

Air Operation Concept

Extract from WFP Air Transport

2.3.3. Air Operations Concept (Models)

Based on the humanitarian requirements, air transportation infrastructure, TST inputs, geographical situation, magnitude of the emergency, etc, OMLA decides on the air operations concept. The decision on the concept should provide the basis for the types of aircraft which need to be chartered and the number and qualification of air transport officers which need to be recruited. The models below reflect a few options but are not exhaustive.

2.3.3.1. Hub & Spoke Model

The typical Hub & Spoke system is a combination of long-range strategic flights to the Airport of Entry or Staging Base, complemented by regional flights directly to delivery airfields in the affected area. The Airport of Entry or Staging Base is also the Operations base (see figure 2 – 2). In addition, it is possible to include a commuter service into this model i.e. organising passengers transport from the Operations Base to the destination/delivery airfields in the affected area.

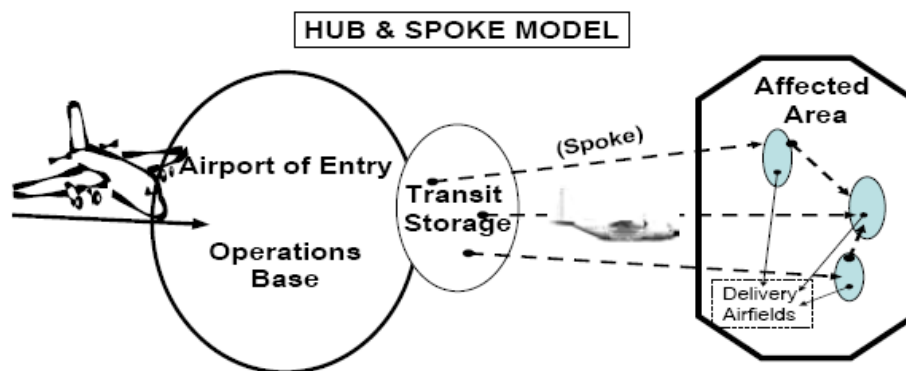


Figure 2 - 2

2.3.3.2. Helicopter Operation Model

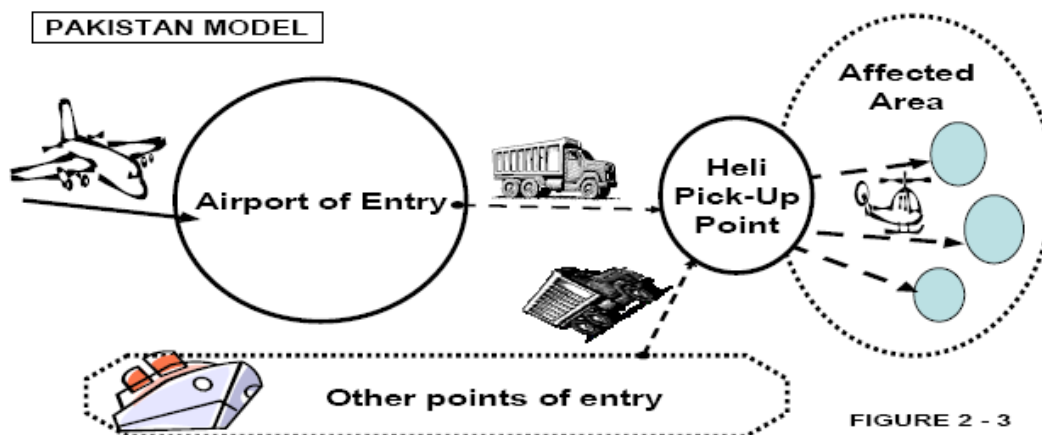
In some emergencies, the victims can only be reached by helicopters. When the airport of entry is not within the operational reach of helicopters, it may be

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required to create a helicopter pick-up point close to the affected area. In this scenario, the commodities arrive at the airport of entry, or any other point of entry, from where road transport is used to take the commodities to the helicopter pick-up point. From there, the commodities are further dispatched to the beneficiaries. To reduce the expensive helicopter flying time to the minimum, the helipad should be as close as possible to the delivery points.

PAKISTAN MODEL



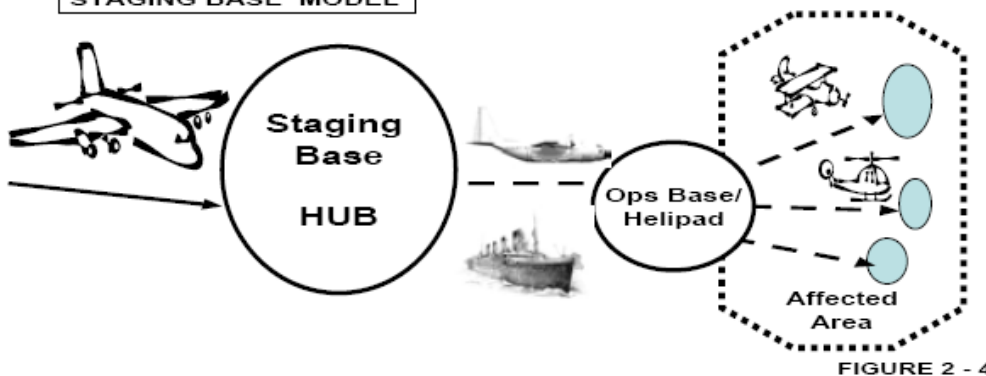
On the other hand, the helipad should be easily accessible by trucks. It is important that helicopters can refuel at this pick-up point and that the helipad is fully secured. Indeed, it should be kept in mind that the helicopters are staying overnight and that the commodities and fuel have to be guarded 24/7.

This model was applied during the earthquake in Pakistan, in 2005 and during the Myanmar Nargis Emergency in 2008.

2.3.3.3. Staging Base Model

In particular when it is anticipated that the relevant airport of entry in the affected country is expected to be congested or not giving direct access to the affected area, the best solution may be to create a staging base in a neighbouring country, but within reasonable range of the affected area.

STAGING BASE MODEL



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This was the case during the Indian Ocean Tsunami in 2005, with a staging base in Subang, Malaysia, and during the Myanmar Nargis Emergency in 2008, with a staging base in Bangkok Don Muang, Thailand.

Delivery Options

2.3.4.1. Air Delivery versus Airdrop

Although it is less the case during natural disaster, the emergency situation may be such that important quantities of food are needed to prevent the victims from starving. If the area is inaccessible, OMLA will consider the use of helicopters to deliver food. But helicopters are expensive and their payload is limited. A more cost effective option may be the delivery of food with cargo aircraft such as the AN 12, C 130 or IL 76. Nevertheless, a major requirement is the availability of an airfield in the crisis area that can accept such aircraft.

A typical example was during the 2002 war in Afghanistan when Chakhcharan, barely suitable for landings with C 130, was extensively used by those aircraft. The strip was not properly surfaced and sometimes severe damage was caused to the undercarriage and the bottom of the aircraft fuselage.

2.3.4.2. Advantages/Disadvantages

In such cases, Airdrop should be considered as the primary method for delivering food directly into the crisis area. Nevertheless, with the exception of Light Weight Food Delivery (LFD), aerial droppings require a well prepared and safeguarded Dropping Zone (DZ) under supervision of at least one monitor. Also, a thorough analysis should be made whether the airdrop option with medium size aircraft is more cost-effective than using helicopters or performing food delivery. Below are some considerations.

a. Airdrop disadvantages.

- **Cost.** A major disadvantage of airdrop is that the food commodities have to be packed in multiple and special bags and that for some dropping methods dispensable airdrop pallets are required. This makes airdrop food packing considerably more expensive than airlift.
- **Losses.** A certain percentage of food will be lost because of dispersion and/or rupture of the sacks on impact. With current airdrop techniques, when applying the normal dropping technique, the average loss is 0.5%.
- **Flying time.** Some operators perform several dropping runs which result in an augmentation of flying time, and a subsequent increase in cost.

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b. Airdrop advantages

- **Access to populations.** Dropping Zone (DZ) requirements are less restrictive than airfield requirements. Consequently, it is possible to select DZ at places where direct food distribution is possible under permanent control of the WFP staff. One of the major advantages of Air Drops (A/D) is that people can stay in their usual environment that normal life patterns are not disrupted.
- **Secondary transport.** Airlift will require secondary transport to further distribute the food. In the case of isolated towns, fuel for trucks may have to be airlifted, entailing additional costs. If secondary transport is not available, the population will concentrate in the areas surrounding the main airports and, consequently, totally depend on relief aid.
- **Maintenance costs.** Airlift to airports with sub-standard runways drastically increases maintenance costs as tires, brakes, engines and undercarriage will suffer from ingestion of dust, projection of stones, etc. Some air carriers augment their charter rate with 30%.
- **Flight safety.** The risk of accidents is higher for airlift operations, in particular on sub-standard runways. In addition, because of the greater exposure of aircraft to security risks (hijacking/shooting), the insurance rates for air delivery will be significantly higher than for Airdrop.
- **Ground costs.** Airlift operations may be subject to outrageous landing, security and handling fees, such as it was the case during the operations in Somalia in 1992.
- **Rotation time.** When performing Airdrop, the flight time of some operators will be higher than for air delivery, in particular when they make several dropping runs. On the other hand, no time is lost for downloading on the ground. Consequently, the total rotation time for airdrop operations is shorter than for airlift, allowing a more intensive use of the aircraft, but at an increased cost.
- **Airdropping is only suitable for food and not for Non Food Items (NFI), unless expensive parachutes are used to stabilize and decelerate the load before impact on the ground. Additionally, not all air carriers can perform those types of parachute droppings.**

All the elements mentioned above should be taken into consideration and the cost-effectiveness should be carefully calculated. In most cases, considering all associated costs of airlifts, normal airdrops for Food Transport will turn out to be the most cost-effective option if a lot of tonnages have to be transported.

2.3.4.3. Other Considerations

- a. It should be kept in mind that the decision to opt for airdrop implies planning for acquiring, packing, loading and conditioning of the cargo. The