inputs that are too expensive for farmers, the price incentive enacted by the Iraqi Ministry may prove futile because farmers will still not be able to afford agricultural production.²¹⁶ It is imperative to the future of Iraq's agriculture that historic successes and failures such as these be considered and applied in the ongoing efforts to breathe new life into the sector.²¹⁷

IX. THE GARDEN OF EDEN

Iraq's agricultural sector is centered in the Tigris and Euphrates valleys, the biblical Garden of Eden.²¹⁸ Without question, it will be many years before such beauty blossoms again in Iraq. There is promise, however, and those that seek to lead the nation to prosperity under a new, democratic government are leading the charge to bring the bounty back to Iraqi agriculture.²¹⁹

Many of the political parties in Iraq, vying for recognition in the January 2005 elections, framed part of their agendas on revitalizing the nation's agriculture.²²⁰ Most were focusing on Iraq's need to be self-sufficient in food production.²²¹ The Communist Party proposed to protect farmers by regulating a cooperative system and encouraging democratic cooperation in production, distribution, and marketing.²²² The Liberal Democratic Party sought to distribute newly reclaimed agricultural lands to small farmers and to establish agricultural banks to provide interest-free loans to farmers in order to support crop and animal production.²²³ The United Iraqi Alliance, similar to Craig Raborn's concept of livability, believes that improving public services like water, electricity, fuel, communications, postal service, and transportation would help invigorate the Iraqi countryside.²²⁴ Iraqi President Ghazi Ajil al-Yawar also acknowledged the need

215. Robicheaux, *supra* note 136 (emphasis added).

216. BBC MONITORING INT'L REPORTS, *supra* note 47.

217. See Flanigan, *supra* note 130.

218. *Id.*

219. See generally Press Release, U.S. State Dep't, Iraqi Political Parties Set Forth Economic Proposals (Jan. 26, 2005), available at <http://usinfo.gov/mena/Archive/2005/Jan/26-531587.html>.

220. See *id.*

221. See *id.*

222. See *id.*

223. See *id.*

224. See *id.*

to support agriculture and Iraqi farmers, instead of what he described as continuing to import products that bypass the sector.²²⁵

X. CONCLUSION

Agriculture demands vigilance in a post-war landscape as it goes to the very crux of the necessities that are endangered in such conditions. A weapon against poverty and a vehicle for stability, agricultural development provides for economic growth, a healthier environment, and a sound infrastructure.²²⁶ As was evident in Iraq, these are all things that are vulnerable to erosion by the winds of war and a heedless government. The havoc that befell the Iraqi agriculture as a result of such conditions has greatly subsided in response to the tireless reconstruction efforts, gradually improving the lives of Iraqi citizens and dispelling threats of future violence.²²⁷

The problem of post-war agriculture has been recognized and addressed in Iraq. As history and experience illustrate, however, the revitalization of the war-torn agricultural sector will be a long, tenuous process. With all eyes turned toward this enduring crisis, perhaps Iraq can, in time, restore the Garden of Eden.

225. See BBC MONITORING MIDDLE EAST, *Iraqi President Discusses Election Issues, Hopes for Iraq* (Jan. 26, 2005) (on file with author).

226. See USAID, *supra* note 167.

227. See States News Service, *supra* note 135.