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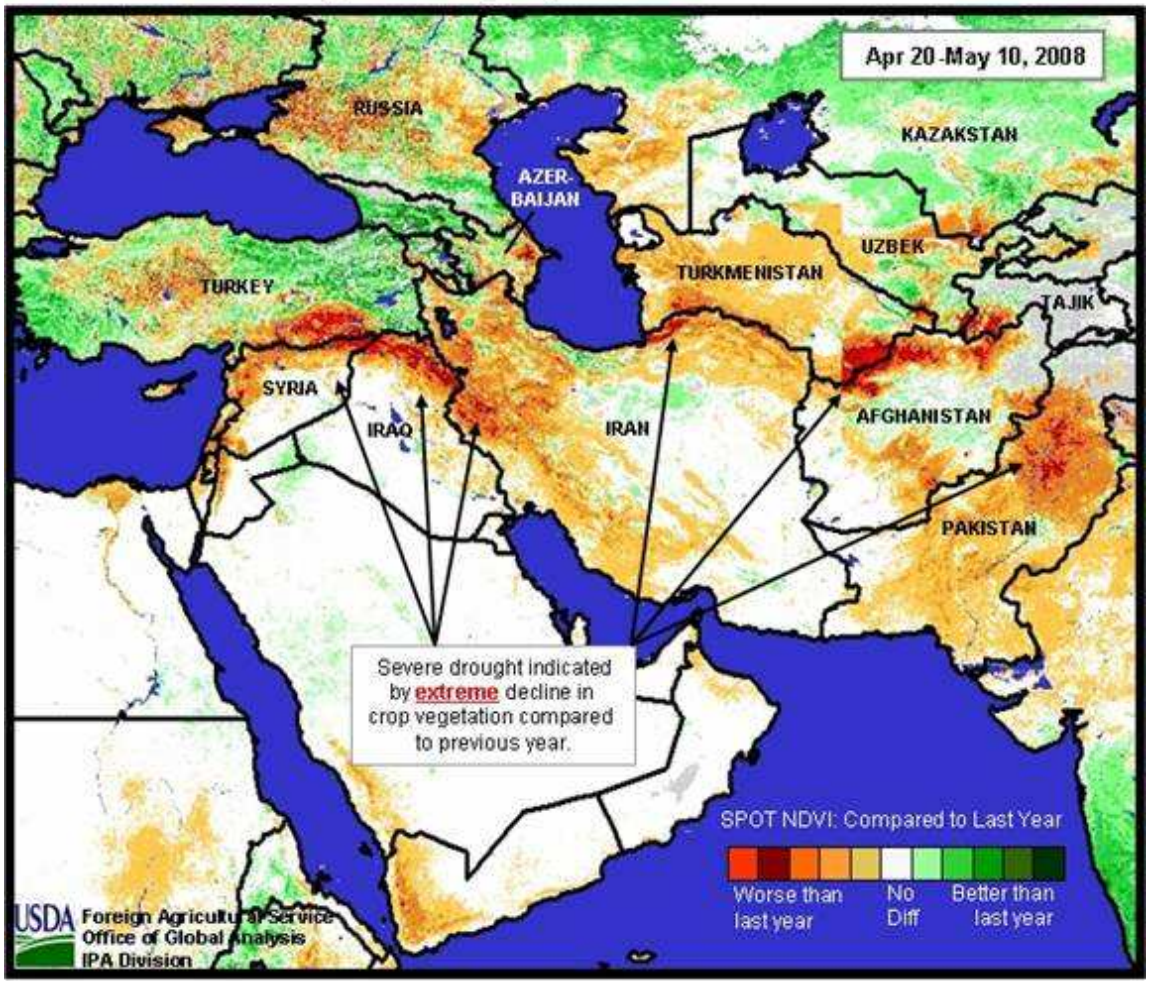
MIDDLE EAST & CENTRAL ASIA: Continued Drought in 2009/10 Threatens Greater Food Grain Shortages

The Middle East and Central Asia regions are currently in the grip of one of the worst droughts in recent history. Widespread failure of rain-fed grain crops occurred in 2008/09, as well as sizable declines in irrigated crop area and yield. Food grain production dropped to some of the lowest levels in decades, spurring governments to enact grain export bans and resulting in abnormally large region-wide grain imports. Should drought continue into the 2009/10 growing season which begins in October, even greater declines in grain production will occur as planted area for both rain-fed and irrigated crops will be severely restricted. A second year of severely reduced grain harvests would imply significantly increased regional grain import requirements as well as posing substantial threats to internal security in countries like Iraq, Afghanistan, and Pakistan. Afghanistan is the most vulnerable, owing to its lack of financial resources for large-scale grain imports and lack of institutional expertise to plan and execute such imports.

Vegetative Index (NDVI): Difference from Last Year



Total wheat production in the wider drought-affected region is currently estimated to have declined by 22 percent or nearly 13.0 million tons in 2008/09. However, given the scarcity of accurate information from regional governments, it is possible the grain shortfall was even more significant. This is especially true in Iran, Iraq, and Afghanistan where crop estimates are tenuous or simply unavailable. The most seriously affected countries, in regards to metric tons of losses, include Iran, Iraq, Syria, Afghanistan, and Pakistan.

Regional Wheat Production (Million Tons)

Country	2007/08	2008/09	Change From Last Year	Percent Change
Afghanistan	3.80	1.50	-2.30	-60.53%
Azerbaijan	1.43	1.60	0.18	12.28%
Iran	15.00	10.00	-5.00	-33.33%
Iraq	2.34	1.30	-1.04	-44.52%
Israel	0.15	0.06	-0.09	-58.62%
Jordan	0.04	0.02	-0.02	-50.00%
Pakistan	23.30	21.50	-1.80	-7.73%
Syria	4.00	2.00	-2.00	-50.00%
Tajikistan	0.53	0.40	-0.13	-24.53%
Turkmenistan	1.60	1.20	-0.40	-25.00%
Uzbekistan	6.20	6.00	-0.20	-3.23%
Total	**58.38**	**45.58**	**-12.80**	**-21.93%**

Planting operations for the primary staple food grain crops (wheat and barley) normally occurs in this region from October to December. Huge regional failures of 2008/09 grain crops in major rain-fed growing areas of Syria, Iraq, Iran, and Afghanistan occurred, implying a potentially significant shortage of viable planting seed this year. It is unknown to what degree regional seed supplies have been actually affected, but it is known that the drought-decimated northern Iraq region has inadequate seed reserves and has not received needed supplies. Seed shortages could be localized or regional in scope as rain-fed winter grains form the majority of sown area in all the primary producing countries, including Iran, Iraq, Syria, and Afghanistan. Turkey is the largest grain producer in the region and was somewhat less affected by drought this year.

Irrigated agriculture has been expanding in the Middle East and Central Asia for several decades, gradually providing a somewhat stable amount of grain production. This is especially true of Iran, Iraq, Syria, Turkey, Uzbekistan, and Tajikistan. However, owing to the severity and vast region-wide scope of the drought in 2008/09, irrigation supplies from reservoirs, rivers, and groundwater have been critically reduced. Major reservoirs in Turkey, Iran, Iraq, and Syria are all reported at levels indicating major concern and requiring restrictions on usage. Surface water flow through the major Tigris and Euphrates river watershed is at very low levels, partly owing to severely reduced rainfall throughout the watershed, but also owing to restrictions on releases from upstream reservoirs in Turkey, Iran, and Syria. Syrian wells and groundwater aquifers, which support the majority of irrigated crop acreage, are reportedly in serious decline, and cannot quickly be replenished. Irrigated summer crop acreage in Iraq was substantially reduced by government decree this year, owing to concerns about declining surface water availability and urban requirements. Iran's hydroelectric generation capacity and supply has been precipitously cut owing to the severity of drought and seriously reduced reservoir levels. In addition, various reports over the past several months have indicated a significant reduction in irrigation reserves in the former Soviet republics of Uzbekistan, Kyrgyzstan, Tajikistan, and Turkmenistan following three consecutive years of below-normal winter precipitation.

All these related water supply issues imply that irrigated winter grain crop acreage may be reduced in most of these countries, unless above-normal rainfall occurs in the next 4-6 months, substantially increasing water availability and creating enough comfort for government policies to be relaxed in regard to agricultural access. Virtually all countries in the Middle East region are critically short of water, and are enacting restrictions on usage. Irrigated winter grain crops constitute a major demand on available stored water resources. Should rainfall continue to be below normal in the September to December planting period, it would be expected that even greater restrictions would be put on irrigated agricultural acreage in 2009/10 to conserve available water supplies for both urban and hydroelectric usage. However, it is unknown what agricultural strategies any of these governments are planning as the 2009/10 grain planting season approaches.

Country-level Summaries:

Iran:
Winter grain growing conditions over much of Iran were significantly worse in 2008/09 than last year owing to prolonged late season drought. Most of Iran's wheat growing regions had inadequate planting rains, while severe drought prevailed after winter grain crops emerged from winter dormancy in the spring. The USDA estimates total wheat production in Iran in 2008/09 at 10.0 million tons, down 33 percent from last year. These adverse growing conditions were prevalent in most major producing areas of Iran, and impacted both rain-fed and irrigated crop yields. Iran's Commerce Minister reported on June 11th that harsh winter temperatures and widespread drought had significantly reduced wheat production, and that Iran needed to import a total of 5.0 million tons to meet its normal annual consumption requirement. Iran's hydroelectric generation capacity and supply has also been precipitously cut owing to the severity of drought and seriously reduced reservoir levels. Significantly reduced reservoir levels indicate that regional irrigation supplies will likely be reduced in the upcoming 2009/10 growing season. Official statistics indicate that irrigated wheat area accounts for roughly 39 percent of total area, but contributes over 70 percent of total wheat production. Should drought continue in the 2009/10 winter grain growing season, much more significant reductions in grain production will occur and much larger scale imports will be required.

For more information, please refer to **IRAN: 2008/09 Wheat Production Declines Due to Drought** (http://www.pecad.fas.usda.gov/highlights/2008/05/Iran_may2008.htm)

(For more information, contact Michael Shean at 202-720-7366.)

Iraq:
Well-below normal rainfall conditions have plagued most of Iraq during the entire 2008/09 winter grain growing period, resulting in one of the worst droughts in the past 10 years. During the planting period of October-December, there was essentially no measurable rainfall in many regions. Moisture conditions were so poor at the start of the season that large swaths of rain-fed grains across northern Iraq simply went unplanted. The USDA estimates total wheat production in Iraq in 2008/09 at 1.3 million tons, down 45 percent from last year. Drought severely impacted non-irrigated grain production in Iraq's northern regions, and also lowered both irrigated crop area and yield in central and southern regions. The primarily rain-fed grain regions in northern Iraq were described as an agricultural disaster area this year, with wheat production falling 80-98 percent from normal levels. Given that harvested wheat and barley crops usually account for 85 percent or more of total annual food grain production, a significant domestic grain supply shortage has ensued, requiring sizably increased grain imports in the 2008/09 marketing year. Owing to the severity of crop losses in northern Iraq this year, a significant shortage of planting seed in the region has been noted. Rain-fed wheat acreage is likely to be well below normal even if sufficient rain does return to the area. Irrigation water availability from rivers and reservoirs is also extremely questionable as the planting period for the 2009/10 winter grain crop approaches. Reservoirs are at alarmingly low levels while estimated flow through the major Tigris and Euphrates rivers is reportedly well-below normal due to prolonged drought in the larger regional watersheds. Electric power and fuel for pumps is also in short supply, while irrigation canal infrastructure has continued to deteriorate owing to lack of resources and the ongoing domestic conflict. Should precipitation remain at well-below normal levels or be significantly delayed this year, wheat acreage will be significantly lower than last year. Should drought continue in the coming growing season, much more significant grain production shortfalls are expected, followed by much larger grain imports than in 2008/09.

For more information, please refer to **IRAQ: Drought Reduces 2008/09 Winter-grain Production** (http://www.pecad.fas.usda.gov/highlights/2008/05/Iraq_may2008.htm)

(For more information, contact Michael Shean at 202-720-7366.)

Syria:
Syria experienced its worst drought in the past 18 years during the 2008/09 winter grain growing season. Drought stress, which was exacerbated by abnormally hot spring temperatures, caused significant losses to the nation's irrigated and rain-fed winter grain crops. The USDA estimates total wheat production in Syria in 2008/09 at 2.0 million tons, down 50 percent from last year. As in Iraq, there was little to no measurable rainfall this year in the planting period from October-December in the primary wheat producing regions of northeastern Syria. Moisture conditions were so poor that large swaths of rain-fed grains across northeastern Syria apparently went unplanted or never germinated. The northeastern provinces, which form the bread basket of the country, were an agricultural disaster area. Given the severity of crop losses in this region, a major shortage of planting seed for the 2009/10 crop is expected. Irrigated wheat area makes up approximately 45 percent of total wheat area in Syria, but contributes roughly 70 percent of total production. Owing to severe drought, the major rivers of northeast Syria (Euphrates and Khabour Rivers) are well-below normal levels, while water tables across the prime northeast wheat growing region are also falling. A growing water shortage is evident, which will affect irrigated crop acreage during the upcoming 2009/10 growing season. Another factor affecting irrigation availability is that there is also a reported shortage of diesel fuel, which is used for pumping water. The government has reportedly raised the domestic price of diesel for agricultural uses by 300-500 percent, from 7.0 Syrian pounds per liter to 25-35 Syrian pounds per liter. These higher rates and subsequent declines in irrigation supplies could lead to significant reductions in irrigated wheat area in 2009/10. Syria has maintained national wheat stocks estimated to be at least 4.0 million tons, and will be drawing these down this year to maintain normal levels of wheat consumption. However, the drought has been serious enough to warrant substantial government imports of wheat and barley in recent months to supplement its declining stocks. Much larger import requirements will ensue should drought continue to plague the major winter grain producing regions of Syria in 2009/10.

For more information, please refer to **SYRIA: Wheat Production in 2008/09 Declines Owing to Season-Long Drought** (http://www.pecad.fas.usda.gov/highlights/2008/05/Syria_may2008.htm)

(For more information, contact Michael Shean at 202-720-7366.)

Afghanistan:
Well-below normal rainfall and winter snowfall across the majority of Afghanistan during late 2007 and early 2008 have led to the worst drought conditions in the past 10 years. Severe drought in 2008/09 caused a precipitous decline in grain production, which has also lead to an acute food grain supply crisis. The USDA estimates 2008/09 wheat production in Afghanistan at 1.5 million tons, down 2.3 million or 60 percent from last year. Losses to winter grain production are expected to be substantial enough to have serious ramifications in the domestic food and feed grain market during the 2008/09 marketing year. In recognition of the severity of the grain production shortfall, the government of Afghanistan and the United Nations issued an emergency appeal in July to the world community to donate $400 million to cover sizable wheat import and food aid needs for approximately 4.5 million affected Afghans, as well as to prepare for the next winter cropping season beginning in October. Irrigated wheat production in Afghanistan accounts for roughly 70 percent of total output, and is nearly totally reliant on snowmelt and the resulting surface water flow through mountain streams and rivers. Low snowfall in 2008/09 caused the majority of the grain losses, and should Afghanistan experience another dry winter a humanitarian catastrophe could ensue. Afghanistan normally

produces 3.5-4.0 million tons of wheat annually.

For more information, please refer to **AFGHANISTAN: Severe Drought Causes Major Decline in 2008/09 Wheat Production** (http://www.pecad.fas.usda.gov/highlights/2008/08/Afghanistan%20Drought/)

(For more information, contact Michael Shean at 202-720-7366.)

Pakistan:
While Pakistan has not experienced as severe a drought as some of its neighbors to the west, its wheat production for the 2008/09 marketing year is estimated to have declined 1.5 million tons below last year's record production to 21.5 million tons. This decline is largely due to precipitation levels of about half the previous year during the peak reproductive period (mid-February to early March). The country's domestic wheat consumption is estimated at 23 million tons, which usually exceeds domestic production. Pakistan is currently trying to secure imports of wheat to fill the gap in production, but now the wheat is very expensive. In addition, Pakistan's farmers are struggling with high fuel and fertilizer costs and many of its people cannot afford the high priced wheat flour.

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Uzbekistan:
Uzbekistan wheat production for 2008/09 is estimated at 6.0 million tons, the same level as last year. Weather data indicate that the prevailing drought has likely been less severe in the former Soviet republics of Uzbekistan, Kyrgyzstan, Tajikistan, and Turkmenistan than in Afghanistan and the Middle East. Various reports over the past several months have described a significant reduction in irrigation reserves in these four countries following three years of below-normal precipitation, but the irrigation deficits are difficult to quantify. Similar reports surfaced during a regional drought that extended from 1998 through 2000, but subsequent yield data suggested that the threat was somewhat overstated in terms of the impact on agriculture. Furthermore, the current three-year drought has not been as intense as the 1998-2000 drought, although it should be noted that a return to normal winter precipitation will be necessary in order to reverse the current dryness. Official harvest reports indicate that over 6 million tons of grain has been gathered in Uzbekistan despite the excessive dryness, indicating that irrigation supplies for wheat were adequate this year. Winter wheat, planted in the fall, accounts for over 90 percent of total grain production, and approximately 85 percent of the crop is irrigated.

(For more information, contact Mark Lindeman at 202-690-0143)

Tajikistan:
Since only half of Tajikistan's wheat is irrigated, the impact of the regional dryness will likely be greater than in Uzbekistan, where most of the crop is irrigated. Wheat yield for 2008/09 is likely to decrease due to excessive dryness, and production is forecast to drop by at least 0.1 million tons, to approximately 0.4 million. Officials maintain that a 30-percent increase in sown area will compensate for the lower yield and that no grain shortage is expected, but satellite imagery indicates extremely poor conditions for wheat in southern Tajikistan, which borders northeastern Afghanistan.

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Turkmenistan:
Although officials maintain that wheat production for 2008/09 will meet the country's needs, weather data and satellite imagery indicate a reduction of at least 0.4 million tons from last year's USDA estimate of 1.6 million tons, due to excessive dryness. Note that official agricultural statistics for Turkmenistan are notoriously unreliable, and USDA wheat production estimates typically run 40 to 50 percent lower than official statistics. Wheat production in Turkmenistan has been hampered for years by a crumbling infrastructure and limited inputs.

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Current USDA area and production estimates for grains and other agricultural commodities are available on IPAD's Agricultural Production page, or at PSD Online.

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