



VIET NAM DROUGHT AND SALTWATER INTRUSION IN THE MEKONG DELTA

Joint Assessment Report
Assessment date: 15 - 17 January 2020



UNITED NATIONS
VIET NAM



Save the Children

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KEY MESSAGES

RECOMMENDATIONS

- Multi-sectoral preparedness and early actions taking a **human centered approach** are key to reduce risks and impacts on the most vulnerable communities.
- There is an urgent need to develop national and provincial response and recovery plans which include the following key phases: early action, response, and recovery.
- Ensure **information on risks, impacts and mitigation measures** of drought and saltwater intrusion reach people timely, particularly the most vulnerable persons.

GENERAL



- Since 2019, severe drought and saltwater intrusion conditions have been detected and have begun to significantly affect the livelihoods, food security and water supply of people across 13 provinces in the Mekong Delta region.
- Seasonal weather forecasts and satellite observations indicate that the level of severity will continue to increase, peaking in March to April 2020.
- The ongoing trend of unfolding events, as well as Government reports indicate that impacts are expected to be more severe compared to the record 2015-2016 drought.
- Lessons learned from 2015-2016 are being implemented:
 - Government has built large infrastructure to reduce saltwater intrusion (sluice systems).
 - Government is proactively monitoring the situation and has requested early support.
 - Government, UN and partners are coordinating efforts since December 2019 and are implementing early actions.
- While Government has mobilized internal resources, most measures focus on large-scale infrastructure, leaving gaps in addressing needs of the most vulnerable households.

WASH



- Evidence of stored drinking water depleting and expected to deteriorate by end of February, while prices for freshwater have started to increase. This is already adding pressure to vulnerable households.
- Current low levels of household sanitation coverage and poor hygiene practices, along with increasing water scarcity, will highly increase the risk of water borne diseases.
- Communities are turning to last resort means to pump the little remaining water from canals. Water in canals is expected to dry up in the coming weeks.

FOOD SECURITY, LIVELIHOODS and AGRICULTURE



- As the drought and saltwater intrusion intensify, loss of income and reduced food resources are deteriorating vulnerable households' food consumption in terms of frequency and quality as negative coping strategies are being employed.
- Drought and saltwater intrusion have caused a range of cost increases (pump, pipe, oil, etc.) for winter-spring rice cultivation. Small farmers have already invested higher than what they would gain from the crop harvest.
- More than one million hectares of winter-spring crop potentially affected, with impacts ranging from reduced yield up to complete loss. Animals are facing water, feed and fodder shortages (i.e. around 22.000 cows in Ba Tri, Bến Tre province).
- Drought and saltwater intrusion will considerably reduce cash labor opportunities (both agricultural and non-agricultural), as one of the main income sources of vulnerable households.

EDUCATION



- Children and adolescents who are not frequently attending school due to drought and saltwater intrusion are more exposed to violence, trafficking, child labor or even child marriage. There is a slight reduction in school attendance observed over the last 3 months in the assessed provinces.
- School aged boys and girls in the affected areas stated having difficulties to concentrate, which is affecting their ability to learn.
- School latrines are in bad condition, with no flushing water and no hand soap.

HEALTH and NUTRITION



- Poor personal and community hygiene practices and inadequate knowledge on risks of saltwater intrusion and water shortages coupled with favorable conditions for mosquito breeding, will increase vulnerability to waterborne and skin diseases.
- At the time of the assessment specific DHO plans to respond to current drought and saltwater intrusion were missing.
- Response to novel Coronavirus has reduced attention of the Government and the international community to drought and saltwater intrusion.
- Government Health and Nutrition systems are not yet included in drought provincial emergency response plans.

GENDER and PROTECTION



- Water shortages increased the burden of unpaid care work for women and reduces their time for paid work. In Ca Mau, women spent an additional 1-1.5 hours per day for water fetching.
- Lack of clean water as well as sufficient quantity has started having effects on women and children's health, including skin diseases and some symptoms of gynecologic infections.
- Women are taking showers at night in surface water ponds, without proper bathing facilities or lights, increasing their vulnerability and exposing them to risks of harassment.
- Children become more vulnerable and at risk of being neglected, violence and abuse in case of emergencies. Recognizing signs and symptoms of abuse and violence as well as of negligence becomes key to avoid long lasting consequences.
- It is necessary to have a child protection system in place with adequate human resources to closely monitor and timely respond to child protection needs.



1. Context

- Drought and Saltwater Intrusion Conditions

Over the past several years, the effects of climate change have substantially affected the Mekong Delta Region, including through sea level rises in low lying areas at the mouth of the delta, increased numbers of extreme weather events, rising average temperatures and increased saltwater intrusion¹. The Mekong River levels in June and July 2019 fell significantly in comparison to previous years, raising concerns for elevated drought and saline intrusion for the entire Mekong Delta in the 2019-20 dry season. Projections on the impending impacts on rice production had already led to a rise in regional rice export prices by December 2019².

Drought conditions and historic lower levels of flow resulted in saltwater intrusion appearing 10-20 days earlier than the historic 2015-2016 lows and 2.5-3.5 months earlier than the annual average. Salinity is expected to enter up to 110km inland, deeper than average and in many locations surpassing the highest levels reported in 2015-2016 at the same time of the year (see table below).

Trend of saline intrusion in the week from 11-15 February 2020³		
Due to the influence of high tide, the trend of saline intrusion continues to increase, the salinity depth of 4g/l in this period is likely to be as after:		
Location	Salinity intrusion forecast	Comparison with same period in 2015-2016
Vàm Cỏ Đông and Vàm Cỏ Tây rivers	Range 90-95km	Equivalent
Cửa Tiểu and Cửa Đại rivers	Range 50-53 km	3-5 km deeper
Hàm Luông river	71 km	11 km deeper
Cổ Chiên River	65 km	Equivalent
Hậu river	61 km	2 km deeper
Cái Lớn River	60 km	2 km deeper

According to the Viet Nam Disaster Management Authority, the Mekong Delta region has been facing abnormal weather that could be attributed to climate change. Retention of water by dams in upstream areas is also seen as contributing to record-low water levels. As of 20 January, the upstream water level of the Mekong River is reported to be below average. The actual water levels at most of the key stations, including Tan Chau and Chau Doc, are staying below their Long-Term-Average (LTA) and in some cases are close to Minimum Levels⁴ (see Figure 1).

Preliminary satellite observations from October 2019 to January 2020 revealed poor vegetation health (see Figure 2), prolonged dry spells and soil moisture deficits, indicating drought like conditions. The drought is attributed to saltwater intrusion in the Mekong Delta affecting aquifers (underground water sources) which usually support domestic water demand⁵.

1. [The drought and salinity intrusion in the Mekong River Delta of Vietnam - Assessment Report June 2016](#)

2. [OCHA, 30 December 2019](#)

3, 6. [Forecast Newsletter "Meteorology, Hydrology and Salinity Intrusion in the South Region" Meteorological Department, Center Forecast, February 5, 2020](#)

4. [Mekong River Commission, 28 January 2020](#)

5, 7, 8. [UNITAR, 21 January 2020](#)

Figure 1. Water levels as of 5 February 2020 and projected flows compared to 2015-2016 at stations of Chiang Sen, Kratie and Prek Kdam of the Mekong River⁶

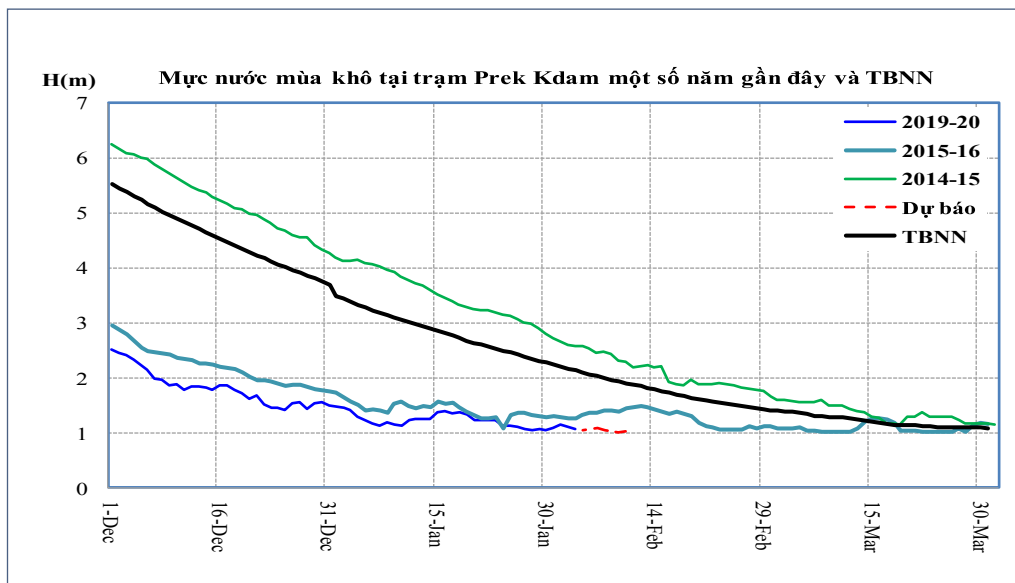
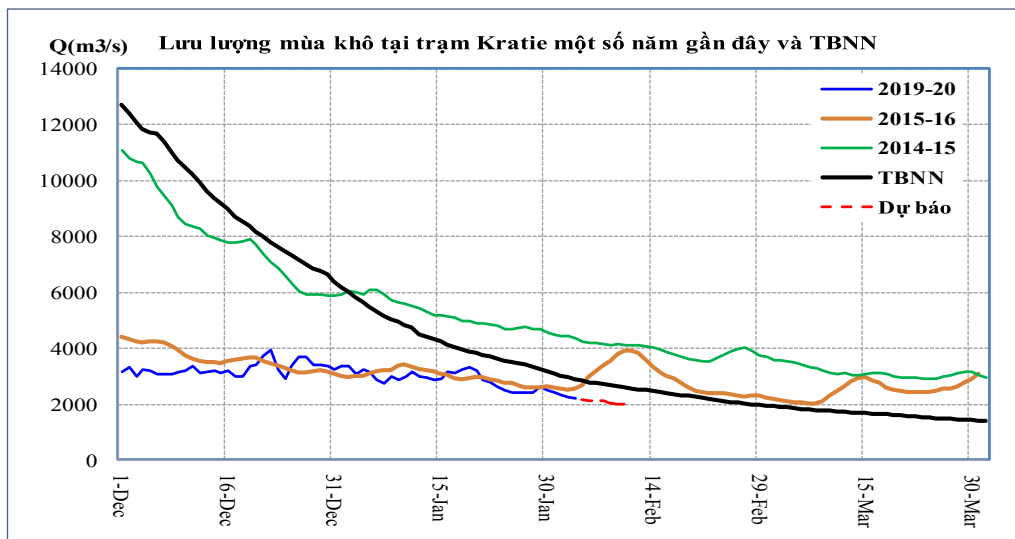
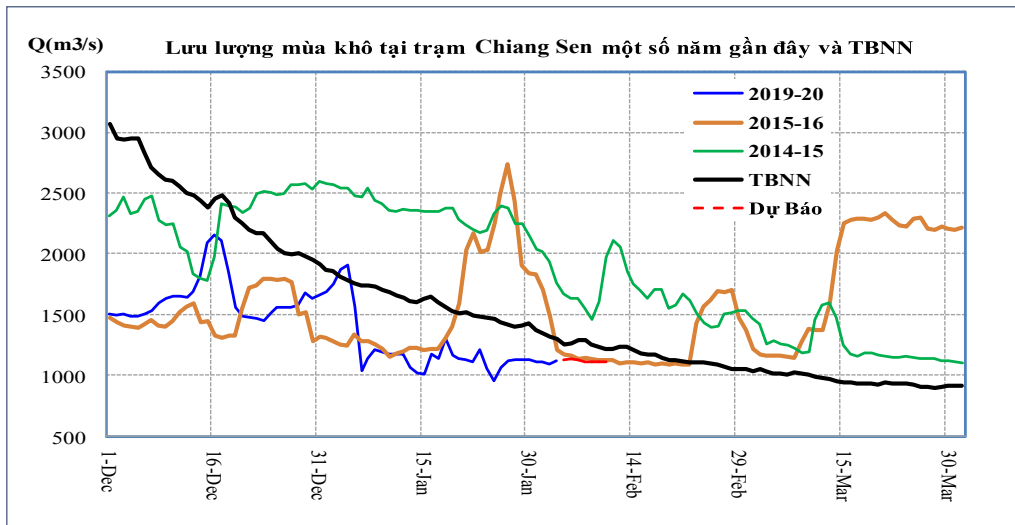
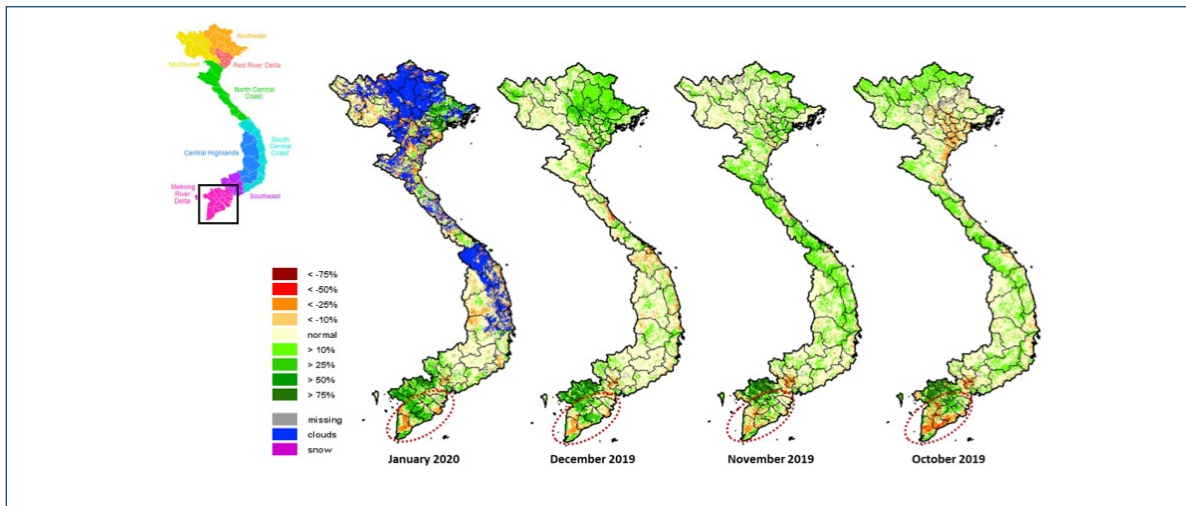


Figure 2. Vegetation Conditions (NDVI) from the FAO Agriculture Stress Index System



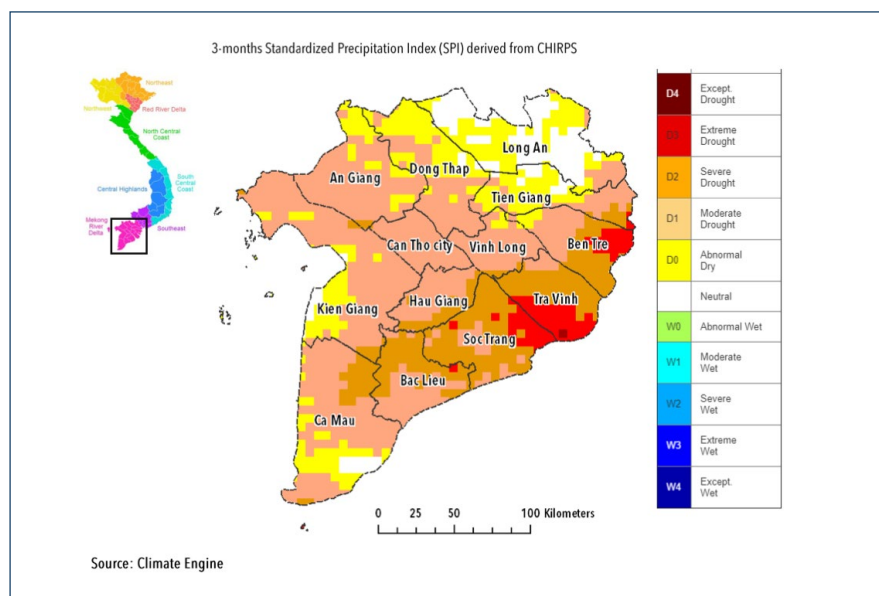
The Normalized Difference Vegetation Index (NDVI) measures the “greenness” of vegetation cover and is used to indicate the density and health of vegetation. The map represents deviation of vegetation condition from average condition of that season. The below-normal (negative vegetation) condition marked in the light to dark red shades marks areas with stressed vegetation⁷.

Starting in January, the ongoing drought, water shortage and saltwater intrusion posed a significant risk to 685,558 people in the Mekong Delta region of Vietnam. A total of 13 out of the 63 provinces (20 per cent) of Viet Nam have been affected and 02 out of 13 provinces in the Mekong Delta region (Tien Giang and Bến Tre) have already declared a State of Emergency as of 10 February.

Taking into account seasonal forecasts, implementing early mitigation actions will be vitally important to avoid severe impacts which could unfold during the peak of the drought and saltwater intrusion in March and April 2020. In addition, as gaps have been reported in people’s basic understanding and awareness, it is recommended to develop clear messaging to inform people’s awareness and decision-making in key sectors such as health, WASH, education, agriculture, food security and disaster risk reduction in the affected provinces.

The joint assessment team (JAT) was established with participation from experts in health, WASH, education, nutrition, gender, protection, disaster risk reduction (DRR), food security, agricultural and livelihoods. Team members came from VDMA, UN agencies, the VNRC, INGOs, and the National Institute for Nutrition. The JAT conducted a three-day rapid impact and needs assessment in four selected provinces (Bến Tre, Kiên Giang, Cà Mau and Trà Vinh) from 15 to 17 January 2016.

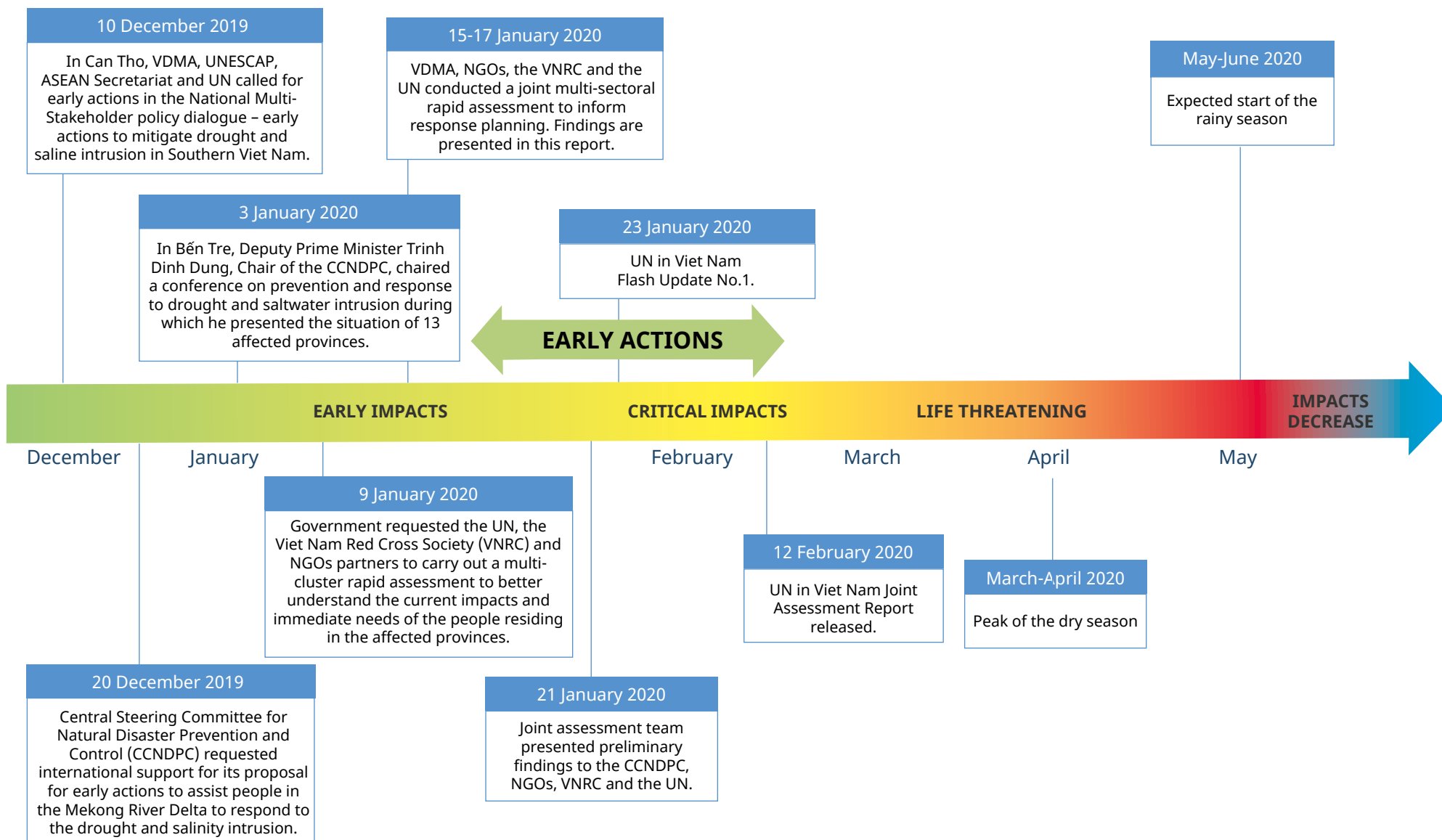
Figure 3. Drought Situations Observed from Climate Engine



3-months Standardized Precipitation Index (SPI) derived from CHIRPS data also points towards a drought situation with the SPI values indicating severe conditions. Figure 3 represents a snapshot of a drought situation as of 21 January 2020 (UNITAR)⁸

2. Timeline

Since December 2019, the Government, the UN and partners have coordinated efforts to gather and share information and to proactively take early actions.



3. Joint Assessment Methodology

3.1. Assessment Team

The Joint Assessment Team included representatives from the Viet Nam Disaster Management Authority (VDMA), VDMA staff at provincial level, the UN in Viet Nam (UNDP, UNICEF, UN Women, FAO), INGOs (CRS, Save the Children) and the National Institute for Nutrition. A list of team members and their contact information is provided in [Annex I](#) of this report.

3.2. Assessment Objectives

The Objectives of the Joint Assessment included:

1. Understanding how the situation of the drought and saltwater intrusion is evolving at the province, district and commune levels.
2. Verifying early impacts, and potential impacts on local communities, particularly on the most vulnerable people.
3. Understanding the overall Government and humanitarian partner response capacity at all levels and identifying initial humanitarian response gaps.

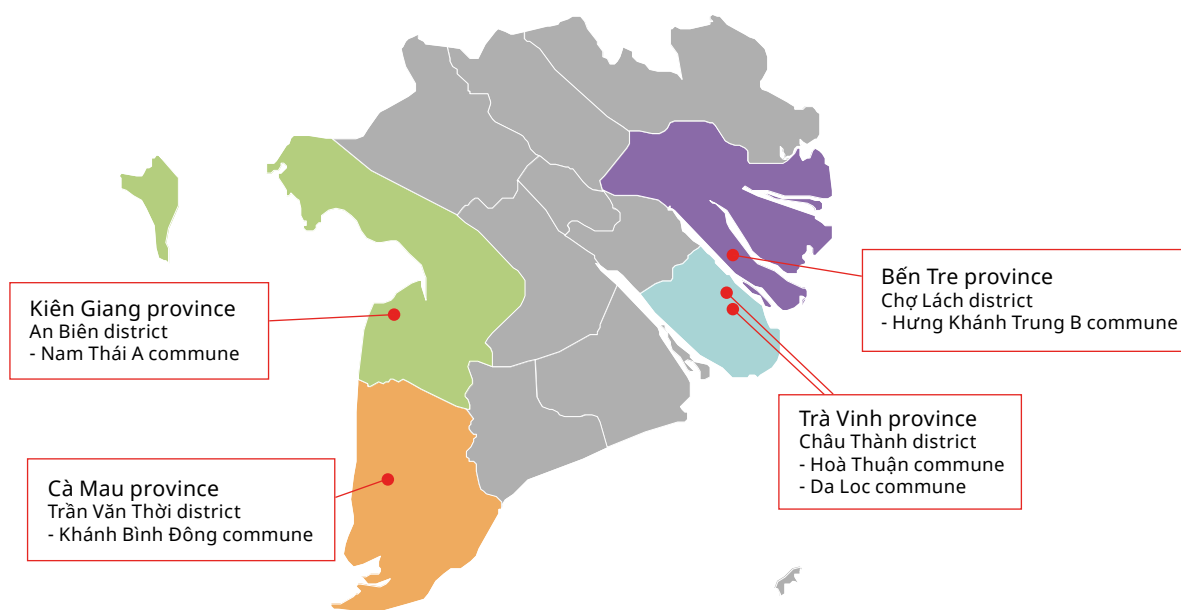
3.3. Assessment Tool

The JAT used a custom assessment template adapted to Vietnam's drought and saline intrusion situation. The assessment tool can be requested from the UN Resident Coordinator's Office.

3.4. Information Collection Methods

Following a review of secondary data, the assessment collected information from meetings with targeted groups and key informant interviews with the provincial and district Government sector leads, including the Provincial People's Committee (PPC), the Provincial Department of Agriculture and Rural Development (DARD), the Provincial Center for Rural Water Supply and Sanitation (PCERWASS), Department of Labor Invalids and Social Affairs (DOLISA), Department of Health (DOH), and Department of Education and Training (DOET). Focus group discussions and face-to-face interviews were held with households, authorities, health centers staff and schoolteacher and student groups (female and male). Observation, photo-taking, and filming have also been information collection methods.

3.5. Provinces/Communes Visited



3.6. Scope and Limitations

This report provides a summary of existing reports and available data, field interviews, and observations recorded and gives a sense of the situation on the ground at an early stage of the drought and saltwater intrusion. As more information becomes available and seasonal and agricultural forecasts become more accurate, further assessment will be needed.

The secondary data review was collected from existing reports published by UN regional and global agencies, as well as national, regional and international sources. From the secondary data, the severity of the overall incidence of drought and saltwater intrusion and the major affected areas were identified.

Primary data and field interviews have been limited to 5 locations in 4 different Provinces. Further assessment will be needed as more information becomes available through secondary data and as the impacts of drought and saltwater intrusion intensify over time.



4. Assessment Findings per Sector

GENERAL FINDINGS

As of early February, the number of households suffering from initial impacts has increased to almost 40,000 households in Bến Tre and Cà Mau, according to local authorities. This number is steadily increasing as reported by provincial VDMA agencies of the two provinces.

DARD's Preparedness Plans for drought and saltwater intrusion in Trà Vinh and Kiên Giang are in place, although the JAT observed an absence of sectoral plans (DOH, DEOT and DOLISA), as well as cross-sectoral planning and coordination. Gaps in communication and awareness among local authorities and affected communities remains of high concern.

WASH (water, sanitation and hygiene)

Water levels are getting lower on a daily basis. Streamflow has decreased while saltwater intrusion is penetrating further inland in all the locations visited. Water scarcity is among the highest concerns of the people interviewed. The JAT reported an increase in the time needed to pump water (up to an additional 30 minutes per cubic meter in certain areas). Household freshwater water tanks are almost empty, as are canals. People are resorting to negative coping strategies such as halving water consumption, purchasing water at a higher cost (in Cà Mau the price of a jerry can has increased from 10.000 VND to 13.000 VND in the last month), reducing bathing frequency and forgoing general hygiene practices.

At the time of the visit, sluice systems had all been closed in large river branches and small canals of the Mekong. Local authorities reported that they were relying on hopes for better weather and possible discharges of upstream water, although highly worried the situation will further deteriorate starting from late February 2020.

According to Kiên Giang and Trà Vinh, while the piped water supply is currently operating, it is anticipated that the drought and decreased precipitation will lead to water shortages in Kiên Giang affecting 20,000 people. In both provinces, saltwater intrusion has infiltrated earlier this year compared to average, forcing authorities to close sluices at 38cm (water level), with 50cm being the minimum required for agriculture irrigation.

Underlying vulnerabilities such as open defecation in canals, fishpond hanging latrines, inadequate waste management practices (humans, livestock and cattle) and water piping systems not reaching marginalized communities are increasing the risk of negative impacts on vulnerable households.



FOOD SECURITY, LIVELIHOODS AND AGRICULTURE

Water availability for agricultural production is decreasing even faster than water for household consumption. River branches and canals, the main sources of water for agriculture and livestock are drying up, with levels decreasing from a depth of 4-meters down to 0.5-meters at the time of the visit, resulting in erosion to roads and houses, in addition to water scarcity. As a result, in Cà Mau and Bến Tre inland saltwater was measured at 30g per liter (in visited locations), an increase compared to the yearly average. Vegetation and landscape are visibly stressed, having partially dried out. Food consumption, production, agriculture, livestock and livelihoods in general are the most affected sectors.

As a result of the inoperative canal system, as waterways have dried up earlier than expected, transportation costs by road are higher than average compared to rivers/canals (most common transportation means), leading to higher prices for basic household supplies (including food and water), as well as decreased revenue from harvested agriculture products.

As the drought and saltwater intrusion is severely impacting the agriculture sector and water-intensive activities, (e.g. fruit and vegetable farming, fishing, animal husbandry), labor opportunities have diminished. As canals are drying up, local people lost one of their main food sources from fishing. Vulnerable households are engaging in alternative cash labor activities, both agricultural and non-agricultural (motorcycle taxi, house construction, house painting, fish processing factory, etc.) to gain additional income.

Despite the high productivity of rice farming in the region, people, especially poor and near poor people are concerned about agriculture cultivation yields as water dries up and prices rise.



Ca Mau

- 30,000 hectares of paddy rice (45 days old) are potentially damaged or lost.
- Poor and near poor household incomes will likely drop, leading to food insecurity (negative coping strategies: meal frequency and/or quantity reduction).

Ben Tre

- Saltwater has intruded 80 km inland.
- 400 hectares of paddy rice will be lost (farmers have been instructed not to cultivate rice in winter-spring crop).
- About 20,000 hectares of fruit trees (esp. durian and rambutan) will have reduced yields.
- 6,500 hectares of vegetables will be potentially damaged.
- 20 million seedlings will be potentially damaged.
- 2,000 cattle face shortages of water and fodder in the coming months in Ba Tri and Thach Phu Districts;

Kien Gian and Trà Vinh - Agriculture/livestock

- Some areas have not sown rice.
- Prospective loss and damage of the rice harvest (in sown seed areas) in the coming crops projected from 30-70% (in Trà Vinh).
- Vegetable cash-crops are highly affected by the saltwater intrusion in both:
 - Quantity, as its sensitivity to the weather and water
 - Quality, as higher costs for pumping water and lower water quality affect products
 - More labor intensive (pumping and collecting water for irrigation)
 - Increased time to sell harvested vegetables (before from 1am-3am, now 1am-6am)
- Husbandry: Local people reported they had to sell livestock (cows) due to insufficient water supply. The team didn't notice this when visiting households.
- Time to collect grass for cows has increased by 50% (before 1 hour/day, now 1.5 hour/day). Costs for watering grass have also increased.
- Labor selling/Migration: Most working-age males have migrated to neighboring provinces or HCMC to sell labor in the low-skill labor sectors. It was reported that people were migrating to pay back debts from the last drought-saltwater intrusion.
- The current rice crop seems not to be affected; harvest season is ongoing with good yields. The local agriculture sector has a very clear plan on rice cultivation under which certain areas of land are not allowed to plant rice. Instead, common household practice is to farm shrimp, or other sea food products which are collectively mitigating the losses from rice cultivation. There is no change to the price of rice of all kinds compared to the previous 3 months.
- Agriculture products account for just a part of household incomes because in the visited locations with most affected persons, about 70 per cent of the households have young people who work in urban areas and send home remittances (VND 5-6 million/month salary).

EDUCATION

Kiên Giang and Trà Vinh

Representatives from the Department of Education and Training of both Kiên Giang and Trà Vinh Provinces demonstrated limited understanding of the impact and risks of drought and saltwater intrusion to education and learning, such as non-attendance and lower exam results. Key impacts recorded are:

- School attendance is slightly reduced over the last 3 months.
- School aged boys and girls in the affected areas also clearly stated having difficulties concentrating which is affecting their learning abilities.

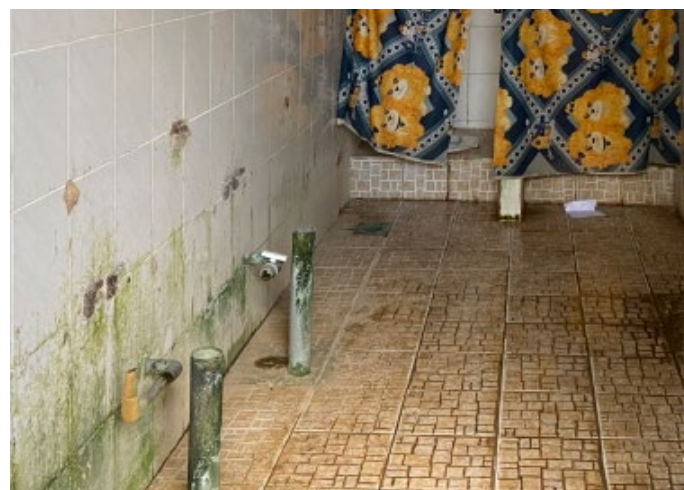
Both schools visited by the assessment team (primary school Nam Thái A of Nam Thái Commune, Kiên Giang province and Thuan Hoa lower secondary school of Thuan Hoa Commune, Trà Vinh province) have a school based DRR plan but neither of them is specific to drought or saltwater intrusion. While both schools replied that they have been trained on DRR-CC and Safe Schools and have been provided with the training materials, the level of understanding among students and teachers has been recorded at a low level.

In terms of WASH, only the main schools in the provinces are provided with pipe water, while most satellite schools are not, and as such still use well water, which is salty. Drinking water is not always provided and students must provide their own. Both schools visited have separate latrines for boys and girls, however, there is no water for flushing and hand washing and no soap. Latrine conditions (smell, cleaning, hygiene) are poor due to lack of water.

Cà Mau and Bến Tre

In the visited schools the JAT recorded lower school attendance. In Bến Tre, in the last 2 months, parents have focused on responding to drought and saltwater intrusion and neglected their children, and parents and students mention that it is impacting the children's' learning. Impacts recorded are:

- Insufficient pipe water supply in the past month.
- No soap at schools for washing hands.
- Latrines are in bad condition with strong smells and visible dirt. Children rarely use them.



HEALTH AND NUTRITION

Trà Vinh and Kiên Giang

Health and nutrition routine services in communities have been reported at normal status. Although health education equipment and materials (communication room, IEC materials, amplifier, movable loudspeakers, radio players) are available, they are not specific to health and hygiene risks caused by drought and saltwater intrusion. Despite the negative seasonal outlook, no specific action plan or directive from DOH specific to drought and saltwater intrusion was brought to the attention of the JAT.

The JAT observed the presence of epidemiologic risk factors for dengue fever and Foot-Hand-Mouth disease.

At the time of the visit no increase in number of acute malnutrition cases was observed from a small-scale MAM/SAM assessment compared to national previous report (NIN data source).

Rate of child stunting in Trà Vinh commune were lower than those at the province level (5.7% compared to 18%) in December 2019 and were lower than the national 2018 statistics (23.1%) The same observation was also found In Kiên Giang commune (10% compared to 21.1%). Evidence of increasing morbidity and diseases/outbreaks as a result of drought and saltwater intrusion (by local health report) were not found at the time of the visit.

Cà Mau and Bến Tre

No increase in communicable diseases and water-borne diseases were reported to the JAT. In local communities, households reported issues related to personal hygiene (skin diseases among children and women), which were not treated or verified at health centers.

In addition to the rapid assessment, NIN also organized an assessment in two communes in Trần Văn Thời district (Cà Mau province) and two communes in Chợ Lách district (Bến Tre province) where 100 children were measured for weight, height and MUAC. Results showed that the prevalence of GAM in Cà Mau was 2.7% and of SAM was 0.0% which was lower than the figure reported by the 30-cluster survey (GAM: 7.5%, SAM: 1.8%). In Bến Tre, the prevalence of GAM and SAM was 4.6% and 1.3% which was consistent with the data reported by the 30-cluster survey (GAM: 4.7%, SAM: 1.0%). However, the team detected cases of SAM among children under 5 years old (MUAC <11.5cm)



Interview with participants showed that saltwater intrusion and drought are having impacts on agriculture production such as rice farming in Khanh Binh Tay commune, where the productivity was reduced by half due to the lack of agriculture water resources. This year, there is only a possibility for one crop season instead of the usual two. These impacts are raising concerns among households due to the loss of livelihoods and the negative impacts on food security.

Nevertheless, the regular nutritional monitoring system showed that the prevalence of GAM and SAM remains high in Cà Mau and other provinces in the Cuu Long River Delta at times of crisis and also because these regions are frequently impacted by small-scale natural disasters. Therefore, there is a need to closely monitor and assess the nutritional condition of children to ensure timely response.

Photo: The severe acute malnutrition (MUAC < 11.5cm) was detected at Bến Tre.

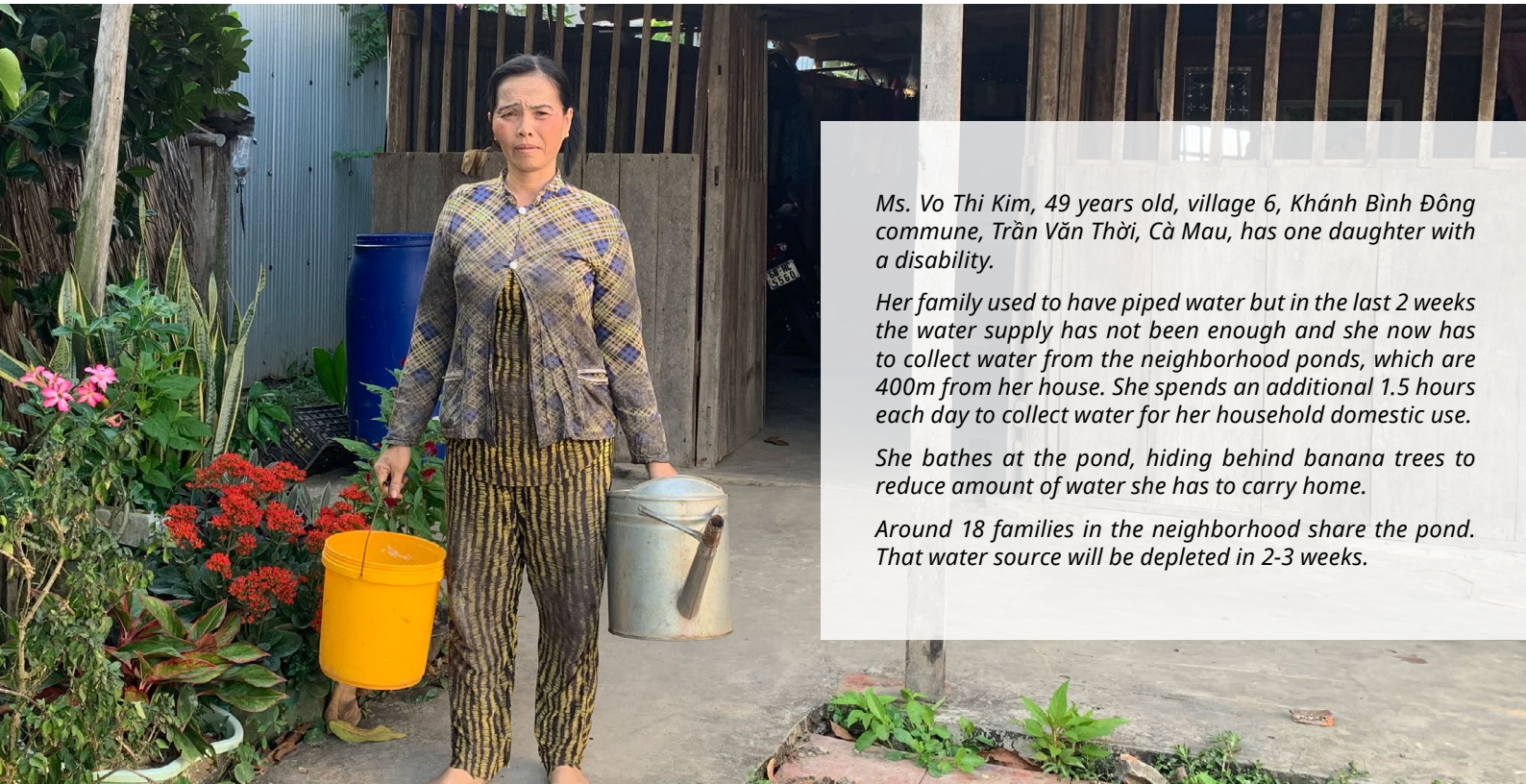
GENDER AND PROTECTION

Cà Mau and Bến Tre

Women and girls are disproportionately affected by the water shortage

Since mid-December 2019, women have had to spend additional time to get water for the family due to women's primary responsibility in managing water for domestic use in the family (e.g. drinking, cooking, bathing for children, taking care of old/sick/disabled family members). For example, in Bến Tre, interviews with households found that women have to constantly check the level of saltwater in the piped water supply during both day and night to inform the men. Men are in charge of pumping water, but women have to clean and wash water tanks and pots and ensure sufficient water storage. They are also in charge of saving and using water in the family. In Cà Mau, in poor and near-poor households facing water shortages, women take the primary role in fetching water from canals, nearby ponds or neighbors. They have to spend an additional 1 to 1.5 hours a day to fetch water. This increased the burden of unpaid care work for women and reduces their time for paid work.

Lack of clean water as well as sufficient quantity has started having effects on women and children's health, including skin diseases and some symptoms of gynecologic infections, although most of them have not yet visited health centers. Women and children remain the most vulnerable to long term health effects from the lack of water.



Ms. Vo Thi Kim, 49 years old, village 6, Khánh Bình Đông commune, Trần Văn Thời, Cà Mau, has one daughter with a disability.

Her family used to have piped water but in the last 2 weeks the water supply has not been enough and she now has to collect water from the neighborhood ponds, which are 400m from her house. She spends an additional 1.5 hours each day to collect water for her household domestic use.

She bathes at the pond, hiding behind banana trees to reduce amount of water she has to carry home.

Around 18 families in the neighborhood share the pond. That water source will be depleted in 2-3 weeks.

As water supply is no longer reaching households, women are taking showers at night in surface water ponds, without proper bathing facilities or lights, increasing their vulnerability and exposing them to risks of harassment.

The current drought and saltwater intrusion are affecting women's livelihoods and income. They have reduced or stopped growing vegetables, causing a reduction in income from 100,000 to 40-50,000 VND per day from selling herbs, and from 110,000 to 80,000 VND per day from selling water spinach in locations visited. When the water dries up in 1-2 months, their income will be entirely eliminated. Women from poor landless families who used to work as daily workers in farms or construction are seeing their income reduced as jobs become rare.

Child protection.

Young couples have migrated to cities for work, leaving children behind with their grandparents. Currently there are no reported cases of children neglected due to the drought. A poor family reported that their children might have to reduce school attendance in the coming months as they will lack money to pay for school if their crops are damaged or lost.

At the time of the visit, there were no reported cases of violence against women, however, interviewed women said that as the peak of the dry season approaches, family income will be reduced, which may cause tension within families leading to increased verbal violence against women and children.

"I try to stick to my current livelihood as do not know what else I could switch to and who would hire me. More money is needed to buy water as the water trader said [the price of water] will increase [by at least] 20% after Tet".

Ms. Son Thi Bich Hanh, a pregnant woman at her 20s, village Binh Tri, Hoà Thuận commune, Châu Thành, Trà Vinh, has one girl.

Her family grows rice for household consumption and cultivates water spinach for market. The drought and saltwater intrusion have heavily affected the water spinach farming. It takes longer for vegetables to be harvested, the equality is poorer, additional care and inputs are necessary and products are difficult to sell. She spends an additional 40 minutes pumping water 3 times a day instead of 2 and the electricity bill has risen from 60k to 100k per month. In addition to this, Ms. Son Thi Bich Hanh has to collect water for 1-2 hours per day using the "wooden carrying pole" to water her spinach. It takes her an additional 3 hours per day, between 1am and 6am to sell the same quantity (30-50kg) of water spinach. The price paid has reduced dramatically from 6000 to 4000 VND per kilogram.

She also takes care of her whole family and collects grass for their herd. Ms. Son Thi Bich Hanh works 15-16 hours/day.



5. Response by Government and Other Actors

Early Actions

- The Government and local authorities are closely monitoring the evolving situation. Awareness was raised as early as September 2019, triggering mitigation and preventative actions. The Government and local authorities, drawing from the experience of 2015-2016, are taking early actions to support affected provinces, districts and communes with early forecasts and warnings, efficient water use plans, infrastructure (sluice systems), crop/harvesting calendar and key activities involving communities. Key actions observed by the JAT are:
 - Since 2017, Kiên Giang built 150 km of sea dykes and 52 sluices to prevent saltwater from intruding deeply inland in the northern part of the coastal areas. Those 52 sluices have been closed since mid-December 2019. These actions have mitigated saltwater intrusion.
 - In the southern portion of the coastal region, similar long dykes are being constructed (171 sluices).
 - Water trucking and 6,500 water containers were distributed to the Islands for water storage by the provinces. Island residents have adopted rainwater collection to supply drinking water.
 - In October 2019, the Kiên Giang Provincial People's Committee (PPC) issued a Disaster Risk Reduction Plan with emphasis on communication to reduce water use. The PPC expected that drought and saltwater intrusion 2019-2020 be at the same level of severity as it was in 2015-2016.



- UN agencies are coordinating with the Government, VDMA, national partners and international NGOs to monitor the impact of the drought and saline intrusion including the following activities: drought mapping and risk assessment was conducted by UNITAR-UNOSAT, with continues assessments to be carried out through February and March; development of drought index and assistance with impacts to the agricultural sector and salinity intrusion by FAO; water, sanitation and health and nutrition status by UNICEF; and health by WHO-Ministry of Health, data collection/monitoring of the impact of the drought and salt water intrusion on education and learning led by MOET/DOETs with support from the cluster-co leads Save the Children and UNICEF.
- UN agencies are in close contact with UNOCHA regional office about the evolving situation and possible early actions to help prevent the situation from turning into a humanitarian crisis.

- UNDP has made funds available from its emergency resources to support the Government with field assessments, coordination events and recovery planning and has also elaborated monitoring indicators in Cà Mau and Bến Tre provinces.
- UNICEF has made funds available in its 2019-2020-2021 workplan for long-term risk reduction, assessment, data collection, sectoral and cross-sectoral planning and communication.
- Between January 14 and 17, two Joint Assessment Teams, including partners from the Ministry of Agriculture and Rural Development, United Nations, NGOs and the Viet Nam Red Cross conducted a joint multi-cluster rapid assessment to inform response planning. Preliminary results were presented on January 21.
- VDMA, concerned Provinces and UN sector leads are regularly sharing information and closely monitoring impacts in each of the affected areas.



6. Recommendations including Short, Medium and Long-term Measures

Legend - timeframe

Immediate to 4 months

4 months to 8 months

8 months or more

Water Sanitation and Hygiene (WASH)

- Closely monitor water levels, water price and water shortages in marginalized coastal communities; undertake immediate in-depth assessments of impacts and immediate needs
 - Provide urgent water supply assistance for daily consumption (humans, agriculture and livestock)
 - Provision of water storage containers for vulnerable households
- Communication for improved household sanitation, reducing/ending use of fishpond latrines
 - Provision of water filtration system and container for school for children's drinking water; Promotion of sanitation and hand washing with soap in schools
 - Communication for behavioral change in household water treatment and safe storage with focus on rainwater harvesting and safe storage; Promotion of application of water safety plan for ensuring clean water at all times
 - Support implementation of critical recovery activities focusing on impacts of acute water shortage on family health, livelihoods, education, health
- Support implementation of longer-term recovery activities focusing on rainwater retention for use in households and farming

Food Security, Livelihoods and Agriculture

- Closely monitor the agreed food security and livelihood indicators
 - Carry out further in-depth sectoral assessment
 - Deliver food assistance through in-kind, cash or voucher mechanisms to ensure food security and prevent affected vulnerable households from employing negative coping strategies
 - Provide animal feed and water to sustain large animal production (cattle, buffalos and pigs)
- Provide agriculture inputs to subsistence farmers to restore agriculture production
 - Restock of poultry and animal (vaccinated), together with provision of additional feed, vaccines and treatments to protect animals
 - Distribute fodder and drought-tolerant/ salt-resistant seeds for fodder production
- Construct, rehabilitate and expand irrigation and reservoir system to store more water and to reach more beneficiaries and enhance crop production and diversification
 - Diversify crop production towards climate change adapted varieties
 - Raise community awareness on early warnings and disaster risk reduction systems, mitigation and adaptation to climate change
 - Undertake recovery work assistance and resilience-building planning (longer term family agricultural planning and production, climate information and water resources management for farming)

Education

- Support the improvement and continuation of water provision to all schools in the affected provinces, including the remotely located satellite schools. This includes water provision through water pipes, water tanks, rainwater harvesting system and filters
 - Promote sanitation and hand washing practices in schools
 - Perform data collection and monitoring of the impacts of the drought and salt-water intrusion on education (school attendance) and learning (test/exam results) by the Education Cluster (co)leads MOET/DOET/Save the Children and UNICEF
- Support the Departments of Education and Training (DOETs) in the affected provinces to instruct schools at all levels (starting from preschool) to prepare the school related DRR plan drought and saltwater intrusion
 - Repair latrines and hand washing areas in schools and ensure availability of soap and promotion of handwashing practices.
- Build capacity for teachers and support children of all affected provinces on disaster prevention, through the roll-out of the “Comprehensive Safe School Curriculum” which also includes activities on drought and saltwater intrusion.

Health and Nutrition

- Promote awareness and communication on health and nutrition risks: increase knowledge and build best practices of parents, childcare givers, villagers to mitigate negative impacts of drought and saltwater intrusion
- Closely monitor manifestation of nutrition and health impacts on women and children under 5 in the affected areas
- Local anthropometric nutrition data should be reviewed carefully by the DOH and the NIN to ensure they are not underestimated
- The local health sector needs to be involved in the provincial response plan by developing an urgent and specific action plan responding to vulnerable people’s health and nutrition needs in the seasonal peak (March and April 2020)

Gender and Protection

- Identify children at risk of negligence, violence and abuse and provide necessary support to them and their families (Child Protection)
 - Provide hygiene kits for women in poor HHs, specifically to the Khmer ethnic group
 - Provide health checks and treatment of gynecologic infections for women
 - Provide lights and safety measures at water collecting points for women
 - Improve awareness raising and communication to decrease the impacts of the salinity intrusion and drought on livelihoods, health, water borne diseases not only to women
- Continue to monitor and implement case management of children at risk of negligence, violence and abuse (Child Protection)
 - Compensate losses in vegetable and small subsistence crops (not only rice)
 - Support agricultural inputs to small subsistence farmers to start new crops when it starts raining
- Strengthen the child protection system in order to respond adequately to child protection needs (Child Protection)
 - Develop and IEC material on water storage, water treatment, specifically in Khmer language and integrate dissemination session into Women’s Union commune and village regular meetings and promote water testing at the commune level

Disaster Risk Reduction and Preparedness

- Develop a national and provincial multi sectoral response plan (specific to the current drought and saltwater intrusion) including early action, response and recovery
 - Develop a system to monitor key multi-sectoral indicators (i.e. precipitation, river levels, saltwater intrusion, school attendance reduction, health reports, etc.)
 - Monitor and put in place measures to counter high prices of common commodities (such as water) at peak time of drought and saltwater intrusion
 - Develop information and communication packages on drought and saltwater intrusion and conduct behavior change communication and social mobilization
- Support national Government with sector-specific recovery assessments and support development of medium-term recovery plans
 - Support Districts and Provinces to elaborate medium-term recovery plans
 - Support Government's resource mobilization to address recovery needs of the affected communities
- Support longer-term recovery planning efforts at the national and provincial levels, including planning for resilience building
 - Support national Government and provinces to set up basic early warning systems focusing on drought and salt-water intrusion
 - Implement CBDRM initiatives at the community level to enhance preparedness measures at the local level
 - Conduct multi-hazard risk assessment in priority/hard hit provinces to develop specific risk reduction plans
 - Support integration of adaptation and risk reduction measures into provincial and district level planning efforts
 - For sustainable long-term resilience building, develop and implement community-based disaster risk management, ensuring all vulnerable communities are safe and clean

** All photos in this report are credited to:
UNICEF, UNDP, FAO, UN Women, CRS and Save the Children*

7. Annexes

Annex I: Joint Assessment Team

Contact List - Joint Assessment Mission on Drought and Saline Intrusion		
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Developed by the Joint Assessment Team

This report has been developed by the UN in Viet Nam according to inputs and material received from the Joint Assessment Team including representatives from the Viet Nam Disaster Management Authority (VDMA), VDMA staff at provincial level, the UN in Viet Nam (UNDP, UNICEF, UN Women, FAO), INGOs (CRS, Save the Children) and the National Institute for Nutrition.

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