



Government of Saint Lucia

Post Disaster Food Protection Guidelines

*Commissioned by NEMAC in 2003
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Approved by Cabinet Conclusion 1151/2009

*Companion to
<http://stlucia.gov.lc/nemp>*

*Developed by NEMO Secretariat and modelled upon
SOPs of City of Houston - <http://www.houstontx.gov/health/Food/food-surv.htm> &
<http://www.houstontx.gov/health/Food/post-disaster.htm>*

Iowa State University - <http://www.extension.iastate.edu/Publications/N3192.pdf>

*Department Of Environmental Health -
<http://foodsafety.ucdavis.edu/CONSUMER/fire.html> &
http://www.fsis.DepartmentofEnvironmentalHealth.gov/Fact_Sheets/keeping_food_Safe_during_an_emergency/index.asp*





Acknowledgements

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Ministry of Agriculture: Bio Diversity Unit
Ministry of Health: Environmental Health Department
Ministry of Health: Nutrition Unit
NEMO: Supplies Management Committee
Saint Lucia Bureau of Standards
Saint Lucia Red Cross
Consolidated Foods

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SECTION 1 – OVERVIEW

1.0 INTRODUCTION

Food contamination is often a problem after a disaster because filth and disease-causing bacteria can contaminate any food the water contacts and make that food unsafe to eat.

This Plan will outline measures to be taken for ensuring the safety of relief supplies after a disaster, and compliments the Relief Distribution Plan.

2.0 AUTHORITY

The plan is developed as one of the functional plans of the Saint Lucia National Emergency Management Plan

3.0 RESPONSIBILITY & LIMITATIONS

The responsibility for maintaining, reviewing, updating and amending the Plan lies with the Chairperson, Supplies Management Committee [SMC]. The Plan will be reviewed and updated after any real event and/or simulation exercise, and once per year prior to the start of the hurricane season.

This plan is limited to FOOD SAFETY and NOT FOOD SECURITY during responses to major events.

The National Emergency Management Organisation [NEMO] must be notified of all MAJOR activations. This is necessary to allow for the rapid coordination of resources should the incident escalate to a level requiring National mobilisation.

4.0 ASSUMPTIONS

The Plan assumes that:

1. The GOSL will provide the necessary support to enable the Plan to be activated.
2. Once activated, the Plan will be supported by other plans as necessary.
3. All members of the Committee will be available for duty.
4. Members of the committee will be trained in the skills necessary for implementation of the Plan.

5.0 RELATED DOCUMENTS

This plan is a “stand alone” document that may be activated to support hazard management plans. Other documents related to this plan are:

1. Relief Distribution Plan
2. Donations and Importation of Relief Supplies Policy
3. The Sphere Handbook [Humanitarian Charter and Minimum Standards in Disaster Response]
4. GOSL Policy on Genetically Modified Food

SECTION 2

FOOD SURVEILLANCE AND SALVAGE FOLLOWING DISASTERS

1.0 DESTRUCTION, DETENTION AND RECONDITIONING OF FOOD:

Destroy items that cannot be salvaged, detain questionable items and recondition salvageable items with close supervision.

2.0. DESTRUCTION

Arrangement for the proper disposal of condemned goods is one of the first items to be completed in a disaster plan. Proper disposal could include the use of approved types of incinerators, when available, or the use of sanitary landfills or both. In many cases, it may be necessary to establish temporary sanitary landfills. Trucking arrangements should also be considered in a disaster plan. Workmen and security guards should be at the landfill site for proper disposal and to prevent scavenging/looting. Records should be kept of disposal of merchandise at the place of business and at the disposal site. Do not forget the number of truckloads, date and point of origin information for future insurance claims and reimbursement.

The Department of Environmental Health along with shop owners and manufacturers want assurance that products deemed unwholesome are absolutely destroyed and will not reappear as damaged merchandise in retail outlets leaving a door open for items to be sold on the open market.

Products that should be destroyed and cannot be reconditioned or salvaged:

- a. Produce such as lettuce, celery, cabbage that has been under flood water or otherwise contaminated. Most produce is self destructive because of spoilage.
- b. All packaged foods such as: coffee and tea in bags, flour, meal, cereals, beans, wheat and whole unprocessed grains and confectionery sugars. The food containers (bags/packages) that are not waterproof.
- c. Salted / shelled / shell nuts exposed to the flood waters.
- d. Screw-top, crimped-cap and similar containers when water affected such as: canned soft drinks, beer, wine and other liquor products.
- e. Frozen foods partially or completely thawed. Some of the frozen foods that are thawed because of power shortage can be sold as "freshly thawed" items.
- f. Potentially hazardous foods under refrigeration where temperatures have reached 41°F or higher, for a period of four hours or longer.
- g. Heat damaged food items that were noticeably charred or that were in the immediate proximity of the fire. Look for charred labels or other packaging damage. Extreme heat can re-cook the contents of canned foods and adversely affect the product.

- h. Foods subjected to direct contact with non-potable water. Paper or cellophane-wrapped goods can collect filth or split at the seams making it virtually impossible to remove dirt or sanitize properly and therefore are not salvageable. This includes items such as: candies, cereals, bread, cakes, chewing gum, etc.
- i. Eggs whether frozen or in-shell must be destroyed. Eggs in slip-cover type tops in flood waters cannot be salvaged or reconditioned.
- j. Kraut and pickles in process of manufacturing or in bulk (in open barrels) must be destroyed.
- k. Foods in glass containers. Experience has shown that any bottled foods with a cork stopper or glass and cork stoppers were found to be contaminated on the interior when submerged in flood water. Mainly used for catsup, vinegar and condiments, no type of closure used on these containers has been found safe after submersion in water. In some cases, large quantity of food products packed in glass containers with the anchor type vacuum pack cover have been salvaged at the processing plant by completely cleaning and sanitizing of the containers and re-cooking of the product in the container. This treatment is only of value for jams, catsup and other products, which are not injured or damaged by re-cooking. Home canned foods, except in a hermetically sealed metal can, are not salvageable.
- l. Smoke damage to food is probably the most difficult to assess. Insoluble tars and plastics and their byproducts may be suspended in the smoke and is a major concern. All meats exposed to smoke shall be disposed of unless salvaged under the guidance of Department of Environmental Health. Oil products such as butter readily absorb smoke with a resulting "off" odor and taste. Not all friction-type closure and cellophane-wrapped products affected by smoke are salvageable. Fresh produce is a perishable item and usually makes an unwise salvage product.
- m. Chemical damage of foods can occur with chemicals used in fire prevention, breakage of chemical bottles, aerosols and insecticides, etc. Any slight indication of food being contaminated whether it is chemical or microbiological will make the product unsalvageable.
- n. Syrup, molasses, honey, etc. is packed in containers that make it difficult to salvage or recondition.
- o. Meats, whether smoked, fresh, salted except for canned meats, cannot be salvaged for human consumption. Meat in process of pickling or curing after submersion in flood water cannot be salvaged. Such meat or meat products of any type may have some value for rendering purposes. Hog feeding of raw, fresh meats should not be permitted unless cooking facilities are available.
- p. Ice creams and other dairy products must be destroyed and have no salvage value.
- q. Fish and seafood products once thawed must be destroyed. They can possibly be sold as a "freshly thawed" product if the temperature is maintained below 41°F. If these products are submerged in flood waters, they must be destroyed.
- r. Spices that are shipped in containers such as paper or cardboard type therefore definitely to be destroyed.
- s. Salt, sugar, dried milk, powdered eggs, etc. If the flood waters have come over the barrels or sacks, the sugar or salt has been dissolved and the dried products damaged, allowing no other solution but destruction. If, however, the bags are only wet, it is possible to salvage the product by returning it to the manufacturer for re crystallization. This can be

of value only in large quantities. Dried milk or powdered eggs may be used for stock feeding after mixing with other products such as grains, etc.

3.0 DETENTION

All items that are questionable (those you are not so sure about) should be separated with instructions to hold. It is not the responsibility of the food inspectors to recondition or segregate the contaminated merchandise from the uncontaminated, but it is their responsibility to supervise such activity. Detention of suspected foods will be undertaken during a preliminary inspection of food establishments. Schedules for supervising segregation and salvage can be made after the preliminary survey.

Dishes, kitchen utensils - whether in stock in a store or in a restaurant should be thoroughly washed of all filth and mud and disinfected or sanitized in a chlorine solution of 200 ppm for china or glass material. If they are made from a metal, use the boiling water disinfecting method. Do not allow a dealer to sell food utensils without cleaning and disinfecting.

4.0 INSPECTION BY ENVIRONMENTAL HEALTH OFFICERS:

Before food establishments are re-opened for business, a complete inspection should be made to ensure that the following is satisfactorily completed.

Restaurants and the cleaning of food handling facilities:

No food-handling establishment should be open until the entire establishment has been thoroughly cleaned and sanitized or disinfected. Except in an emergency, when it is necessary to open such establishment earlier, no such establishment should be open without the entire building being dried out.

The cleaning should proceed as follows:

All mud should be removed from the building. Any water in the basement or cellar should be pumped out or bailed out immediately. All plumbing fixtures in the establishment should be tested to see if they are free of obstruction; if they are not free, they should be cleaned out. Commodes and drain traps can be cleaned with water and a swab or by routing with a wire.

5.0 MECHANICAL EQUIPMENT:

- A. All parts should be cleaned without forcing any dirt into the bearings. Clean all surfaces with appropriate chemicals to prevent rusting. Before using the equipment, oil the bearings and wipe the surfaces exposed to hands or clothing dry with a sift cloth.
- B. Walls, woodwork, etc. in the food establishment should be scrubbed with a stiff fiber brush and plenty of water before the establishment is dried out. All walls should be thoroughly cleaned and disinfected before any food handling.

- C. Linoleum / vinyl should be removed in cases where the silt may be underneath the vinyl material.
- D. Equipment and all furniture should be taken outdoors and thoroughly scrubbed using a steam cleaner hose if necessary to remove all mud and dirt. Any stuffed furniture must be allowed to dry completely before use after cleaning. Metal furniture should be cleaned as soon as possible since it is likely to rust. All stoves should be thoroughly cleaned and polished if necessary with a good stove polish. All pots and pans should be thoroughly scrubbed, cleaned and sanitized, using a chlorine solution or hot boiling water.

Note: Where applicable, it is recommended that single service articles be utilized, i.e., paper plates, paper cups, plastic spoons / forks / knives, paper napkins to reduce/lessen reliance on cleaning and sanitation until the Department of Environmental Health can be assured that satisfactory dishwashing methods are available.

6.0 MISCELLANEOUS

- A. Keep accurate records of all food products detained, destroyed, or salvaged.
- B. All dead animal carcasses should be cremated or buried.

SECTION 3

FOOD PROTECTION GUIDELINES

A. GUIDELINES

Proper food handling techniques during or after a disaster will reduce the possibility of food contamination and disease.

1.0 RAW FOODS:

1. Do not use meats if it has an odor or is slimy to the touch.
2. Do not use fish if it has an odor, if it has gray or greenish gills or sunken eyes.
3. Do not use ground provisions, fruits and vegetables that have come into contact with contaminated flood waters, water or chemicals from extinguishing a fire, airborne chemicals or putrid air from an industrial accident.

2.0 PROCESSED FOODS:

1. Cans should be inspected for spoilage before opening. Inspect cans for spoilage by determining if the can is swelled on the top or bottom, has dents along the seams, if the contents have an odor, foam, milkiness of juice or leaks. **DO NOT TASTE ANY SUSPECT PRODUCT TO DETERMINE SAFETY OF THE FOOD.**
2. Leftover food, not refrigerated below 5°C [41°F] for more than four hours should be considered spoiled or unsafe.

3.0 COOKING AND PROCESSING FOODS:

1. Safe potable water must be available and used for cooking, dishwashing, drinking and maintaining personal hygiene. Safe water includes commercially packaged water, water from individual wells that has been tested by Department of Environmental Health laboratory, or water supplied through the Water Mains are certified as safe.
2. After a disaster menus at food establishments should be simple and require minimal handling. For example, soups, canned meats and beans, canned vegetables, dehydrated potato products, canned juices, powdered milk, canned fruits, packaged cookies, crackers, breads, etc.

4.0 TEMPERATURES:

1. If food is to be re-heated do so to a minimum of 74°C [165°F].
2. Perishable or potentially hazardous food should be stored at 5°C [40°F] or below.

5.0 CLEANLINESS:

1. Dishes must be washed, rinsed and sanitized in safe potable water. Sanitization is very important during and after a disaster. Effective sanitization can be obtained by adding 1 ounce of chlorine to each gallon of safe potable cool water. Wash dishes and utensils with soap and water first, rinse with clean water and sanitize with the bleach water.
2. Store clean utensils in a clean place after washing, to be protected from recontamination.
3. Food dishes and utensils should be guarded against chemical exposure or contamination.
4. The disposable service items is encouraged to reduce the possibility of food borne illness. Paper plates and cups, plastic knives and forks that are used only once are highly recommended.

6.0 INSECT AND RODENTS:

After a disaster, insect and rodent activity usually increases. Doors and windows should have adequate protection to exclude insects and rodents.

B – HAZARDS

1.0 FLOOD

How to Check Flood-damaged Food

Food contamination is often a problem after a flood because flood water can carry silt, raw sewage, oil or chemical wastes. Filth and disease- causing bacteria can contaminate any food the water contacts and make that food unsafe to eat.

Examine metal cans carefully

Metal cans of food that are free of dents or rust can be saved if the following steps are followed.

- a. Remove the labels and re-label each can with a permanent marker.
- b. Wash the unopened cans in a strong detergent solution.
- c. Use a brush to remove all silt.
- d. Immerse the scrubbed containers in a lukewarm solution of chlorine for one minute. (Use 1 tablespoon of household chlorine bleach to each gallon of water.)
- e. Allow cans to thoroughly air-dry before opening or storing.

Discard damaged foods

Discard the following foods if flood water has covered, dripped on, or seeped into the package.

- a. Containers of nuts, spices, seasonings, and flavorings.
- b. Canisters or bags of grains, flour, sugar, salt, coffee, and tea.

- c. Food in paper, plastic, cloth, fiber or cardboard packages (i.e., pasta, cereal, crackers, mixes).
- d. Jars or bottles of food that have screw-top or crimp topped lids. This includes virtually all home-canned and commercially-canned foods in glass jars (jams, jellies, honey, molasses, syrups, fruits, pickles, vegetables, baby food, condiments, etc.).

Discard porous non-food items

Any porous items that are used with food or come in contact with the mouth should be discarded.

This includes:

- a. bottle nipples and pacifiers,
- b. plastic storage containers,
- c. wooden bowls,
- d. plastic utensils, and
- e. paper, foam, or plastic dishes.

Clean non-porous dishes thoroughly.

Glass and china dishes, metal and glass cookware, glass baby bottles, and empty canning jars can be saved. They must be thoroughly cleaned.

Wash in a strong detergent solution; remove all filth and mud.

Disinfect china and glass dishes, metal pots, pans, utensils and silverware in a chlorine solution for 1 minute. (Use 1 tablespoon of household chlorine bleach to each gallon of water.)

2.0 FIRE

2.1 HEAT CAN SPOIL FOOD

Food in cans or jars may appear to be okay, but if exposed to the heat, they may no longer be edible.

- Heat from a fire can activate food spoilage bacteria.
- Extreme heat can cause cans or jars to split or rupture, rendering the food unsafe.

2.2 FUMES CAN KILL

One of the most dangerous aspects of a fire is toxic fumes released from burning materials.

Toxic fumes from burning materials is considered dangerous.

- Toxic fumes can permeate the packaging and contaminate the food.
- Throw away any type of food stored in permeable packaging (cardboard, plastic wrap, etc.).
- Discard any raw foods stored outside the refrigerator, such as potatoes or fruit, which could be contaminated by fumes.
- Fumes can also contaminate food stored in refrigerators or freezers.
 - Discard any food with off-flavors or odors.

2.3 CHEMICAL EXPOSURE

Chemicals used to fight fires contain toxic materials and can contaminate food and cookware. The chemicals cannot be washed off the food.

Foods that are exposed to chemicals should be thrown away.

C- PURCHASING, STOCKING, AND STORING FOODS

Purchasing Guidelines

1. Mothers are strongly advised to continue their breast feeding regime.
2. Emphasis shall be on foods that do not require refrigeration or cooking, e.g. canned meats, salted meat and fish, package oats, biscuits, peanuts and condensed or powdered milk
3. Purchasing shall be only on the three main food groups
 - a. Staples: e.g. Rice, Corn meal, Flour, Crackers, and Oats
 - b. Concentrated energy sources: e.g. Fat, Sugar, Jams, Condensed milk
 - c. Proteins Sources: e.g. canned meats fish and eggs, canned and dried beans and Skimmed milk powder.
3. Buy Foods:
 - a. That can stay for long periods of time before spoiling
 - b. That will use little cupboard space
 - c. That will be easily prepared and served

In addition, buy fuel for cooking and lighting e.g. charcoal (1 bag) kerosene oil (2-3 gals), a coal pot or a two burner kerosene stove

Storing Foods

1. The storage area should be cool and free from contamination by insects and chemicals
2. Arrange items so that first items in will be the first items used (FIFU)

3. Invert cans of evaporated milk every 30 days
4. Store wet preserved food in cool dark areas
5. Store dried preserved foods in clean and air-tight containers such as cans, bottles or plastic packets with covers
6. Observe expiry date of packaged foods
7. Replace items removed from emergency store as soon as possible

In times of disaster, people are usually under stress and resistance to disease is likely to be lowered. The safe handling of food and the availability of water, which is safe and adequate for drinking and other domestic uses, are therefore important for the protection of the health and nutritional status of house hold members.

Keeping Food Clean

1. Wash hands carefully before handling all foods
2. Bandage all cuts and sores on hands and fingers with water proof plasters
3. Do not allow contact between raw and cooked foods
4. Put ready to eat meat, chicken, vegetables, cheese, milk, and bread, in clean utensils or on clean working surfaces
5. Wash utensils properly after eating
6. Wash fruits well before eating or using
7. Keep pets out of the kitchen and dining areas

Salvaging Carcasses

Animals salvaged for human consumption in the aftermath of a disaster should be passed by the Public Health Meat Inspector. In salvaging observe the following:

1. Animals which have been injured should not be slaughtered for human consumption without first being checked by a veterinarian
2. Animals that have not bled out properly or promptly are unfit for human consumption

3. Animals observed to be ill or under treatment should not be slaughtered for human consumption without the approval of the vet
4. Carcasses should not be used as food unless approved by an Environmental Health Officer (EHO)

Injured Animals

1. Adult cattle, horses, donkeys, with any form of fracture will not recover to be productive.
Destroy humanely
2. Calves and younger animals may recover. Consult veterinarian when possible
3. Carcasses of all animals dead as a result of drowning or strangulation are unfit for human consumption. **DO NOT EAT**

Disposal of Carcasses

1. Carcasses are best destroyed by burning on the spot where death took place, particularly if decomposition has began
2. Buildings in which animals have died should be washed with detergents and disinfectant; If disease is suspected the vet should be consulted

Storing and Protecting Water

1. Provision should be made to store water for:
 - a. Drinking
 - b. Cooking and dish washing
 - c. Bathing and flushing the toilet in case there is disruption to the public water mains
2. Store at least
 - a. Three to four gallon containers of water for drinking for a family of six
 - b. One or Two Forty gallon containers for other household uses.

Note: supplies should last for about 3 days

3. Store water in a manner that protects it from flies, mosquitoes, roaches and rats
4. Wash and fill storage vessels with clean water
5. Keep vessels or containers covered
6. Use clean containers to take water from drum or pail.

7. Boil all drinking water for at least 5 minutes or add 2 drops of house hold bleach per gallon of water or used water purification tablets, use the rate recommended per gallon of water

Safe and Hygienic Warehouse Management Measures

1. Storage structures should have proper roofs and ventilation
2. Products should be left at least 4cm from walls and 16cm from the floor
3. Bags should be placed two by two cross width to permit ventilation
4. Containers should not be piled too high
5. Chemical stock should never be stored in the same place as food

Food Safety Measures

1. Inspect food establishments and take steps to ensure their operations
2. Food stocks found unfit for human consumption must be disposed of under the supervision of the public health authority
3. When salvaged foods are fit for consumption and sale, they must be labeled accordingly. If necessary consumers should be clearly informed of measures they need to take to render them safe.
4. Crop fields may have been contaminated by human excreta, following flood, an assessment should be carried out rapidly to determine the contamination of crops and to establish safety measures such as delayed harvesting reduce the risk of transmitting feecal pathogens
5. All foods used in mass feeding or food distribution programs must be fit for human consumption (as well as being Nutritionally and Culturally appropriate)
 - a. The quality and safety of all items should be controlled; and any unfit items should be rejected
 - b. Stocks should be regularly inspected and any suspect stocks should be separated from other stocks

Flood Contaminated Foods

1. Thoroughly inspect any food left in house after a flood. Flood water may have covered it, dripped on it or seeped into it
2. Avoid the use of raw foods exposed to flood waters because of possible contamination
3. If raw foods must be used wash and rinse them thoroughly, and sanitize with a solution of 2 tsp of 5.25% household chlorine bleach per gallon of water (1oz of bleach to 1 gal of water).

Assessing and Using Salvaged Refrigerated Food

1. Inspect refrigerators to determine if they have been affected
2. When power is not available try to use refrigerated food before it is held in danger zone (5°C - 60°C) for more than 4hrs
3. To avoid disposing of meat, fish, poultry milk and wasting what might be valuable nutrients, it should be placed in a freezer immediately
4. To prevent warm air from entering the refrigerator, open it only when necessary

Shelters/ Feeding Centers/ Refuge Camps

Food hygiene must be assured:

1. Kitchen staff should be trained in personal hygiene and principles of safe food preparation
2. Shelter Supervisions should be trained to be able to recognize potential hazards and emphasize appropriate food safety measures
3. The personal hygiene of personnel involved in food preparation should be monitored.

Response to a Suspected Food Borne Illnesses

1. Rapid identification of the causative agents and the suspected foods
2. Coordination with law enforcement food safety authorities, industries, medical agencies, quarantine and custom agencies. Note that swift communication among all entities is essential
3. Removal (Recall) of contaminated food for circulation

4. Public education - the information must be conveyed in a manner that is culturally appropriate and does not cause unnecessary anxiety

Consumer Education and Information

Information and advice must be provided to the population in keeping with **Information Management in Emergencies and Disasters Plan** [Cabinet Approved 649/2007] of the Saint Lucia National Emergency Management Plan.

1. Remind the public about dangerous communicable disease out breaks
2. That safe water and safely prepared food are the two main factors to prevent such out breaks
3. Remind people of the key behaviors of safe food handling and preparation
4. Advise people to avoid certain foods

SECTION 4 RESPONSIBILITY MATRIX

| MINISTRY | AGENCY | RESPONSIBILITY |
|------------------------------|----------------------------------|--|
| Office of the Prime Minister | NEMO Secretariat | <ol style="list-style-type: none"> 1. Formulation of Post Disaster Food Protection Guidelines. 2. Ensure adoption by NEMAC and Cabinet. 3. Activate for disaster response 4. Distribution of the approved plan |
| NEMO | Supplies Management Committee | <ol style="list-style-type: none"> 1. Review of Food Safety Plan. 2. Respond as per protocols. 3. Training |
| Ministry of Health | Environmental Health Department | <ol style="list-style-type: none"> 1. Review of Food Safety Plan. 2. Respond as per protocols. 3. Food Safety Inspections. 4. Training and Certification of Food Handlers 5. Certification of Food. |
| | Nutrition Unit | <ol style="list-style-type: none"> 1. Promotion and protection of lactation 2. Maintenance of dietary standards |
| Ministry of Agriculture | Veterinary Department | <ol style="list-style-type: none"> 1. Inspection of meats 2. Respond as per protocols. |
| | Fisheries Department | <ol style="list-style-type: none"> 1. Respond as per protocols. |
| Ministry of Planning | Solid Waste Management Authority | <ol style="list-style-type: none"> 1. Solid Waste Disposal 2. Respond as per protocols. |

Appendix 1

DISCARDING SCHEDULE

1.0 REFRIGERATED FOODS

| When to Save and When to Throw It Out | |
|--|---|
| FOOD | Held over 5°C [40°F] for more than 2 hours |
| MEAT, POULTRY, SEAFOOD | |
| Raw or leftover cooked meat, poultry, fish, or seafood; soy meat substitutes | Discard |
| Thawing meat or poultry | Discard |
| Meat, tuna, shrimp, chicken, or egg salad | Discard |
| Gravy, stuffing, broth | Discard |
| Lunchmeats, hot dogs, bacon, sausage, dried beef | Discard |
| Pizza – with any topping | Discard |
| Canned hams labeled "Keep Refrigerated" | Discard |
| Canned meats and fish, opened | Discard |
| CHEESE | |
| Soft Cheeses: blue/bleu, Roquefort, Brie, Camembert, cottage, cream, Edam, Monterey Jack, ricotta, mozzarella, Muenster, Neufchatel, Queso blanco fresco | Discard |
| Hard Cheeses: Cheddar, Colby, Swiss, Parmesan, provolone, Romano | Safe |
| Processed Cheeses | Safe |
| Shredded Cheeses | Discard |
| Low-fat Cheeses | Discard |
| Grated Parmesan, Romano, or combination (in can or jar) | Safe |
| DAIRY | |
| Milk, cream, sour cream, buttermilk, evaporated milk, yogurt, eggnog, soy milk | Discard |
| Butter, margarine | Safe |
| Baby formula [opened], Breast Milk [expressed] | Discard |
| EGGS | |
| Fresh eggs, hard-cooked in shell, egg dishes, egg products | Discard |
| Custards and puddings | Discard |
| CASSEROLES, SOUPS, STEWS | Discard |
| FRUITS | |
| Fresh fruits, cut | Discard |
| Fruit juices, opened | Safe |
| Canned fruits, opened | Safe |

| | |
|---|---|
| Fresh fruits, coconut, raisins, dried fruits, candied fruits, dates | Safe |
| SAUCES, SPREADS, JAMS | Discard if above 10°C [50°F] for more than 8 hrs. |
| Opened mayonnaise, tartar sauce, horseradish | |
| Peanut butter | Safe |
| Jelly, relish, taco sauce, mustard, catsup, olives, pickles | Safe |
| Worcestershire, soy, barbecue, Hoisin sauces | Safe |
| Fish sauces (oyster sauce) | Discard |
| Opened vinegar-based dressings | Safe |
| Opened creamy-based dressings | Discard |
| Spaghetti sauce, opened jar | Discard |
| BREAD, CAKES, COOKIES, PASTA, GRAINS | |
| Bread, rolls, cakes, muffins, quick breads, tortillas | Safe |
| Refrigerator biscuits, rolls, cookie dough | Discard |
| Cooked pasta, rice, potatoes | Discard |
| Pasta salads with mayonnaise or vinaigrette | Discard |
| Fresh pasta | Discard |
| Cheesecake | Discard |
| Breakfast foods –waffles, pancakes, bagels | Safe |
| PIES, PASTRY | |
| Pastries, cream filled | Discard |
| Pies – custard,cheese filled, or chiffon; quiche | Discard |
| Pies, fruit | Safe |
| VEGETABLES | |
| Fresh mushrooms, herbs, spices | Safe |
| Greens, pre-cut, pre-washed, packaged | Discard |
| Vegetables, raw | Safe |
| Vegetables, cooked; tofu | Discard |
| Vegetable juice, opened | Discard |
| Baked potatoes | Discard |
| Commercial garlic in oil | Discard |
| Potato Salad | Discard |

2.0 FROZEN FOOD

| When to Save and When To Throw It Out | | |
|---|---|---|
| FOOD | Still contains ice crystals and feels as cold as if refrigerated | Thawed. Held over 5°C [40°F] for more than 2 hours |
| MEAT, POULTRY, SEAFOOD Beef, veal, lamb, pork, and ground meats | Refreeze | Discard |
| Poultry and ground poultry | Refreeze | Discard |
| Variety meats (liver, kidney, heart, chitterlings) | Refreeze | Discard |
| Casseroles, stews, soups | Refreeze | Discard |
| Fish, shellfish, breaded seafood products | Refreeze. However, there will be some texture and flavor loss. | Discard |
| DAIRY Milk | Refreeze. May lose some texture. | Discard |
| Eggs (out of shell) and egg products | Refreeze | Discard |
| Ice cream, frozen yogurt | Discard | Discard |
| Cheese (soft and semi-soft) | Refreeze. May lose some texture. | Discard |
| Hard cheeses | Refreeze | Refreeze |
| Shredded cheeses | Refreeze | Discard |
| Casseroles containing milk, cream, eggs, soft cheeses | Refreeze | Discard |
| Cheesecake | Refreeze | Discard |
| FRUITS Juices | Refreeze | Refreeze. Discard if mold, yeasty smell, or sliminess develops. |
| Home or commercially packaged | Refreeze. Will change texture and flavor. | Refreeze. Discard if mold, yeasty smell, or sliminess develops. |
| VEGETABLES Juices | Refreeze | Discard after held above 5°C [40°F] for 6 hours. |
| Home or commercially packaged or blanched | Refreeze. May suffer texture and flavor loss. | Discard after held above 5°C [40°F] for 6 hours. |
| BREADS, PASTRIES Breads, rolls, muffins, cakes (without custard fillings) | Refreeze | Refreeze |

| | | |
|--|--|---|
| Cakes, pies, pastries with custard or cheese filling | Refreeze | Discard |
| Pie crusts, commercial and homemade bread dough | Refreeze. Some quality loss may occur. | Refreeze. Quality loss is considerable. |
| OTHER Casseroles – pasta, rice based | Refreeze | Discard |
| Flour, cornmeal, nuts | Refreeze | Refreeze |
| Breakfast items –waffles, pancakes, bagels | Refreeze | Refreeze |
| Frozen meal, entree, specialty items (pizza, sausage and biscuit, meat pie, convenience foods) | Refreeze | Discard |

Appendix 2

[EXECUTIVE SUMMARY – MAY 2006]

World Food Program Overview of Food/Nutrition Security and Natural Disaster Risks Management

The population of Saint Lucia was estimated to be 164,791 in 2005. With an average density of 268 people per km², it is slightly above the median for the eight countries studied. The population is concentrated in the Castries-Gros Islet basin in the northwest in pockets along the south and east coasts. About two-thirds of the population lives in rural areas and 22% of the work force is engaged in agriculture. Women comprise 51% of the population and 75% of women, 15 years and older, are employed. The mean household size is 4.9 persons and 53% of households are headed by women. Three out of ten Lucians are under 15 years and 7% is 65 or older. Life expectancy at birth is calculated to be 73 years. The population is growing 1.1% annually, mostly in urban areas, and net out-migration is high.

Saint Lucia is classified as a ‘middle human development’ country by the United Nations; ranking 76th out of 177 countries on the human development index. The economy is based on tourism, real estate, trade and offshore banking. GDP per capita in 2005 was calculated to be US\$ 5,709 PPP, the third lowest of the eight study countries and 77% of the average for Latin America. During the preceding decade, GDP grew at a rate of 0.3% annually while the average annual rate of inflation was 2%. A recent mission of the IMF estimated the growth of GDP in 2005 to be over 5% with a rise of inflation to 4.4%. An estimated 25.1% of the population live below the poverty line and 7.1% are indigent, in that their expenditures were inadequate to cover their dietary requirements. With a Gini Coefficient of 0.50, the inequities of wealth distribution are significant. The data currently available for tracking MDG indicators is, for the most part, outdated and incomplete, or, at best, not readily available. In most cases, no baseline levels have been clearly established by which to measure progress; poverty, however, appears to have increased. At least 90% of adults are literate, virtually all households have access to improved water supplies and 89% have adequate sanitation facilities.

Food and Nutrition Security

Severe malnutrition is now almost non-existent in Saint Lucia, although pockets of under nutrition exist in certain areas. The recent Child Vulnerability Study discovered that 37.8% of all households were food insecure. It is not surprising, therefore, that malnutrition in children under five years is the highest of the of the eight study countries: 14% are moderately underweight, 11% are stunted, and 6% suffer from wasting. Also of concern is that 8% of infants are born underweight. On the other hand, the prevalence of overweight people is also thought to be quite high, although no precise data has been reported to verify this. Overweight and obesity are established risk factors for many chronic disorders. Diabetes mellitus is the leading causes of death in Saint Lucia, followed by heart disease and hypertension.

Overall dietary energy supply (DES), at 2,955 Kcal/person/day, is more than adequate. However, Saint Lucia's dependency on food imports is extreme. Virtually all sugar, legumes, grains, dairy products, temperate fruits, canned and dried fish, beef, and at least 80% of poultry demand, a staple, is imported. Trade of food products between Saint Lucia and other Caribbean countries is greatly imbalanced: food exports represent only 2% of food imports from the region. In addition, net regional imports of meat and dairy products are only 10% of total imports for these commodities and regional imports of fish products are but 22% of total fish imports. Declining local food production, together with increasing trade deficits, particularly net food imports, places ever more stress and vulnerability on overall food security in the country.

Almost half of all female-headed households are in the lowest quintile according to the recent survey of core welfare indicators. The survey also reported that 19% of the population 15 years and older were unemployed, and rates among youth, 15-24 years, were more than double the average. Unemployment rates were highest, in all cases, for the urban poor. Infectious diseases continue to present demands on nutrient requirements: respiratory illness, diarrhoeal disease and parasitic infections are common among young children; Saint Lucia is a priority country for the control of tuberculosis because of increasing incidence; HIV/AIDS is considered to be a concentrated, low prevalence epidemic but is significantly underreported.

Little is actually known, or at least published, about the dimensions of food and nutrition security in Saint Lucia. Without hard evidence, the most important problems and risks cannot be accurately assessed nor can priority interventions be determined. Important information gaps include the dietary practices and intake, as well as obstacles to the availability and access to food, among rural and poor urban households, particularly those headed by women. A planned food security assessment by the CFNI in the near future should go a long way in providing essential information.

The structure of food and nutrition security is complex and multi-sectoral: dealing with multiple issues of food availability, economic access, consumption, utilization. Major risks vary from external factors, such as a dependency on food imports and climate change, to matters of employment opportunities, personal choice and lifestyles (as in the cases of obesity and HIV/AIDS). Effective strategies and programmes will depend on a comprehensive understanding of all the dimensions of FNS and a coordinated commitment to action. The absence of a national food and nutrition security policy and programme is an impediment to achieving meaningful and lasting results, assuring the efficient use of scarce resources, and protecting people currently at risk.

Several courses of action are recommended for WFP assistance to Barbados to enhance food and nutrition security programming:

- Engage in dialogue with public and private institutions to discuss the development of a comprehensive National Food Security Programme and offer technical assistance in undertaking the analysis and development of appropriate policies and strategies;
- Prioritise and strengthen community-based planning and implementation of local food security protection programmes, support participatory analysis and decision-making with

local groups, and offer training and technical assistance to identify and map local populations at risk of food insecurity;

- Assist in the identification of special population groups that would benefit from food-based assistance programmes and offer technical assistance and training in the design, administration, logistics management, monitoring and evaluation of community-based and school-based programmes.
- Provide technical assistance in the design of a national monitoring system to track and report on progress in FNS programmes and monitoring of MDG indicators related to hunger and food security to inform government decision-making.

Emergency Preparedness and Response

The National Emergency Management Organization (NEMO) has identified landslides, flooding, storms with high winds, sea surges, and earthquakes as the primary natural disaster risks. Despite the absence of a live volcano Saint Lucia has had at least five swarms of shallow volcanic earthquakes in the past 100 years and a major volcanic eruption cannot be ruled out in the future. NEMO also recognizes man-made emergencies such as oil spills, industrial fires, airplane crashes and civil unrest as significant risks to the population and the environment. Since 1955, Saint Lucia has felt the impact of 18 hurricanes or tropical storms – an average of one every 2-3 years. However, in the five year period 2000-04 there have been five hurricanes. These events have resulted in 31 deaths, affected 84,000 people and caused an estimated US\$ 200 million in damages. The last major storm to hit the island was Hurricane Allen in 1980 which caused nine deaths and US\$88 million in damages.

Each of NEMO's ten National Committees has prepared a disaster preparedness and response plan for its respective area of responsibility. Most of these plans are in the process of being reviewed and approved. NEMO is primarily an agency charged with planning, building public awareness and coordinating among the government's executive agencies. It has limited staff and resources of its own and staff spend considerable time and energy coordinating activities and lobbying ministries to include EPR measures in their annual plans and budgets. Because the island is only sporadically impacted by a major direct hurricane the population and the government have become complacent – referred to locally as the "God is a Lucian" syndrome.

Nevertheless, NEMO has proceeded to undertake a number of preparedness and mitigation activities, including flood control, sea defences, road terracing, retrofitting of schools and health centres, and the training of personnel from public and private institutions. The agency has organised 18 District Management Committees, prepares community evacuation plans, and carries out disaster hazard inspections of schools that are then used as evacuation centres. A Hazard Mitigation Plan and Policy has been developed to upgrade current legislation which focuses on response and not mitigation. The Saint Lucia Red Cross is a major collaborator in disaster management and is responsible for much of the training and distribution of food and supplies during an emergency. The SLRC supports a network of 700 volunteers throughout the island.

The most vulnerable population groups in the event of natural disasters are precisely those families and communities that are not covered by a community-based disaster management plan and have not undertaken beforehand the necessary precautions and mitigation measures to lessen impact and build resilience. Of particular importance are special groups of people who have special needs and who have the least capacity to help themselves. The following groups require special attention and assistance from society:

- Families living in poverty have the most precarious living conditions and have limited capacity to undertake household mitigation measures;
- People who are physically or mentally challenged, either living alone or disabled;
- The elderly, especially those who are house-bound and depend on others for their daily needs and some of whom have been abandoned by their families;
- Families and persons, including orphans, living with HIV/AIDS and tuberculosis, who are often stigmatized and rejected by society;
- Institutionalized people, temporary or long-term, in hospitals, shelters (e.g. for battered women or abused children, drug rehabilitation), nursing homes, and prisons.

The following recommendations are directed at actions that are within the mission, scope and capacity of WFP and build on its institutional experience to deliver and support:

- Negotiate response protocols and contingency plans in advance with NEMO and other relevant government and private agencies; identify primary contacts and procedures for the off-loading, clearance, transportation and distribution of commodities to staging areas to avoid delays during the critical initial response period;
- Offer technical assistance and training to strengthen community preparedness, profiling and advocacy through vulnerability analysis and mapping; build GIS capacity to identify and locate areas subject to risk, vulnerable populations, evacuation and first aid centres, and support services;
- Offer training to NEMO and partner organizations in assessing and monitoring food and nutrition security status before, during and after an emergency event;
- Explore the feasibility of supplying emergency food rations that are culturally acceptable to ensure maximum utilization; make provisions for special foods to address the needs of special groups and make provisions for safe water supplies and portable treatment technologies; consider supplying seeds for early recovery efforts.
- Develop and implement mechanisms for documenting, assessing and disseminating the experiences and ongoing lessons from EPR activities among partner organizations.

This assessment has initially identified five public and private institutions that work in the area of emergency preparedness and response (EPR).

Appendix 3

Genetically Modified Food

The Government of Saint Lucia's

Draft Food Safety Bill

Draft Bio Safety Bill

are supporting documents to the Post Disaster Food Protection Guidelines and are stand alone documents.

For the purposes of the *Post Disaster Food Protection Guidelines* the Draft Bills are adopted as part of the National Emergency Management Plan.