

EIC evaluates that the 2020 drought could extend to June with severe impacts on sugarcane, off-season rice, and cassava.

2 March 2020



Key summary

- In 2020, the dry season started early and harsh with a tendency to last longer than in the previous year. The Thailand Meteorological Department estimated that the 2020 drought could persist until June 2020.
- EIC evaluates that the drought will notably hurt the output of sugarcane and off-season rice. In the worst-case scenario, sugarcane and off-season rice production may tumble by as high as 27% and 21%, respectively. Meanwhile, cassava output could drop by 7%. Although the price of sugarcane, rice, and cassava should increase from the drought, the potentially higher magnitude of output decline will cause the farmer's overall income to drop.
- The government could encourage farmers to modify agricultural practices according to the changing water situation as short-term mitigation as well as implement other relief measures. However, long term water management, a lingering structural problem, needs to be addressed in parallel. Other longer-term solutions include developing water resources, increasing irrigation areas, allocating water resources, and promoting more efficient water usage. Furthermore, the government could also urge farmers to thoroughly plan cultivation, for example, grow crops that require less water in areas that repeatedly suffer from drought, promote crops with high value-add to the economy, and support farmers to switch to cultivate crops as planned. Also, the introduction of Agritech to aid water usage, such as automatic irrigation systems to increase water use efficiency and climate warning systems will be beneficial.

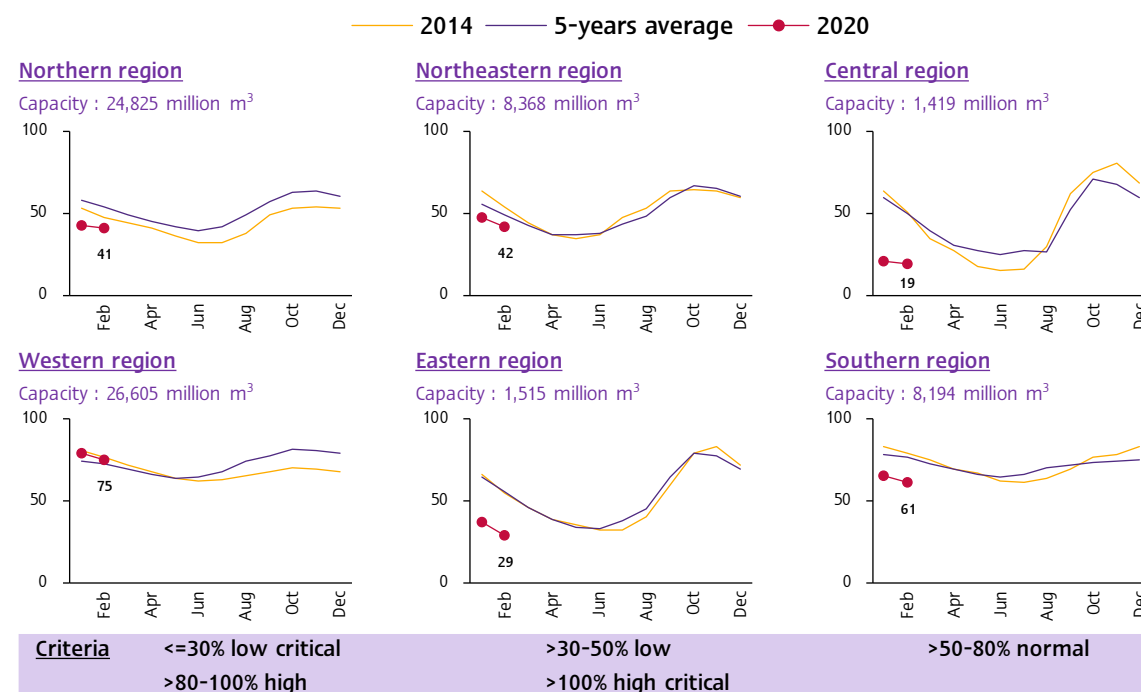
In 2020, the dry season started early and harsh with a tendency to last longer than in the previous year.

Indication of a sooner-than-usual drought was already present during late 2019 as the volume of water stored in reservoirs across the country started to decline before the end of the rainy season. The Agricultural Disaster Monitoring and Resolution Center, Ministry of Agriculture and Cooperatives, reported that a total of 1,624,501 rai of agricultural land was damaged by drought during September 2019 - February 2020, of which, 1,442,674 rai or 89% of total damaged agricultural land was dedicated to rice production. Meanwhile, the remaining 180,684 rai and 1,143 rai of damaged land were allocated for field crops and horticulture crops, respectively.

The volume of water stored in reservoirs at the end of February 2019 indicated that the regions with concerning water supply were the north, northeastern, and eastern. However, the region most seriously affected by drought was the central region with a critically low reservoir water level. Water stored in the dams in all the mentioned regions approached a level lower than its 5-years respective average and even lower than in 2014 when the most severe drought within 10 years occurred. The aforementioned situation reflected that Thailand will possibly face one of the most severe droughts this year. Recently, the Department of Disaster Prevention and Mitigation declared an emergency disaster relief area (drought) that covered 22 provinces¹. Furthermore, the Thailand Meteorological Department estimated that the 2020 drought will last longer than in the previous year and could persist until June 2020.

Figure 1: A comparison of the level of water stored in dams across different regions

Unit: %



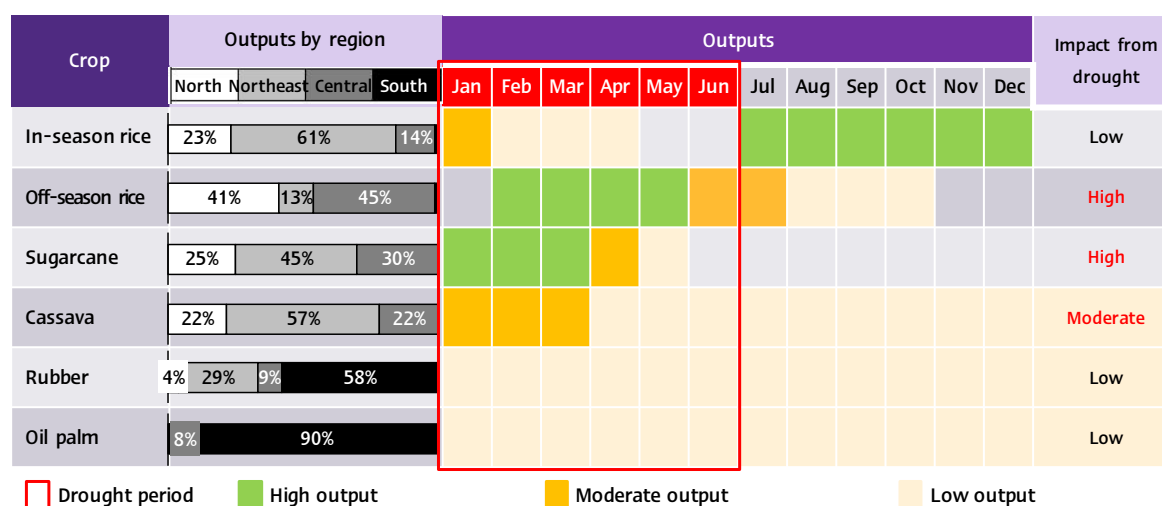
Source: EIC analysis based on data from the Royal Irrigation Department

Such situation directly impacted Thailand’s agricultural sector. EIC, thus, conducted an analysis to evaluate the magnitude of the drought’s impact on Thailand’s key agricultural outputs, including rice, sugarcane,

¹ Including Chiang Rai, Nan, Phetchabun, Uthai Thani, Uttaradit, Phayao, Sukhothai, Nakhon Phanom, Maha Sarakham, Bueng Kan, Nong Khai, Buri Ram, Kalasin, Nakhon Ratchasima, Sakon Nakhon, Kancharaburi, Chachoengsao, Chai Nat, Nakhon Sawan, Suphan Buri, Chaiyaphum and Khon Kaen.

cassava, rubber, and oil palm. The farmer households that grew these 5 crops accounted for 97% of total farmer households in Thailand. A preliminary assessment revealed that drought will harshly affect the production of off-season rice, sugarcane, and cassava, which were primarily planted in the drought-stricken northern, northeastern and central regions. Off-season rice has been planted since late 2019, whereas sugarcane and cassava can be planted throughout the year. The output of such crops will be high and concentrated during January – June 2020.

Figure 2: Preliminary assessment of drought impact on the agricultural sector



Source: EIC analysis based on data from the Office of Agricultural Economics

EIC evaluates that drought will damage the outputs of several crops, particularly sugarcane and off-season rice.

Cane farming was continually affected by the ongoing drought since late 2019, causing the volume of cane harvested for sugar production in the 2019/2020 sugar-crushing season to contract considerably. EIC estimates that in the worst-case scenario, cane supply for sugar extraction in 2019/2020 could drop by as much as 25 million tons or accounting for 27% of total cane for crushing. In such a scenario, the cane supply during the 2019/2020 crushing-season will reduce to approximately 75 million tons, representing a 43% decline from the previous crushing season with 132 million tons of sugarcane. The lower cane supply will hence cause sugar mills to end the 2019/2020 sugar-crushing season early by March, compared to the usual in April. Moreover, if the dry season were to be prolonged to June, sugar mills may also face cane shortages during the next production season.

Meanwhile, water shortages in the central region, a key region for off-season rice cultivation, will hurt the output of off-season rice. Currently, the water stored in reservoirs in the central region is at a critically low level. Furthermore, most of the off-season rice cultivation and harvest will occur during the first half of the year. The low water levels and the timing of the drought will thus significantly lower off-season rice production. EIC estimates that in the worst-case scenario in which the drought will last until June 2020, off-season rice output could drop by 0.9 million tons or accounting for 21% of total off-season rice output.

Off-season rice accounted for 20% of Thailand’s total rice output, as the majority or the remaining 80% of Thailand’s rice output was from in-season rice. In the worst-case scenario, the mentioned drought-stricken off-season rice production could lower total in and off-season rice output for the 2019/2020 harvesting

season to 28-29 million tons, declining from the normal in and off-season rice production of 32-33 million tons per year.

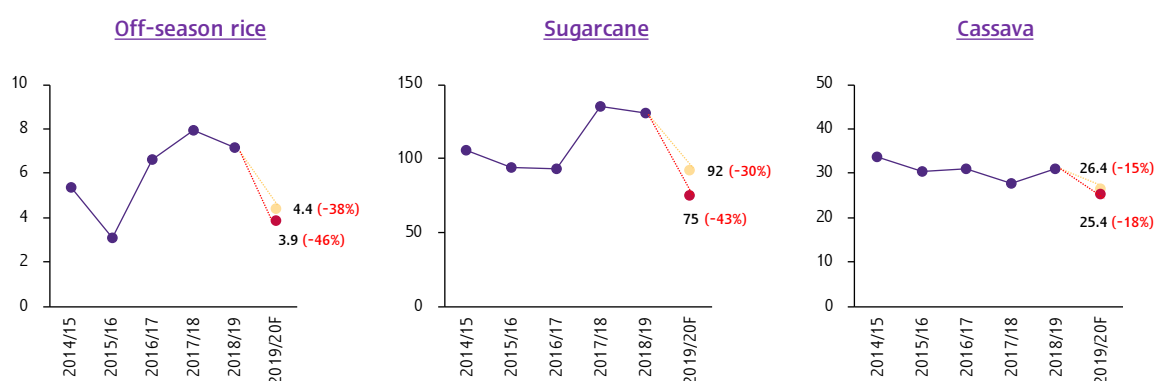
Similarly, drought also damaged cassava output. Even though over 57% of total cassava production came from the northeastern region with several severe drought-hit provinces, the crop was less affected by the drought than other crops due to its drought-tolerant physiology. EIC estimates that in the worst-case scenario, cassava production in 2020 could drop by 1.8 million tons, accounting for 7% of total cassava output.

Luckily, oil palm and rubber output should not be affected by the 2020 drought as most were planted in the southern region. Furthermore, 2020 will see high oil palm and rubber supply as the crops' cultivation age will provide good yields.

Figure 3: Agricultural output forecast based on the different drought severity scenarios

Unit: million tons

- **Baseline scenario** : The level of water stored in the dams in the northern, northeastern, and eastern region are low, while in the central region is critical. The rainy season could begin in May 2020.
- **Worst-case scenario** : The level of water stored in the dams in the northern, northeastern, and eastern region are critical. Drought could persist until June 2020.



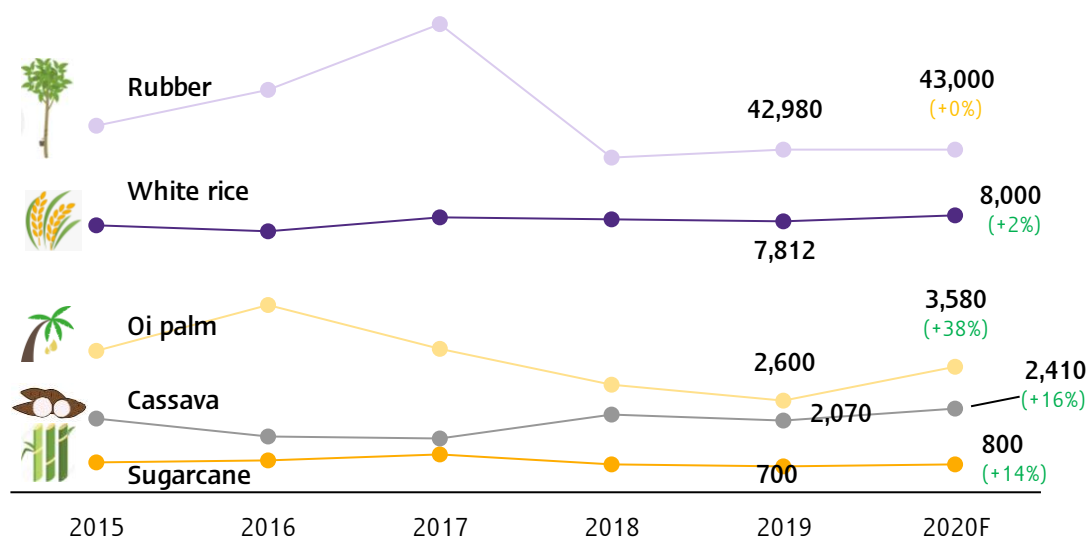
Source: EIC analysis based on data from the Office of Agricultural Economics

EIC views that drought will decrease the output of sugarcane, rice, and cassava, which, in turn, will heighten the crop's price. The price of sugarcane should increase following the mentioned lower supply from drought as well as from the support of rising world sugar price that edged up domestic sugar price as well. As such, during the 2019/2020 production season, the final sugarcane price will be higher than the preliminary sugarcane price. EIC expects that the final sugarcane price during the 2019/2020 season should not be lower than 800 baht/ ton compared to the current preliminary sugarcane price at 750 baht/ ton.

Meanwhile, the price of white rice in 2020 is likely to increase to 8,000 baht/ ton or expand by 2% from 7,812 baht/ ton in 2019. However, the waning 2020 domestic rice production may not equate to significant price upsurge as competition in the world rice market is fierce and world rice stock is increasing.

Figure 4: Agricultural price trend in 2020

Unit: baht/ton



Source: EIC analysis based on data from the Office of Agricultural Economics

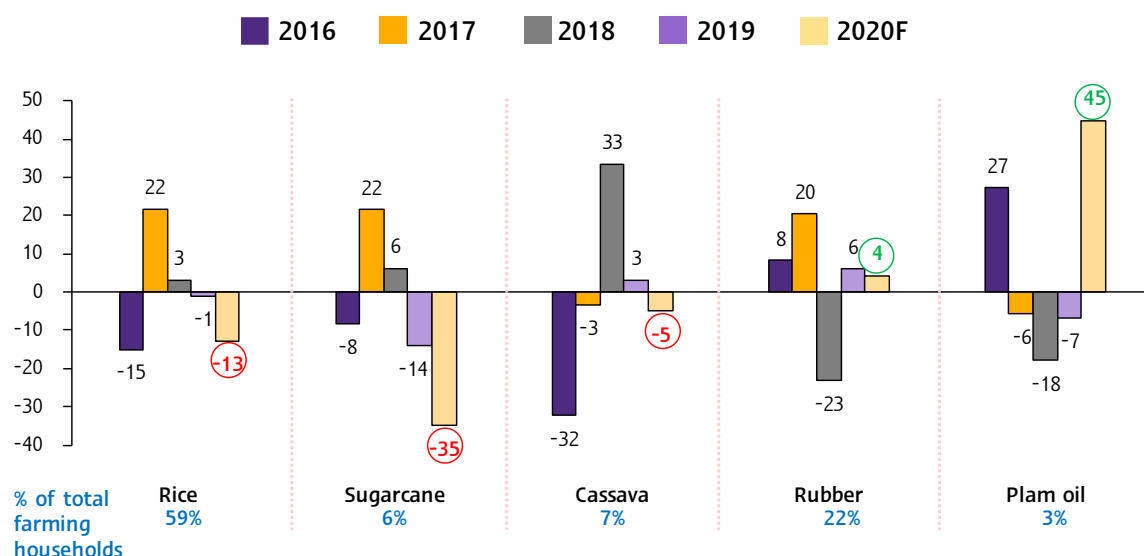
As for cassava, the price of cassava in 2020 should escalate to 2.4 baht/ kilogram, expanding by 16% from 2.0 baht/ kilogram in 2019. Furthermore, the Cassava Mosaic Disease outbreak threatened major producers and exporters of cassava, including Thailand, Vietnam, and Cambodia, thereby causing global cassava supply to drop.

Although the price of rice, sugarcane, and cassava in 2020 heightened from drought, the comparatively higher output decline will continue to pressure the income of rice, sugarcane, and cassava farmers. The number of farming households that cultivated rice, sugarcane, and cassava contributed to 72% of total farming households in Thailand. Therefore, the mentioned income decline could, in turn, affect businesses that relied on farmer's purchasing power, from everyday consumer products and motorcycles to agricultural input products, such as agricultural machinery, seeds, fertilizers, and pesticides.

On the contrary, the income of rubber and oil palm farmers should improve in 2020 due to higher supply. However, rubber growers will still be challenged by rubber prices, which remained low and stagnant. Meanwhile, oil palm growers will additionally benefit from oil palm's increasing price trend as the government increased the proportion of biodiesel mix in diesel oil and introduced B10 biodiesel as the primary diesel while phasing out B7 and B20 as alternative oil since January 2020 onwards.

Figure 5: Farmer's income

Unit: %



Source: EIC analysis based on data from the Office of Agricultural Economics

The implemented income insurance program in 2019 for rice, cassava, rubber, and oil palm boosted farmer's income by approximately 1-2% compared to the program not being implemented. The continuation of the farmer's income insurance program will somewhat support farmer's income in 2020. However, EIC views that in 2020 the program will not fully elevate the farmer's income. This is because the price of most agricultural products will increase, except for rubber. Furthermore, the quantity of agricultural outputs that will enter the mentioned program might not be as high due to drought. As such, the government might need to consider other measures to alleviate farmer's income such as compensation for drought relief.

EIC views that for short-term mitigation, the government could encourage farmers to modify agricultural practices according to the changing water situation in tandem to implementing other relief measures. Meanwhile, the longer-run sustainable water management, a lingering structural problem, needs to be resolved in parallel. In the past, most drought mitigation measures were focused on encouraging farmers to cut down the cultivation of water-intensive crops such as off-season rice or provided compensation for drought-affected farmers. However, EIC views that in the short term, the government could implement additional measures, for instance, knowledge transfer on crop cultivation and procure farming inputs and technology to encourage farmers to modify farming practices according to the changing water situation. Furthermore, the government should urge farmers to bring agricultural supply into the crop insurance program to in part alleviate the farmer's dwindling income.

Meanwhile, sustainable water management, especially in times of drought and flood, is still a structural problem that needs to be addressed in parallel. Various solutions should be considered, such as developing water resources, increasing irrigation areas, allocating water resources as well as promoting more efficient water usage. The government could also urge farmers to plan crop cultivation appropriately, for example, grow crops that require less water in areas that repeatedly suffer from drought, promote crops with high

value-add to the economy and support farmers to shift to cultivate crops as planned. Furthermore, the introduction of Agritech to aid water usage will be beneficial, for example, automatic irrigation systems to increase water use efficiency in addition to climate warning systems that will enable related departments as well as farmers to plan water resources thoroughly and plan crops more appropriately.

By: Kanyarat Kanjanavisut (kanyarat.kanjanavisut@scb.co.th)
Senior Analyst
Pattarawadee Rattanasiwakoon (pattarawadee.rattanasiwakoon@scb.co.th)
Analyst



Economic Intelligence Center (EIC)
Siam Commercial Bank
EIC Online: www.scbeic.com

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