Food and Agriculture Organization of the United Nations

29 July 2015

GIEWS Update

El Niño in Asia

Prolonged dry weather in several countries affecting plantings and yield potential of the 2015 main season food crops

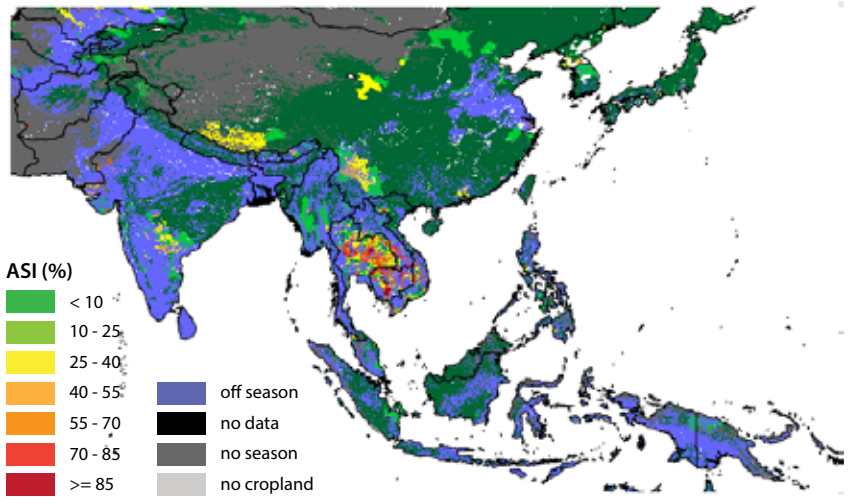
Highlights:

- Prolonged dry weather associated with El Niño has impaired the production outlook for the ongoing 2015 main season in several countries, including **Cambodia**, **Democratic People's Republic of Korea**, **Lao People's Democratic Republic, the Philippines** and **Viet Nam**
- Although rains improved somewhat in the second dekad of July in parts, more rains are essential in the coming weeks to avoid a significant decrease in the 2015 cereal production in these countries
- Elsewhere in the region, prospects for the 2015 main rice crops remain overall favourable so far
- Forecasts pointing to a continuation of El Niño conditions until the winter months of 2016 have also raised concerns for the forthcoming 2015/16 secondary cropping seasons, to be planted from October onwards

The bulk of the 2015 main season rice and maize crops, to be harvested from September onwards, is normally planted between May and July in most Asian countries. Exceptions are Indonesia, Sri Lanka, Timor-Leste and Viet Nam where the main crop harvest took place between April and June and planting of the secondary season crops is underway. From the beginning of April to early July, rains were below-average and erratic in several areas of the region, including parts of **Cambodia**, **Democratic People's Republic of Korea**, **Lao People's Democratic Republic**, **the Philippines**, **Thailand**, and **Viet Nam** resulting in severe localized soil moisture deficits which are delaying planting operations and adversely affecting yield potential of early-planted cereals, including soybeans and potatoes. With the normal sowing period nearing completion in the next few weeks, rainfall performance in the coming months will be crucial to avoid significant reductions in the area planted and yield potential for the 2015 main season food crops. The current dry weather may be attributed to the current global El Niño event, which is often associated with dry weather in the region, although no precise quantitative association between the occurrence of El Niño and its impact on agricultural production can be deduced. Its impact on crops very much depends on the timing and intensity of the phenomenon. Currently, reports from the main meteorological and oceanic institutions stipulate that El Niño conditions would strengthen in the coming months and persist through 2015/16 winter.

FAO's Global Information and Early Warning System is closely monitoring all weather anomalies and assessing possible effects on crop production and food security.

Figure 1: Asia - Agricultural Stress Index (ASI)[1]
Start of season 1 to dekad 2 July 2015



[1]ASI measures the percent of cropland affected by drought per GAUL 2 region. The index calculation is based on METOP-AVHRR data.

Source: FAO-GIEWS Earth Observation - www.fao.org/giews/earthobservation

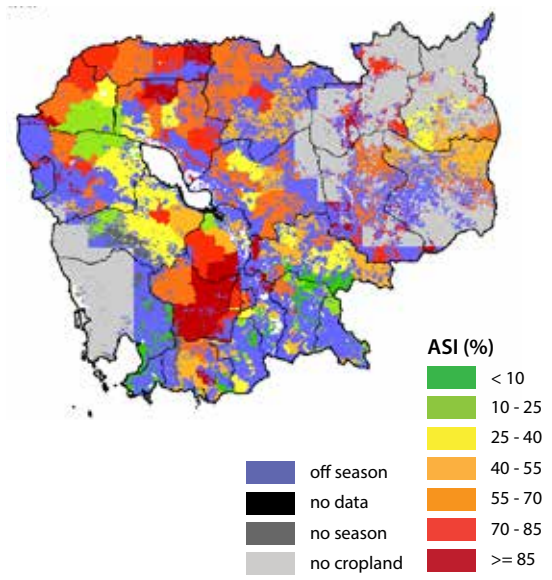
Latest assessment by country

Cambodia

Unfavourable prospects for the 2015 maize crop, outlook for rice uncertain

The prolonged dry weather from April to mid-July has already resulted in severe delays in sowings of the 2015 main season food crops and undermined yields of earlier planted crops, including maize, soybeans and potatoes (see Table 1). For the main staple rice, the bulk of the main (wet) season paddy crop is normally planted between May and August. Following the poor rains so far, farmers were reported to have resorted to broadcasting the rice crop, which is less water intensive than transplanting, allowing for faster progress in dry conditions but which, generally produce lower yields. As a result, despite the dry weather, as of 8 July, some 1.1 million hectares have been placed under rice crop, 12 percent above the area planted at the same time in 2014. However, yields are expected to be negatively affected in large parts, including main rice-producing provinces of Prey Veng, Takeo, Kampong Cham, Svay Rieng, Battambang, Kampot and Kampong Thom, which all together account for more than 60 percent of the annual rice output. More precipitation is required to avoid a reduced rice production this season. If rains do not improve in the coming weeks, the Government plans to encourage farmers to plant short-term rice varieties.

Figure 2: Cambodia - Agricultural Stress Index (ASI)[1]
Start of season 1 to dekad 2 July 2015



[1]ASI measures the percent of cropland affected by drought per GAUL 2 region. The index calculation is based on METOP-AVHRR data.

Source: FAO-GIEWS Earth Observation - www.fao.org/giews/earthobservation

Table 1: Cambodia - Main season food crop area
(hectares)

	Progress of season as of 8 July		Change 2015 / 2014 (%)
	2015	2014	
Rice	1 136 697	1 016 144	12
Maize	56 903	88 157	-35
Cassava	465 179	423 730	10
Sweet potatoes	1 897	2 694	-30
Mungbean	34 676	34 960	-1
Ground nut	9 649	7 035	37
Soybean	3 624	8 885	-59
Sesame	21 593	34 730	-38
Vegetable	20 404	21 982	-7

Source: Ministry of Agriculture, Forestry and Fisheries of Cambodia

Democratic People's Republic of Korea

Dry weather reduced plantings and yields of the 2015 food crops

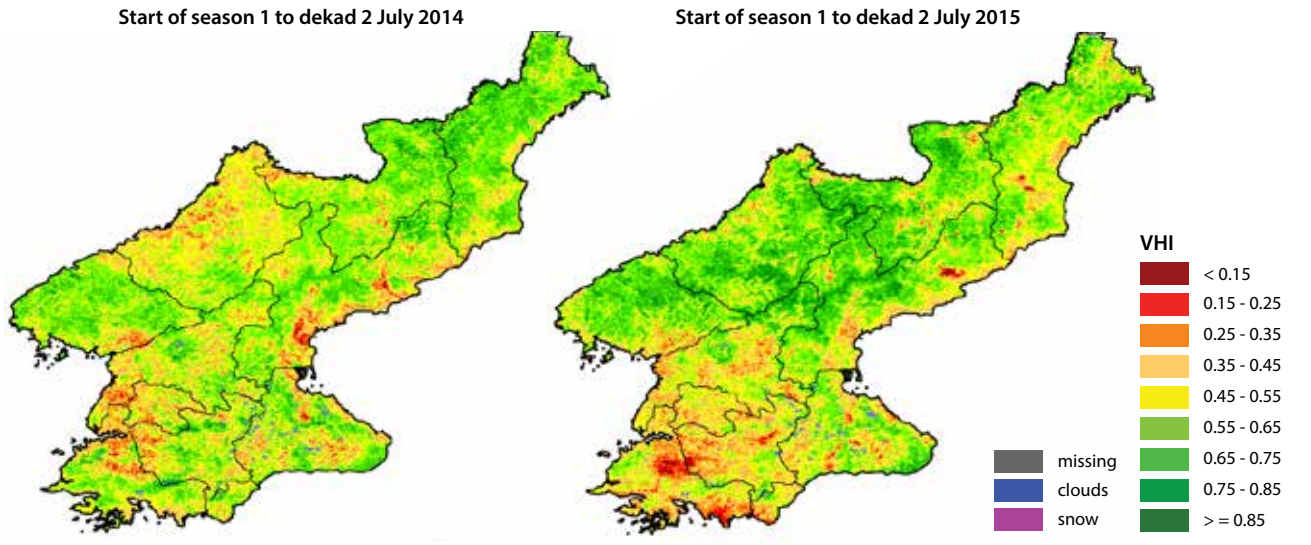
The dry spell from mid-April to early July over the central and southern ''food basket" provinces of the country, coupled with extreme low irrigation water availability (see Figure 4 and Figure 5, have resulted in area planted reductions of the 2015 staple rice crop and adversely affected yield potential of early-planted crops, including also maize and soybeans. Although precipitation improved in the second dekad of July, over the main cereal producing areas of the country, the rains were likely too late to revert the impact of the earlier dry conditions. A detailed assessment of the crop damage is not yet available, but early official estimates provided by the National Coordinating Committee (NCC), as of 8 June, indicate that only 441 562 hectares of rice crop or 81 percent out of the planned area of 545 498 hectares were transplanted, with 34 339 hectares lost to dry weather. In addition, 136 245 hectares, accounting for some 31 percent

Table 2: Democratic People's Republic of Korea - Production of the 2014 and 2015 early season and main season food crops

Early season *(tonnes)*	2010-2014 average	2013/14	2014/15	Change *(%)*
Wheat and barley	114 517	76 587	57 000	-26
Potatoes	277 916	289 580	220 000	-24
Main season *(000 tonnes)*	**2010-2014 average**	**2014**	**2015**	**Change** *(%)*
Paddy rice	2 622	2 676	2 300	-12
Maize	2 168	2 594	2 200	-15

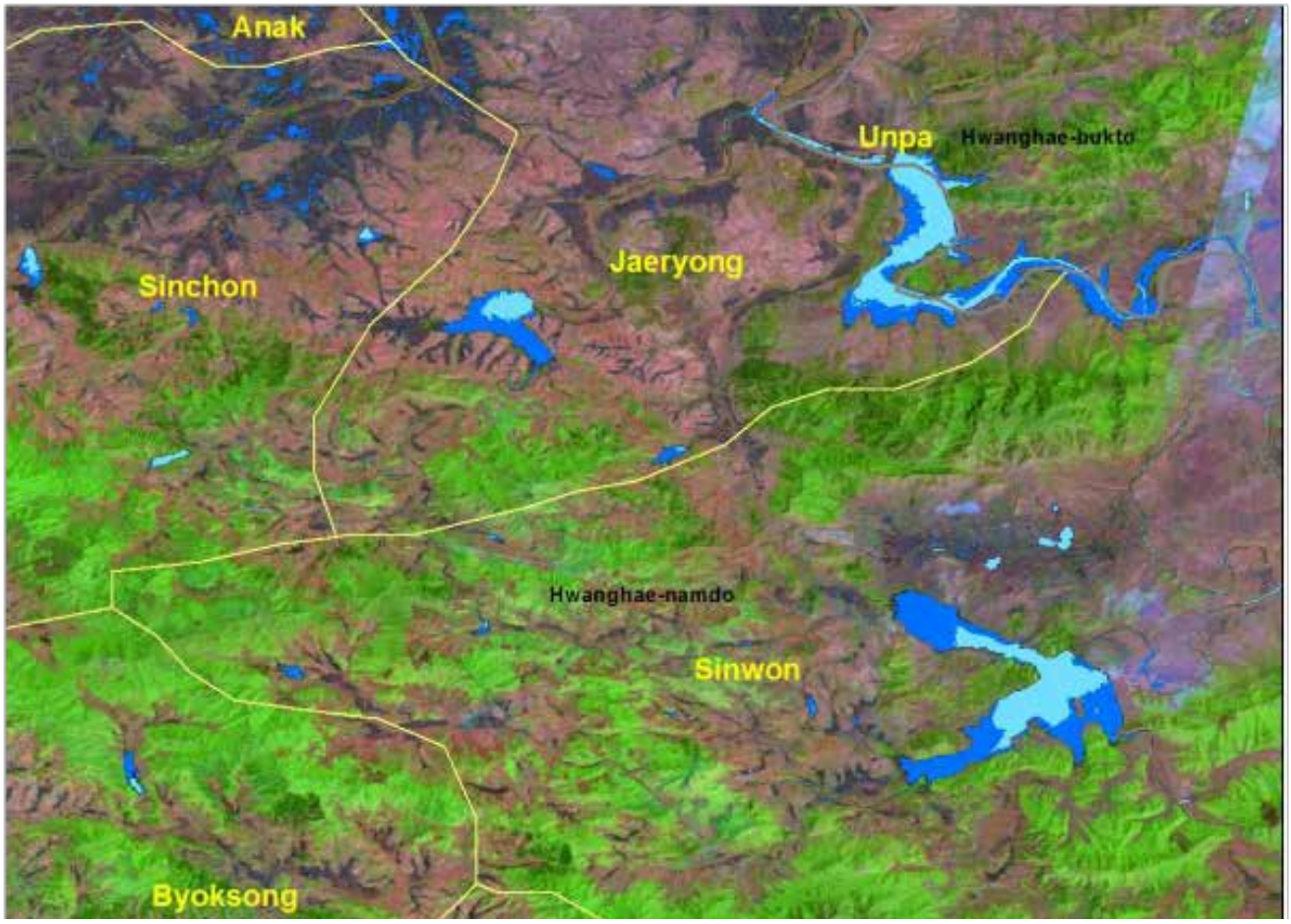
Source: National Coordinating Committee (NCC) DPRK

Figure 3: Democratic People's Republic of Korea - Mean Vegetation Health Index (VHI)



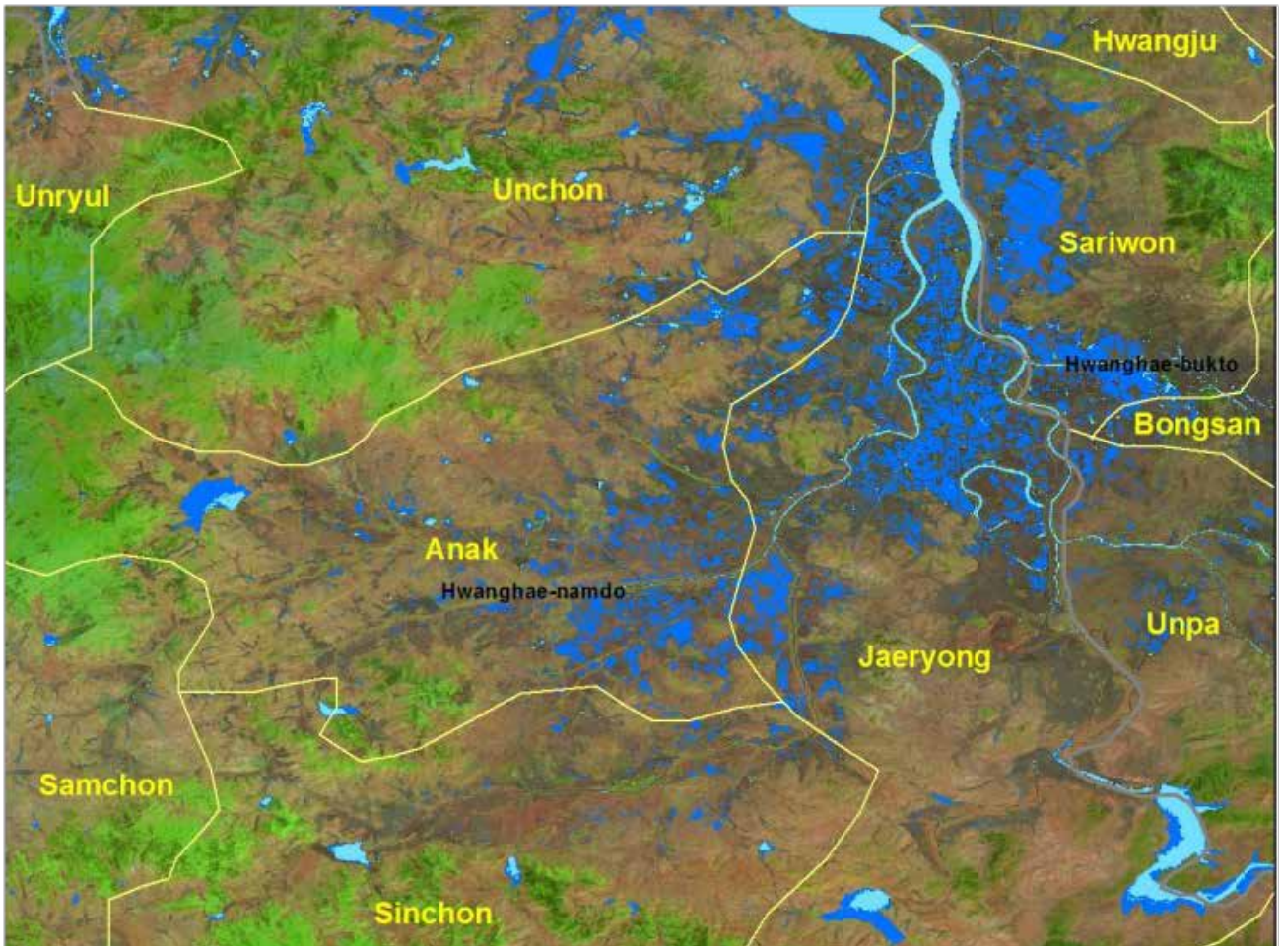
Source: FAO-GIEWS Earth Observation - www.fao.org/giews/earthobservation

Figure 4: DPRK - Example of changes in the extent of the water in reservoirs in June 2015 compared to June 2014



Source: EU-Joint Research Centre. Estimated from Landsat images.

Figure 5: DPRK - Example of changes in the extent of the water in flooded rice fields (around Chaerying and Taedon rivers) in June 2015 compared to June 2014



Source: EU-Joint Research Centre. Estimated from Landsat images.

of the transplanted area are reported to be adversely affected by the dry weather.

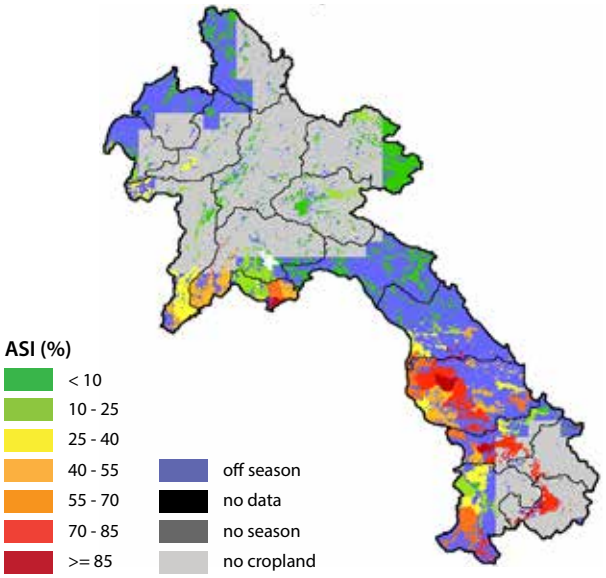
Considering the reductions in plantings and expected reduced yields, FAO tentatively forecasts the 2015 rice production at 2.3 million tonnes, 12 percent below last year's drought-affected output. Reports indicate that the transplanting of maize, which normally starts earlier in the season, is mostly completed. While information on the area planted to maize is not available, yields are expected to be lower than last year's good levels, when in spite of dry weather during the cropping season, the Government's efforts to provide supplementary irrigation through mass mobilization of people resulted in high maize yields. However, the low levels of irrigation and ground water reserves following two consecutive years of poor rains will likely negatively affect irrigation activities. Assuming a decrease in yields and average plantings, FAO tentatively forecasts the 2015 maize production at 2.2 million tonnes, a drop of 15 percent from last year's good level.

Lao People's Democratic Republic

Uncertain prospects for the 2015 main season rice and maize crops due to dry weather

Planting of the 2015 main (wet) season paddy crop is expected to be concluded shortly. Lower-than-average rainfall was experienced between the second dekad of May and late June over important cereal growing areas including Savannakhet, Champasak, Luang Prabang, Vientiane provinces and Vientiane Prefecture, which all together produce about 50 percent of the total rice output. Although precipitation improved since the first dekad of July over the southern main producing areas, providing some relief, they are likely to have arrived too late to avoid reductions in the area planted and yield potential of early-planted rice and maize crops. Several northern cereal producing areas continued to receive well below-average rainfall. An assessment of the impact of the dry weather on crops is not yet available.

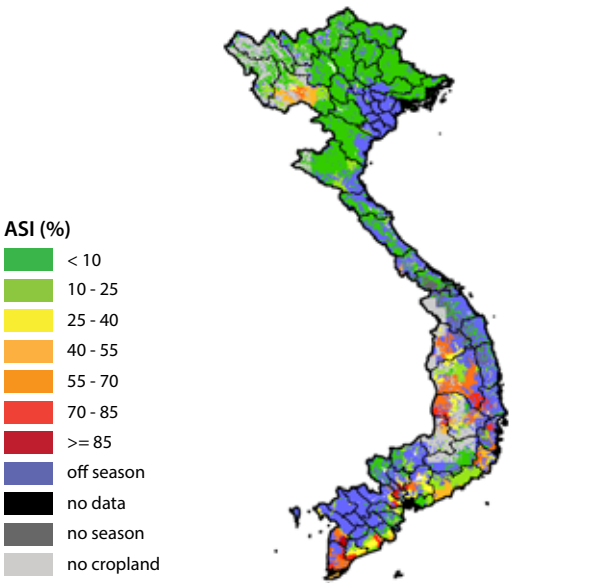
Figure 6: Lao People's Democratic Republic - Agricultural Stress Index (ASI)[1]
Start of season 1 to dekad 2 July 2015



[1]ASI measures the percent of cropland affected by drought per GAUL 2 region. The index calculation is based on METOP-AVHRR data.

Source: FAO-GIEWS Earth Observation - www.fao.org/giews/earthobservation

Figure 7: Viet Nam - Agricultural Stress Index (ASI)[1]
Start of season 1 to dekad 2 July 2015



[1]ASI measures the percent of cropland affected by drought per GAUL 2 region. The index calculation is based on METOP-AVHRR data.

Source: FAO-GIEWS Earth Observation - www.fao.org/giews/earthobservation

Viet Nam

Planting of the 2015 second and third season rice crops is delayed by dry weather in parts. The first main season rice harvest officially estimated at a good level

Below-average rainfall, coupled with warmer-than-usual temperatures from April to mid-July, when normally the bulk of the *summer/autumn* season rice is planted, has delayed field operations. According to official estimates, as of mid-June, some 1.9 million hectares have been covered under *summer/autumn* rice, 6 percent below the area planted at the same time last year. Most affected regions are Central Highlands, North Central and Central Coastal areas, but also parts of the southern main rice-growing Mekong River Delta. There is also some concern about planting of the *10th Month (winter)* season rice crop, which has just started and will continue into October. According to official information, in these regions water levels in reservoirs and rivers is well below-average, following considerably reduced rains since early 2015. The recently harvested 2015 main *winter/spring* season rice crop, which accounts for about 45 percent of annual production, is officially estimated at 20.7 million tonnes, close to the record of 2014's same season.

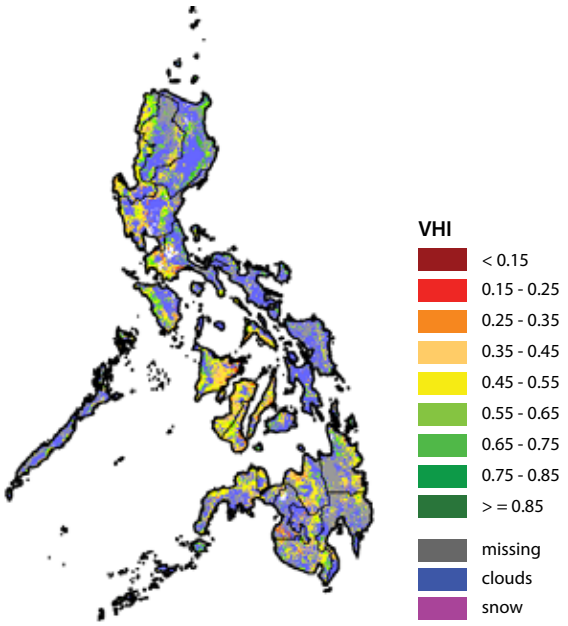
For maize, the ongoing dry weather will likely result in delays and is expected to negatively affect yields of the predominantly rainfed 2015 *summer/autumn* maize crop, which is normally planted between mid-May and July. No detailed information on the full extent of damage is yet available, but the maize crop in localized parts of Central Highlands, North Central and Central Coastal areas, which together normally accounts for close to 60 percent of overall maize output, is likely to be affected the most. Latest official estimates for the already harvested 2015 *winter/spring* maize production is set at 2.5 million tonnes, 4 percent up on last year's high level of the corresponding season.

The Philippines

Large rice and maize growing areas affected by prolonged dry spell

Large parts of the country have been affected by an extended dry spell, which stretched between March to late June 2015, affecting plantings and yield potential of 2014/15 off-season and 2015/16 main season rice and maize crops. According to PAGASA, as of May, around 80 percent of the country was reported to be affected by dry weather. This included Ilocos Region, Central Luzon, Calabarzon, Bicol Region, Western Visayas, Central Visayas and Soccskargen experiencing well below average rainfall. Although precipitation improved in early July, rains are likely to have arrived too late to revert the damage already inflicted by the dry weather.

Figure 8: Philippines - Mean Vegetation Health Index
Start of season 1 to dekad 2 July 2015



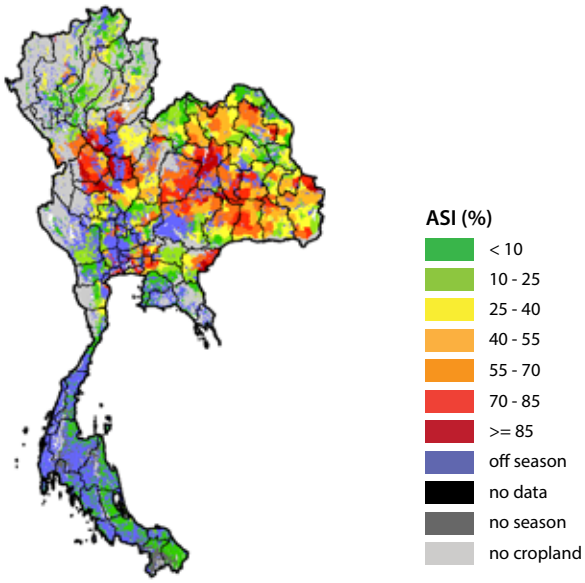
Source: FAO-GIEWS Earth Observation - www.fao.org/giews/earthobservation

Thailand

Uncertain prospects for the 2015 main season rice and maize crops due to dry weather

Below-average rainfall, coupled with high temperatures since May, the normal start of the rainy season delayed plantings of the 2015 main season rice crops in several areas. The dry weather has also negatively affected the levels of irrigation reservoirs. However, planting operations of the main season rice crop normally extend until the end of August, which may allow planting to pick up if rains improve in the coming weeks. According to recent projections from the Thai Meteorological Department, rains are projected to improve from July to October.

Figure 9: Thailand - Agricultural Stress Index (ASI)[1]
Start of season 1 to dekad 2 July 2015



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Source: FAO-GIEWS Earth Observation - www.fao.org/giews/earthobservation

Elsewhere in the region, crop prospects for the 2015 main season cereal crops are overall favourable. In **Indonesia**, the 2015 main season paddy crop, which accounts for the bulk of the annual production, was harvested by mid-June. Favourable weather during the growing season, coupled with diverse initiatives launched by the Government to support production, including the rehabilitation of irrigation channels, distribution of subsidized seeds and fertilizers have supported good yields for the 2015 main season rice crop. Considering the favourable outcome of the 2015 main season and assuming a good output for the forthcoming 2015 secondary crop, due to good supplies of water for irrigation and an estimated increase in plantings, latest official forecasts put the 2015 aggregate rice production at a record level of 75.6 million tonnes, up 7 percent from last year's good output. In **India**, planting of the almost entirely rainfed 2015 main *Kharif* season crops is currently ongoing. Cumulative rainfall in the first two months of the monsoon season (1 June to 22 July) has been 7 percent below the long term average. However, the main cereal-producing states including Punjab, Haryana, western parts of Uttar Pradesh and West Bengal in the north, Odisha in the west, as well as the interior areas of Andhra Pradesh and Tamil Nadu received near average rainfall providing satisfactory conditions for planting and early crop development for the 2015 main *Kharif* season crops. The final outcome of the 2015 main season will depend on the rainfall performance in the remainder of July and August. In **China**, the main cereal-producing country of the subregion, weather conditions for planting operations and early crop development of the 2015 main season crops has so far been generally favourable since the start of the season. Elsewhere is the subregion, namely **Bangladesh**, **Myanmar** and **Pakistan**, this year's weather conditions to date are generally normal. In the southern hemisphere countries, **Indonesia** and **Sri Lanka,** good 2015 main season crops have been already gathered. Prospects for the secondary rice crop in these countries, currently being planted, remain favourable mainly reflecting good availability of water for irrigation in main reservoirs. However, El Niño may affect the 2015/16 secondary season crops and plantings of the 2015 main season crops, scheduled from October onwards.

The 2015 El Niño current status and forecasts

In early March 2015, the main meteorological and oceanic institutions collectively stated that weak to moderate El Niño conditions[1] were indicated by above-average equatorial Sea Surface Temperatures (SST) across the equatorial Pacific and by the corroborating tropical atmospheric response. After a slight decline in April, a steady increase of the SSTs over the central part of the Pacific Ocean during May, reflect an ongoing and strengthening El Niño (Figure 1).

El Niño forecast for 2015/16

May is one of the most critical months in the assessment of the development of El Niño, as the state of the Pacific Ocean during this time is very dynamic and fluid, meaning that winds, temperatures and other atmospheric features can change relatively quickly, thus making the forecast more complicated. For example, this was witnessed last year when the forecast of the onset of El Niño had been released in May 2014 and only concretized in March 2015. However, this year the conditions of El Niño are already present in the Pacific Ocean. The consensus of ENSO prediction models project to continue throughout 2015, with many predicting SST anomalies to strengthen during the last quarter of the year and possibly intensify from a moderate to a strong El Niño through 2015/16 winter. The Australia's Bureau of Meteorology has warned, in early June, that current levels of warmth across the Pacific Ocean are higher than normal and similar to those achieved during the 1997 event, the most severe on record. Figure 10 shows the forecast of intensity of El Niño of different climatological models.

However, no precise quantitative correlation between El Niño's intensity and its impact on agriculture has been probed. Its impact on crops depends on timing and duration, as well as climatic modifications produced by El Niño together with the sensitivity of the phenological phase of crops during the peak period of influence of the event. Flowering and grain filling phases of cereal crops are more sensitive to water stress. Such an anomaly is known to occur every 2 to 7 years, with varying degrees of intensity and duration. The phenomenon usually peaks around late December. The direct impact of El Niño is expected to be felt over the next few months.

[1]Meteorological agencies declare El Niño "conditions" when the criteria such as above-average SSTs are met for three consecutive months, and an "episode" when the conditions persist for seven consecutive months.

Figure 9: El Niño 2014/15, Running 3-month mean of Oceanic Niño Index (ONI). ONI values of 2014/15 (red) compared with previous warm events of the last 30 years

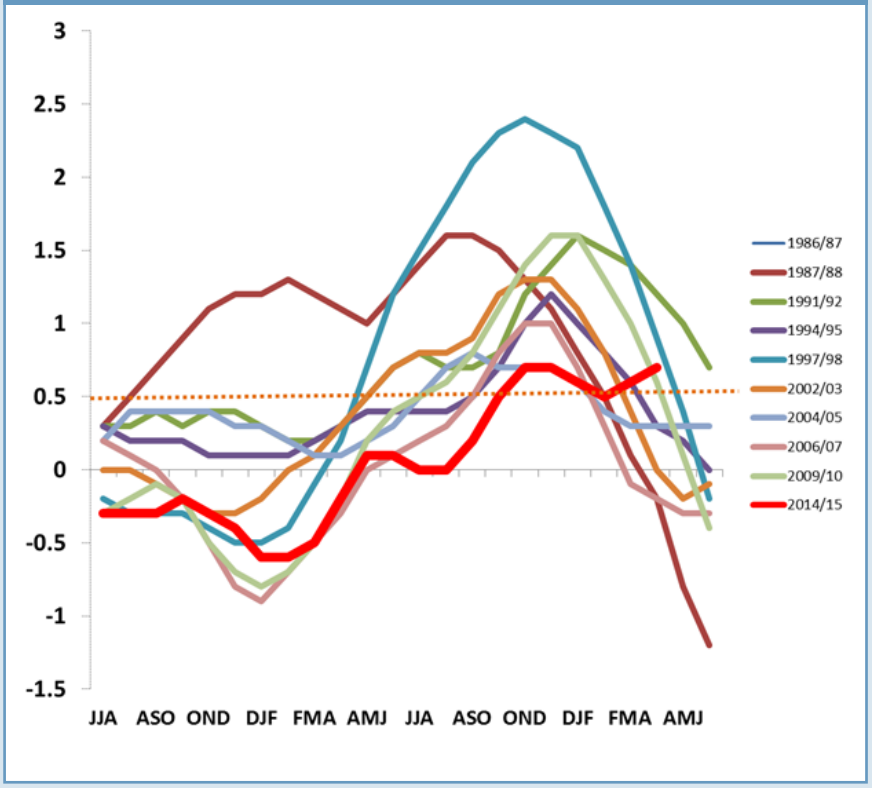
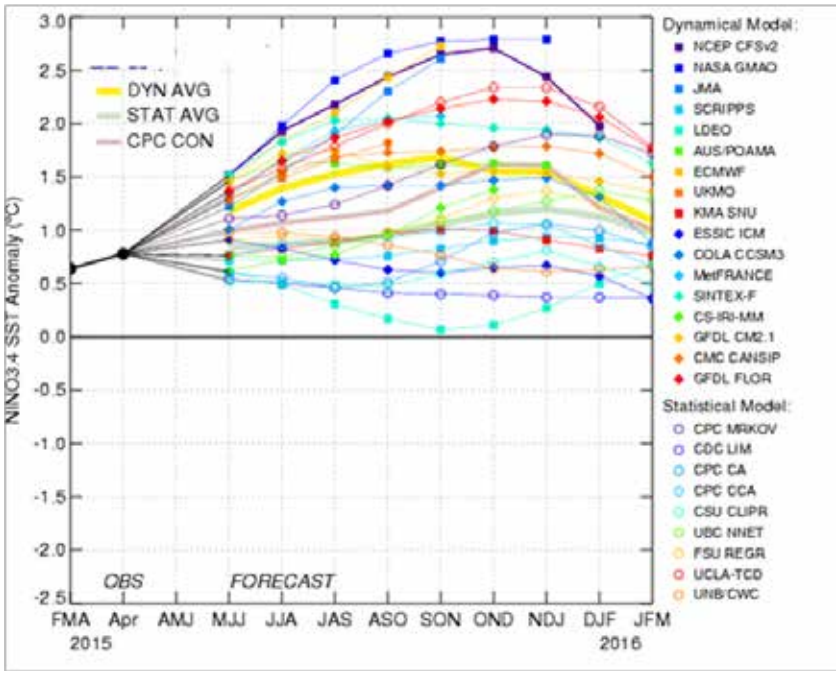
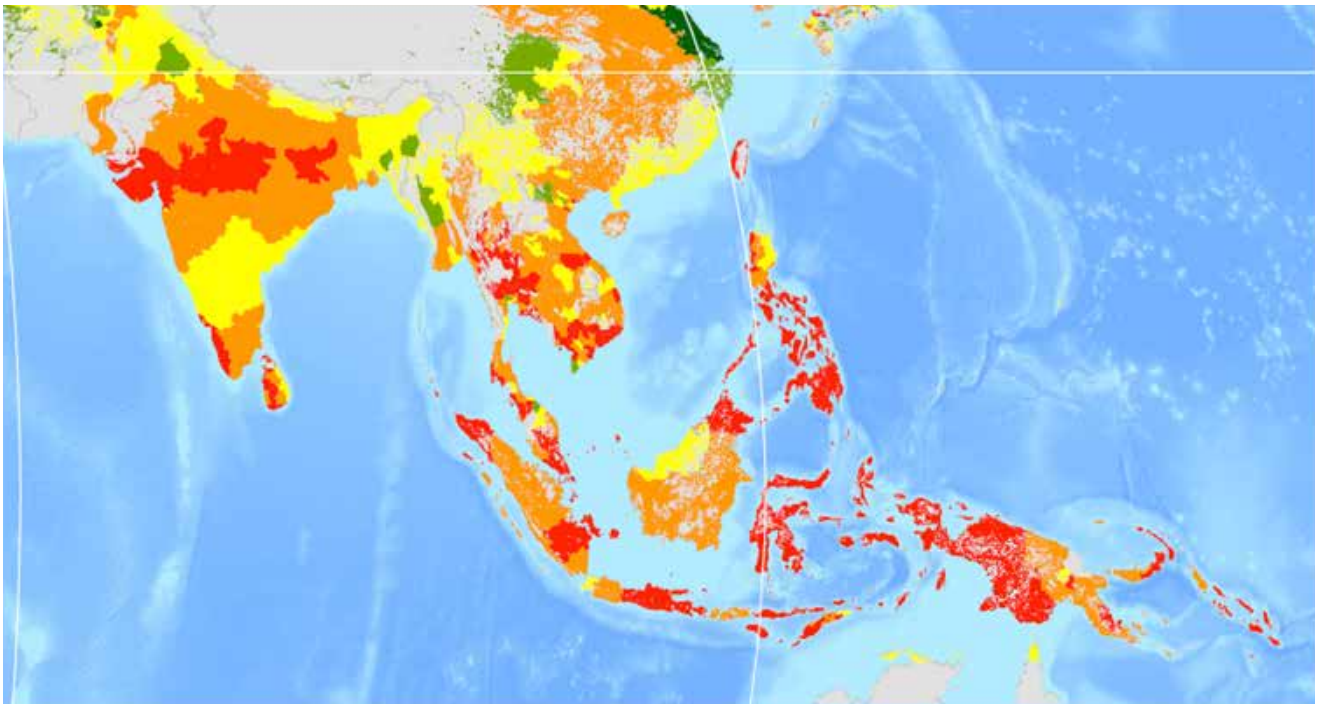


Figure 10: Forecasts made by dynamical and statistical models for SST in the Nino 3.4 region for nine overlapping 3-month periods. Note that the expected skills of the models, based on historical performance, are not equal to one another

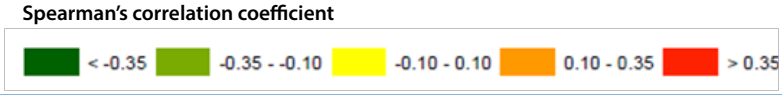


Source: International Research Institute for Climate and Society (IRI)

Figure 11: Correlation between Agriculture Stress Index (ASI) and Southern Oscillation Index. First crop season, period of analysis 1984-2013



Source: Understanding the drought impact of El Niño on the global agricultural areas: An assessment using FAO's Agricultural Stress Index (ASI), FAO 2014. ISSN 2071-0992



This report is prepared by the **Global Information and Early Warning System (GIEWS)** of the Trade and Markets Division of FAO. The updates focus on developing anomalous conditions aimed at providing early warnings, as well as latest and more elaborate information than other GIEWS regular reports on the food security situation of countries, at both national and sub-national levels. None of the information in this report should be regarded as statements of governmental views.

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