



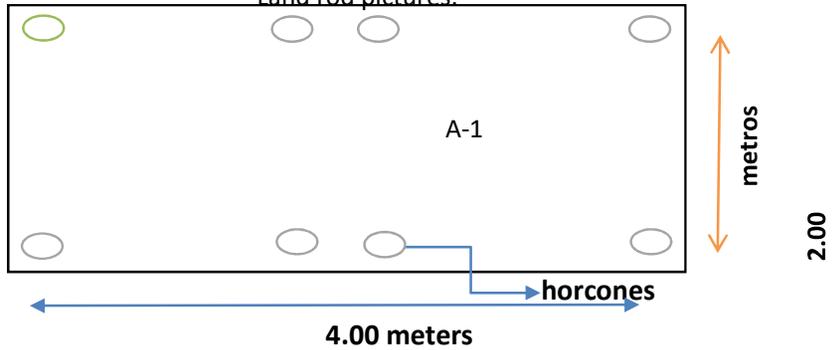
**FAMILY GUIDE
FOR PROTECTION
IN CASE OF
TROPICAL CYCLONES**

(For residents in rural areas)

Land rod models built with own resources



Land rod pictures.



Design for the construction of land rods with own resources

Classification of hurricanes according to Saffir /Simpson scale

Category	Maximum sustained winds (Km/h)	Damages
1	119-153	minimum
2	154-177	moderate
3	178-208	extense
4	209-251	extreme
5	Equal or higher than 252	catastrophic

Information Phase: aims at informing citizens about the possibility of the impact of a tropical cyclone and involves taking preventive measures.

Alert Phase: is established as increasing the probability of the cyclone impact within a period of up to 48 hours. It implies the increase of preventive measures and the evacuation of the resident population in places of greater risk.

Alarm Phase: is established before the impact imminence of the cyclone in a period of up to 24 hours. It implies the realization of all the content of the elaborated plans.

Recovery stage: it is established after the tropical cyclone leaves our territory and when there is no influence of its effects on the country. The necessary rehabilitation works are carried out in the affected territories.

Introduction

This material has been prepared taking into consideration the experiences in the response to tropical cyclones that have impacted our country in recent years (Ivan, Dennis, Gustav, Ike, Paloma, Sandy, Matthew) and the risk the resident family may face in rural areas, as they are vulnerable to landslides, floods (pluvial, fluvial and coastal) due to the impact of rain (floods of rivers, streams) and the sea, as well as the projection and falling of trees, as a result of the strong winds.

Considering the Guideline Nb. 1 "For Disaster Reduction" on April 2010 from the President of the National Defense Council, General Raúl Castro Ruz, the National Civil Defense Staff in coordination with the Institute of Meteorology and the National Institute of Hydraulic Resources, together with the governmental institutions at the provincial and municipal levels, drew up this Guide to disseminate the main measures that families must comply with when establishing the different phases of the response.

Organization of response actions:

Given the impact of any disaster hazard that can be predicted, the response stages include Early Warning and phasing. The Early Warning System for Tropical Cyclones is organized since normal times to guarantee the first stage of the response and allows prior knowledge, with certain degree of veracity based on forecasts, of the probability that a cyclone may affect part of the National territory. The information is sent to the authorities involved with enough anticipation to properly comply with the corresponding protection measures, in a timely, rational manner to avoid losses of human lives and economic damage, including the resources of the family economy.

In this sense, an Early Warning is issued and the Informative, Alert and Cyclonic Alarm phases are established. The Defense Zone has the obligation to inform all the neighbors, the need to pay attention to the indications that it states.

Cyclonic surge: It arises from the high winds that push the ocean surface. The wind causes the water to rise above normal sea level with significant wave height of 1.5 to 4 meters. Strong surge: surge with significant wave height over 4 meters.

Maximum sustained winds: Average maximum surface winds during a given period (1, 2, 3 or 10 minutes). In Cuba, the average is used in 10 minutes. However, to convert the wind speeds of different periods of averages, it is recommended to follow the guidelines of the Tropical Cyclone Program of the World Meteorological Organization.

Gusts: Short-term fluctuation in wind speed with a variation of 18 km/h (10 knots) or more between the highest and lowest speeds.

The tropical storm intensity winds are dangerous and begin to be felt long before the eye of the hurricane reaches land, so its impact should not be expected to begin the actions planned for the protection of the population and economic resources, and not even when the winds come with the hurricane intensity. The occurrence of tornadoes is also a great danger, which explains the existence of areas where great destructions can be seen.

Eye of the hurricane: Area of relative calm, defined by a circular wall of convective clouds, whose geometric center is the center of the hurricane. In the eye the winds are weak and the sky is often just partially cloudy or maybe clear, sometimes the sun is seen.

The eye originates from the intense spiraling movement of the storm. It is formed by air that slowly falls down. When the eye passes through a place, the sky becomes clear and calm prevails. Subsequently, the impact with winds from the opposite direction occurs. The eye is the region of least surface pressure and warmest temperature above. Normally, the wall of the eye is the most intense rain, the strongest winds and the worst turbulence.

Spiral rain bands: Surround the hurricanes with strong convective showers that spiral around toward the center of the storm. Cumulus clouds and cumulonimbus ascend and lightning occurs.

Storm surge: Actual level of water that is reached by the influence of a tropical cyclone. The storm surge consists of the normal astronomical tide plus the upwelling caused by the tropical cyclone. It represents the real impact of the flood in the coastal zone.

Storm surge or upwelling: It is the result of the combined effects of the low atmospheric pressure and the waters moved towards the coast by the action of the storm winds.

Main measures for family protection:

The family must conceive a group of measures for the protection of its members, its goods (which includes pets, breeding animals) and the family economy before the impact of tropical cyclones. In case the house is safe, how it could contribute to the protection of other people?

The analysis is based on knowledge of the vulnerabilities in the residence place and housing, considering in the latter the conditions of the construction, resistance of the roof, walls, windows and doors against strong winds, possibilities of collapse, leakage because of heavy rains and danger of flooding due to being in low areas, near rivers, canals, gullies or coastal areas.

The veracity degree of the protection plans for the population, the defense zone and the community where a group of families live, depends on knowing the place where they must go to protect themselves (to other houses, evacuation centers or other state facilities with safety conditions and far from the risk areas), as well as the deadlines in which the transfer must be done to avoid moving under night conditions or under the dangerous effects of winds, rains or the sea. All members of the family must be permanently informed.

It is recommendable for family groups living in rural areas, to distribute tasks to be carried out by each family member, since some guarantee compliance with the protection measures of the animals, others those actions related to crops and others those that are met directly in the homes or in the interests of the family and the community.

Main aspects families must take into account:

- Knowledge of the place for evacuation, state facility or housing where protection is planned and the deadline for presentation at the place established for the meeting and the subsequent transfer. In the case of the transfer to houses of friends or relatives, at what time they should be there. Avoid traveling at night and under the influence of winds, rains or floods.
- Before leaving, unplug everything that may cause accidents at home.
- Alternative transportation routes in case of obstruction of the planned route.
- Preparation of a family bag or backpack for disaster situations, with indispensable means and resources, for families that must be protected in other homes, evacuation centers, other facilities, caves or protective constructions.
- Guarantee disabled people, the elderly, children and pregnant women the means to facilitate their movement, permanence and basic needs during their protection in safe places.

Among the definitions of greatest interest are:

Tropical cyclone: A cyclone of synoptic scale (horizontal scale of 1000 to 4000 kilometers), without associated fronts, which develops over tropical or subtropical waters and which has an organized and defined circulation at the surface. In the northern hemisphere its winds rotate counterclockwise. In the IV region of the World Meteorological Organization (WMO) to which we belong, tropical cyclones are classified, by the speed of their maximum sustained winds averaged over one minute and classified as Tropical Depression, Tropical Storm and Hurricane.

Tropical depression: First stage of a tropical cyclone, constituted by a center of low pressures delimited by at least one closed isobar and determined vertical structure in the troposphere. The winds describe a defined cyclonic circulation and can reach a maximum average speed (in 1 minute) up to 62 km / h (38 miles per hour) (33 knots) or less.

Hurricane: Name used to name tropical cyclones in the Atlantic Ocean in which the maximum sustained winds speed is 119 km / h (74 miles per hour) (64 knots) or more.

- Increase hygienic and sanitary measures. Eliminate contaminated food.
- Check the facilities before activating water, electricity and gas networks.
- Strictly observe security measures to preserve life:
 - ✓ Do not walk through flooded areas.
 - ✓ Do not go to reservoirs, rivers and lagoons to fish or bathe.
 - ✓ Do not touch electric cables.
 - ✓ Stay away from places with collapse or landslide risk and do not return to the house where the family lives, if it was declared in danger of collapse since normal times.
 - ✓ Cooperate with the commissions appointed by the local authorities during the visits to the victims for the evaluation of damages, losses and needs.

General terms.

For a better understanding of the material, it is necessary to mention some words that have been exposed in the meteorological glossaries of the Institute of Meteorology, and in Civil Defense, for their frequent use in early warning notices, tropical cyclone warnings and in the information notes of public knowledge, which will allow to understand with greater clarity the evolution of the event and therefore of the danger and a better appreciation of the risk level to which one may be exposed.

Content of the family bag or backpack for disaster situations:

- some clothes or clothing to protect against the weather (rain, heat or cold, depending on the place and time of year).
- a portable radio that works with batteries, solar cells and magneto.
- a hand-held flashlight that works with batteries.
- enough batteries for the radio and flashlight.
- candles, matches.
- foods that do not require refrigeration, in small containers to avoid wastes and preferably that are ready for immediate consumption. Infant foods are included in case family needs indicate so.
- container with drinking water, already boiled and chlorinated.
- water purification tablets.
- can openers and cutlery.
- insect repellent or mosquito net.
- personal hygiene items.
- medications that have been prescribed for treating illnesses, accompanied by doctor's prescriptions. A reasonable provision must be secured.
- personal identification document of family members who would be together.

Measures to take for the response:

Upon Early Warning Receipt:

- Attention must be paid to information and indications from authorities and meteorological, hydrological and epidemiological services.
- Check the condition of food and take preservation actions whenever possible with traditional methods.
- Check the status and operation of the radio and hand-held flashlight, as well as the condition of the batteries.
- Check the status of the constructions, caves, land rods, shelter homes or emergency rooms, and guarantee the completion of resources and means of subsistence during the impact of the event (deposits for safe water taking into account the number of people that will remain in the place, light foods, means of communication, firewood, candles, kerosene, matches and lighters, cooking and eating utensils, chlorine or hypochlorite tablets, first aid kit, medication for metabolic diseases such as hypertension, diabetes and others).
- Members of the community with the required physical conditions should participate in the cleaning river sections, unblock stretches of ditches, channels and dry streams that can cause flooding due to heavy rains. Cleaning sinks, drains and roofs.

- ✓ Do not walk through flooded areas
- ✓ Do not go to reservoirs, rivers and lagoons to fish or bathe.
- ✓ Do not touch electrical cables.
- ✓ Stay away from places with collapse or landslide risk and do not return to the house where the family lives, if it was declared in danger of collapse since normal times.
- ✓ Do not leave the place where the family is protected if after feeling strong winds you feel calm, because it means that the center of the eye of the hurricane is located above its location, and stronger winds will be produced again.

Measures to take in Recovery Phase.

- Carry out an inspection of the technical condition of the house and determine the damages caused by the event. If there are structural effects, do not enter and ask for the help of specialists to diagnose the constructive conditions of the house and determine if the family can enter it.
- Contribute with the authorities and designated groups in the evaluation of damages and needs.
- Increase the actions of searching and elimination of possible mosquito's reservoirs.
- Carry out the inspection of the technical condition of the corrals and animal paddocks.
- Check compliance with measures to protect housing and the animal economy.

- If the family has the photovoltaic system, it must be disassembled and protected in a high place that is not affected by floods but also in a place that is not affected by water leaks.
- Eliminate objects that may favor the breeding and proliferation of mosquitoes.
- Protect the most sensitive species and zoo-technical categories (birds, swine, rabbits, calves and others, whose physical condition require so).
- Maintain the discipline and observance of the rules of social coexistence, respect and human solidarity in places where protected persons are concentrated. Do not drink alcoholic beverages.

Alarm Phase:

- Finish the actions for protection and take the place destined to preserve life. The exchange of information with the neighbors is carried out according to the coordinated signals, to warn about the establishment of the phase.
- Carry out, if possible, meteorological and hydrological observation (water levels), mainly towards nearby rivers and micro-dams, without affecting physical integrity.
- Strictly observe the security measures for the pruning of trees that can affect the house. Check the status of drainage works and dams.
- Remove objects from the yards that can be projected by strong winds and cause accidents.

- Take measures for the protection of personal documents (property title, identity card, ration booklet, certificates and medical records).
- Guarantee the use, storage and consumption of safe water by purchasing hypochlorite or chlorine tablets.
- In case there is a disabled person in the family, designate one or several relatives, companions, neighbors or friends with whom they will be accompanied.
- Check the access roads that may be left uncommunicated. Check which neighbor to establish cooperation, information exchange and signals (sound, light) with.
- Check the areas destined for the evacuation of the animals at risk.
- Check the means for the protection of crops, windmill, cultivation or covered houses, turbines, irrigation machines or systems, solar panels, harvested crops and seeds.
- Evaluate the need for accelerated harvesting of crops.
- Maintain a good hygienic health status in pens and paddocks for animals, as well as in the premises used for the storage of crops and seeds.
- Increase the actions of searching and eliminating deposits and reservoirs that may favor the reproduction and proliferation of mosquitoes during the time away from home.

- Check the deposit and the place for protection of the photovoltaic system; as well as the procedures for its disassembly. Designate who will carry out the dismantling.

When declaring cyclonic phases:

Information phase:

- Continue to comply with Early Warning measures
- The family must know the situation and place where the members of their family are and be attentive to the information and indications from the authorities and the meteorological, hydrological and epidemiological services.
- Protect windows and doors with wooden planks and light roofs with sacks of sand, soil, or wire.
- Prepare the family bag or backpack, reviewing not less than three times all the items provided.
- Check the condition of access roads and the location for protection (either on the land roads, caves, constructions, in the houses of relatives or friends, in shelters or emergency rooms).
- People responsible for the attention and / or operation of the Early Warning points or volunteer observers, should activate the communication system for disaster situations and perform the check with the disaster management centers of the subordinate defense councils, as well as the corresponding work groups.
- Protect seeds or micro plants.

- Transfer affected animals to the agreed sanitary facility to which emergency sacrifices will be necessary to carry out.
- Increase sanitary hygiene measures.

Alert phase:

- Check the safety and hygienic conditions as well as the time for the occupation of caves, works, tunnels or ground rods, shelter houses or emergency rooms, before the influence of the destructive effects of the cyclone.
- Establish cooperation with neighbors according to coordinated signals.
- Check the status of the access roads that can be used for evacuation.
- Strictly observe hygienic and sanitary measures.
- If you are a volunteer observer or have an Early Warning Point at home, organize and carry out work shifts for meteorological and hydrological observation (water levels), mainly towards close rivers and micro-dams that can be observed from that place and affect it. Report on the situation, if possible, every three hours.