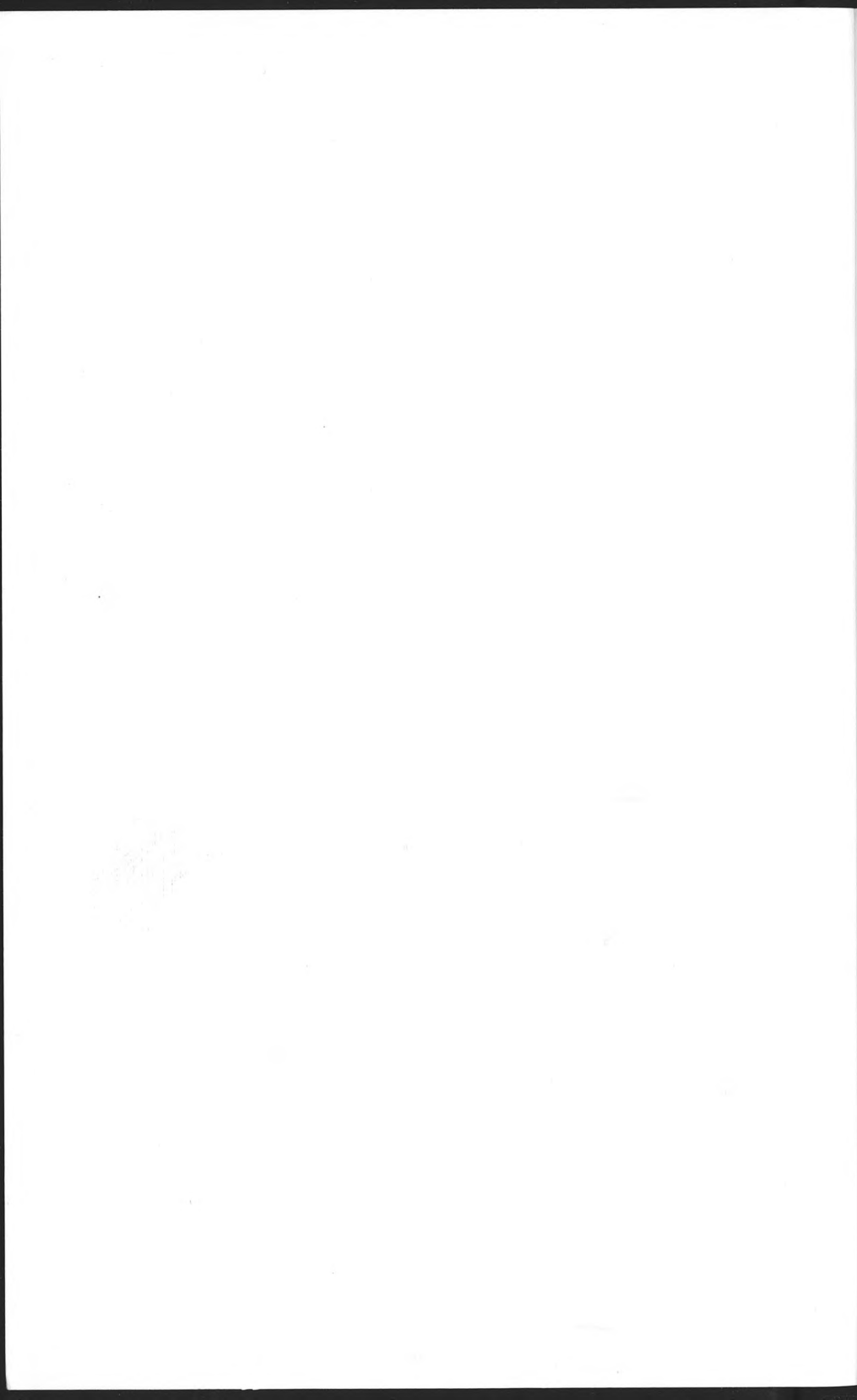




INTERTECT

**Winterization:
Cold Weather Relief**



WINTERIZATION: COLD WEATHER RELIEF

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STRATEGY

For an individual, survivability in cold weather is a function of many things including the ability to keep warm, to generate and retain body heat, and to maintain heat when the body is not in motion, especially while sleeping. To keep people warm through winter months, relief agencies should adopt a multi-pronged strategy focusing first on individuals, then the space they live in, and finally on artificial means of providing heat.

INDIVIDUALS

A person's ability to keep warm is a function of generating and retaining body heat. Thus, the first line of defence is food, specifically adapting food to the body's winter requirements.

Winter Food Requirements:

When a person is ambulatory, i.e., up and moving about, the body generates more heat than when it is at rest. However, the ability to sustain heat generation is a function of caloric intake — the amount and content of the food a person eats — and the level of exertion that a person puts his/her body through each hour. The body develops heat by converting fats stored in its tissues. For every one degree below 20 degrees Celsius, the human body needs 1% more energy. In terms of relief operations, this usually entails adding more fats and oil to the normal diet to ensure that a higher level of calories is provided. At a minimum, 20% of the ration should be fats. This can be done by adding commodities such as cheese, vegoil, butteroil, liver paste, sausage, or foods with animal fats to the normal food basket. Cereals can provide calories but not as efficiently; what is needed are foods that are small in volume and high in energy density. If culturally acceptable to the target population, prepared foods such as military rations are good for this purpose since they contain meals that have plenty of meat and oily gravies.

The next line of defence is body protection. There are two periods of concern regarding individual warmth: the times people are ambulatory and the times they are relatively motionless (principally sitting and sleeping). For times people are in motion, clothing is the prime concern, when they are motionless, additional wrapping, such as blankets, ponchos, or sleeping bags are usually required.

Clothing:

The provision of clothing is one of the most difficult, time consuming, costly, and thankless tasks in relief operations. In most cases, people do not need too much in the way of additional clothing; even the worst case refugees usually have or can obtain the clothing they need through their own means. For a relief agency to try to procure, ship, sort, and distribute a variety of clothing for men, women and children of all ages, shapes, and sizes is simply too time consuming and unproductive. Therefore, a simplified winter clothing strategy is necessary. The best way is to concentrate on the places on a person's body where the most heat is lost — the head, chest and shoulders, and hands and feet — and to shroud them with articles that stretch or fit multiple sizes and both sexes. For example:

Woolen ski caps (long enough to pull over ears): These reduce heat loss from the head and can be worn outdoors as well as when sleeping.

Woolen mittens: Since they stretch, mittens reduce the number of sizes that an agency has to plan for and can be worn outdoors and while at rest. They are also more efficient than gloves with individual fingers.

Woolen sweaters: Woolen sweaters can fit many sizes, can be layered for outdoor use and worn while at rest.

Socks: Cold weather stretch socks made from a variety of materials can be purchased.

Other items that agencies may want to consider are:

Parkas: There are a number of modern, relatively low-cost parkas made from synthetic materials that can be used in situations where people have lost their own coats (e.g., refugees who were forced to flee their homes in warmer months may not have escaped with winter clothing). Good sources for parkas are the states of the former Soviet Union, China, and Korea.

Lined, water-proof boots: Boots can be very important items, but should be considered supplemental items since most refugees in cold

climates will give priority to boots. Good sources for winter boots are the states of the former Soviet Union and China.

When providing any of the above, agencies should concentrate on standardization of sizes to reduce the number of items that will need to be sorted at the distribution end. The following are recommended:

Children: small, medium, and large;

Adults: small, large and extra-large.

As a rule, agencies should not plan to issue winter clothing for children under 3 years of age since they can be wrapped up in blankets and are more likely to be kept indoors when it is cold.

Blankets and Sleeping Bags:

When people are at rest, they will need additional wrapping to keep them warm. Blankets are the most common method since they can be used both for sleeping and to wrap the body when sitting. Blankets are the easiest, and usually cheapest, article to ship and distribute and can be layered according to temperature. They can also almost always be found locally, thereby greatly reducing shipping and delivery time.

There are several variations on blankets that agencies may wish to consider. In Latin America, there is a tradition of using ponchos (essentially a blanket with a hole in the middle so that it can be draped over a person's shoulders. Thus, the poncho can be used both as an outer garment and for sitting and sleeping.

In recent years, metallic fabric "space blankets" have been developed for campers that are very lightweight, low cost and have high heat retention capabilities.

In extremely cold climates or in situations where normal room heating will be difficult or non-existent, sleeping bags will need to be provided. Sleeping bags come in a variety of sizes and models. When procuring bags, agencies should consider the circumstances under which the people are most likely to use them. For example, will the people be in unheated tents or in solid buildings? If in the first, the bags' thermal insulation will need to be rated for the most extreme outside temperature that could be expected. If, however, the people will be inside unheated, but solid buildings, the average temperature will be higher than outside so the bags can be lighter (and thus less expensive).

Some features that are useful are:

1. Zipper arrangements that allow the bag to be opened and spread out, enabling it to be used as a blanket (i.e., zippers on three sides).
2. Zippers that permit bags to be interlocked. This allows two or more bags to be made into one large enclosure so that children, and adults, can sleep together and share body heat.
3. Washable fabrics. People may have to use the bags a long time, thus, they must be washable.

When issuing sleeping bags, families should be given one or two extras so that they can be rotated and cleaned and, if necessary, the extra(s) can be used for additional warmth in unusually cold periods.

SPACE HEATING

The next level of heating to consider is the heating of at least one small living space for a household. The first step is to ensure that the space can keep out cold air. This is done by sealing the space.

Sealing:

Sealing is best accomplished by sealing the windows, unused doors, and cracks in the walls. The most common sealants used in relief operations for walls, windows, or roof cracks are plastic sealing tape or fabric "duct" tape, two types that have high thermal retention properties.

Next, windows and doors should be covered. Normally plastic sheets are fastened over the openings. The best type of sheet is "bubble plastic," a film that has small, built-in air bags. The most common type is made of clear, transparent plastic; it can be used over windows so that sunlight enters the room and heats the house during daylight hours. The plastic sheets are usually stapled to the window or door frame, though sometimes they are fastened with plastic tape.

In recent years a new type of plastic film has been developed that uses "space blanket" technology. One side of the sheet has a thin aluminum film bonded to it so that its thermal retention is increased substantially, the film has the equivalent properties of 3 cm. of styrofoam

insulation. Some versions of the film come with adhesive strips or an adhesive back that permit it to be bonded to walls.

If the room is too large, it can be partitioned into a smaller space by using plastic sheets and blankets.

Procedure:

A family living without heat in a solid building should be encouraged to take the following steps:

1. Identify one room in the house the family can use as a multipurpose living, dining, and sleeping area. The room should be as small as possible so that the total cubic area to be heated is reduced. If solid fuel (coal, wood, charcoal) will be used for cooking, the kitchen area should be outside the sealed area. The best rooms are those that have south-facing windows or are those in the center of a house.
2. All doors and windows should be sealed with plastic and tape. South facing windows should be sealed with clear plastic so that sunlight can be let in to help heat the house. If plastic is not available, aluminum foil can be taped over windows (except those that face south). In conflict zones, glass window panes should also be taped so that they will not shatter if hit by bullets or shrapnel. If sufficient resources allow, all the windows in the house's outer walls should be sealed to provide two-stage insulation.
3. Rugs or blankets should be spread on the floor to help retain heat. This is especially important on concrete or tile floors.
4. Rugs or blankets should be placed on the walls to help retain heat. If aluminized bubble plastic is available, it should be fastened to the walls to provide insulation.

The same steps should be taken in collective shelters, however, the results will be less effective because the efficiency of the materials will decrease as the space increases.

HEATING

Heating inside a house can be provided in several ways: passive solar heating, active solar heating, and fuel burning stoves.

Passive Solar Heating:

This is perhaps the most overlooked method of providing heat. Among the measures that can be taken are:

1. Using natural sunlight to heat spaces.
2. Using sunlight to heat water, then circulating the water through a room via pipes.

Active Solar Heating:

Solar energy can be used to generate and store electricity which can then be used to run low power electric water heaters.

Fuel Burning Heaters/Stoves:

In urban areas, a variety of heaters/stoves may be necessary depending on what type of fuel is available. Gas stoves are usually the most fuel efficient. The best types are multi-purpose, radiation stove/heaters. If electricity is available, electric radiation heaters are cheap and efficient. Stove/heaters that burn solid fuels such as coal, charcoal, or firewood can be provided at relatively low cost. Care should be taken to ensure that the stoves are fuel efficient and are properly vented.¹ Cheap, lightweight stoves made of thin metal sheets do not retain heat and require three to four times the amount of fuel to cook and up to ten times the amount of fuel to heat (since they must burn fuel at a constant level). Cast iron, brick and earthen stoves are the best to use since they can retain heat much longer and take less fuel to get to a heat radiating (and retaining) temperature. Numerous fuel efficient designs are available from intermediate technology groups.

¹In the former Yugoslavia, every multifamily building erected after 1948 was required to provide a war chimney in the center of the structure so that each family in the building could use an emergency coal or wood burning stove in case of a power outage. Therefore, all apartments and most single family houses have at least one access port to the chimney.

