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**AN ASSESSMENT OF AIRDROPS IN RELIEF OPERATIONS**

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## AN ASSESSMENT OF AIRDROPS IN RELIEF OPERATIONS

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### INTRODUCTION

In recent years, there have been a number of cases where military aircraft were used to drop food and other relief supplies to populations that were in danger of starvation due to famine, conflict, or both. Despite the high cost of such operations, there have been an increasing number of proposals to use airdrops in similar situations, especially in operations that have attracted major media attention and where US military airlift capacity has been committed. Given the renewed interest in using this approach, it is worthwhile to examine the systems available, and more importantly, the lessons learned from previous experiences.

### AIRDROP METHODS

There are generally three methods that can be used to airdrop supplies:

#### 1. Free drops:

In this method, specially packed cargo is dropped from a low flying aircraft, free falls to the ground (hopefully into a designated drop zone) and is gathered on the ground for distribution. This method is normally only used for delivering food (usually grain) or other non-breakable items. Free-drops were used extensively in Ethiopia 1985-86.

#### 2. Parachute drops:

Cargos are bundled onto specially designed pallets to which large cargo parachutes are attached. As the cargo is dropped out of the cargo bay, the chutes are deployed by a static line that trails from the plane and the cargo drifts down to the drop zone. This method was used to drop supplies to the Kurds in northern Iraq after the Gulf War in 1991.

#### 3. Low altitude parachute extraction system (LAPES):

Cargos are strapped to specially designed pallets that can be rolled out the rear of the plane as it makes a low pass (usually no more than 1 or two meters above the ground). As each pallet rolls into position on the rear cargo ramp, the cargomaster deploys the parachute attached to the pallet which pops open in the plane's slipstream and hauls the pallet out of the plane, slows its forward velocity, and lands it horizontally. This method was designed to land vehicles and breakable equipment but can also be used to drop

a variety of relief cargos including food. Parachute extraction used to drop food to mountain villages in Southeast Asia in the 1970s.

## CASE STUDIES

### 1. The Ethiopian Airdrops (1984-6)

In 1985, an international airlift -- composed of C-130s from Sweden, Britain and Belgium (and later Canada); C-160 Transalls from the Federal Republic of Germany; and Antonov An-12s from the USSR, combined with helicopters from Poland -- began delivering food to remote areas of a famine zone in Ethiopia's northern provinces of Eritrea and Tigray. Technically, the operation was a huge success. At the high point of the operation, 10,000 metric tons of food were delivered per month.

Most of the food was airlifted to remote airstrips, then trucked to distribution points in nearby communities. However, in late 1984, relief agencies requested the RAF to drop food to two remote villages that were said to be cut off from the outside by rains. Within a month, the RAF was dropping food to 20 villages and by the height of the air drop operation, that number had quadrupled. The operation took on a life of its own, eventually lasting until early 1986. The RAF and Luftwaffe planes airdropped grains using free-drop delivery.

Initially, the food was dropped to large villages or small towns in the center of a remote area; from there it was carried to smaller outlying villages by a variety of surface transport. Later, the planes began dropping directly to small remote villages. Relief agencies placed small teams on the ground to guide the airdrops, collect the food and allocate it to the local relief committees.

Technically, the effort was remarkable, for only minimal food losses resulted (less than 10% from the drops). Yet there were a number of unresolved issues, cost concerns being among the most obvious. The Hercules, which bore the brunt of the airdrop operation and often carried 15-ton loads, can only carry a load equivalent to half that of the grain lorries used in Ethiopia. The average cost of one flight equalled the cost of leasing a grain truck and fueling it for 6 months; the cost of several flights could have bought a good truck. Critics argued that an equal investment in land transportation would have been of more lasting benefit in transport-poor Ethiopia.

One justification for the airlift was the need for speed to save starving people. However, the argument doesn't stand up. It took two Hercs operating 6 days to deliver what one small convoy could deliver within the same period.

Another reason given was that many communities were inaccessible by road (variously because of fighting or the rainy season). Two things should be pointed out. First, many of the villages could be, and were, reached by relief lorries at the same time that the airdrops were underway. While it's true that convoys were sometimes slowed by rain, swollen rivers, or mudslides, they simply waited until the impasse could be overcome -- usually only a matter of hours. The total time lost waiting was not a significant factor in the total amount of supplies delivered within the specified food distribution cycle (in this case, one month).

Second, during the rainy season commercial lorry traffic reached over three quarters of the communities where air drops occurred and in the remaining villages, food was delivered by commercial traders by pack animals. Commercial traders also reached the villages during the government's offensives.

It has been claimed that the air drop effort had some impact on reducing population migration during the famine. (Migration is one of the worst results of famine and significantly prolongs relief efforts.) Unfortunately, there is little evidence to support this claim one way or the other. By the time the air drops were regularly delivering supplies, migration was beginning to taper off, largely because ground-based relief operations in the vicinity were stemming the outward flow of people.

The airlift's supporters claimed that the airdrops saved thousands of lives by delivering critically needed food. There is no evidence to support this claim. By the time the overall air operation got into full swing, death rates among the affected populations had already begun to decline, a sign that most of vulnerable people in the population had already died.

There were a number of political issues that should also be mentioned. The planes operated from government-held areas in full cooperation with Ethiopian authorities. This had several results. The airlift was viewed with some suspicion by the two principal insurgent fronts: the Eritrean People's Liberation Front (EPLF) and the Tigrayan People's Liberation Front (TPLF). In their minds, the international community had taken sides. Thus, the mantle of neutrality needed by relief agencies to operate in conflict zones was lost.

An even more important issue was that vital negotiations between the rebels and the government over safe passage for relief convoys were lost because the government had an "out" with the

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<sup>1</sup> Initial flights were operated under the direction of the Ethiopian Commissioner of Relief & Rehabilitation with clearances from the Ethiopian Air Force. Later, the planes were operated under the UN banner but still with clearances and close supervision by the CORR and Ethiopian Air Force.

airlift. The negotiations could have opened more roads and made the food relief effort far more effective; in the case of Eritrea, a cease-fire for relief would have had even more benefits and possibly led to further peace discussions. So long as the planes were there<sup>2</sup>, the Ethiopians did not feel under pressure to negotiate.

Another concern was the scale of the airlift and the fact that it was carried out during various offensives by the Ethiopian forces. It has been pointed out that the airlift permitted the Ethiopian Air Force to continue to use its own resources for the war effort (and even a controversial forced resettlement program). Critics point out that the Ethiopians (and the Soviets) had the transport capacity to undertake a major portion of the air operation, but because the international community was doing it felt no obligation to do so.

For the international relief community, the airlift was also the easy way out of a major dilemma. They had been experiencing great difficulty negotiating with the Ethiopian government on "humanitarian access," i.e., the right to deliver relief to famine victims in the war zone. When the government failed to negotiate a safe passage agreement with the rebels, it was easier to ask for air support than to continue to badger the government. Thus, a move towards peace was lost. This was not a failure of the military; it was a failure of civilian relief authorities and diplomatic missions. But the mere availability of the airlift capacity reduced the necessity of taking a hard line with the Ethiopians. (It is interesting that the fund-raising media used by the agencies during the period rarely mentioned the fact that a war was going on.)

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<sup>2</sup> This issue has arisen in peacekeeping operations where critics have claimed that successful peacekeeping has led to stalemated negotiations, for example in Cyprus. As long as the two sides are not fighting, there is less pressure to conclude a comprehensive peace agreement.

### Lessons learned:

- Speed of delivery was not a significant factor. Airdrops would only be warranted:
  - 1) if the amount of food delivered by air exceeds the amount that could be delivered by surface within the normal food distribution cycle, or
  - 2) if the amount delivered in one or two flight rotations is sufficient to meet all the emergency food requirements of a village or small community until normal means can be used to reach the area.
- Weather and terrain obstacles were vastly overrated by the relief agencies -- access by ground was possible in virtually every case.
- Aircraft should only be used for operations that cannot be carried out by other means, i.e., they should not be seen as an end in themselves.
- Military forces should not be committed without a clear agreement from both sides of the conflict.
- Commanders should ascertain whether the commitment of air assets will help or undermine negotiations between warring parties.
- Equal access to relief supplies should be guaranteed before the relief effort commences.
- Military detachments should operate under neutral humanitarian aid authorities (and, where possible, from neutral bases).

### 2. Ethiopian air drops (1974)

During the 1974 famine in Ethiopia, a Swedish relief agency organized air drops of food to remote villages and small bands of nomads. The operation started off using small, single engine military liaison aircraft with bags of food attached to the wing hardpoints. The planes flew out to the remote areas searching for bands of nomads, then dropped the food to them when they were spotted. This practice quickly ended when it became clear that there was<sup>3</sup> no way to determine from the air which bands were starving.

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<sup>3</sup>Disasters Journal, Volume VI, 1979

As the famine grew worse, there were not enough relief personnel to work in all the villages and reports of starvation in remote villages in the eastern desert areas continued to be received by the government. Thus, village airdrops were continued with the help of several C-130s from Sweden. Villages were targeted by relief committees set up by the government and food was free-dropped at regular intervals. There was no organization on the ground to receive the food because the relief organizations did not have spare personnel to send to the more remote areas and it was argued that the traditional village structure would be able to sort out a fairly equitable distribution.

In the middle of the operation, a Swedish military and UNICEF medical team visited several of the villages to determine how the airdrops were going. They found a disturbing situation. First, there was no appreciable difference in mortality between villages that received airdropped food and those that didn't. The investigators were told that the airdrops had created chaos on the ground. The strongest and best-armed factions within the community quickly rushed to the drop zone, cornered the food, and took it away to sell in nearby markets. When subsequent drops occurred, outside factions would raid the villages and take the food away from those that had it. In some cases, nearby villages that had not received food by air participated in attacks on the villages that had. Thus, the intended beneficiaries rarely obtained any of the food.

As a result, UNICEF and several other agencies decided to send mobile teams to the villages to receive the food from the planes. They set up drop zones, organized perimeter guards and then signaled the planes to drop the food. Once it was on the ground, they distributed it via a village relief committee, then departed for the next community.

At the end of the operation, it was re-evaluated. The assessment found that there had been only a slight improvement in the general mortality rate. It seems that as soon as the mobile team left the area, the stronger members of the community would come around to the weaker members and demand a share of the food.

One interesting point should be noted. During the second evaluation, the team learned that even at the height of the famine, commercial traders had been reaching the area with food to sell. While prices were too high for the poorest and most malnourished to afford, some trading did occur. (Apparently the traders were not attacked because they had armed escorts.) However, when the airdrops began, the traders quit coming, forcing those with money but no food to buy, to leave the community. The villagers felt that the airdrops had been a negative factor overall and had contributed to the breakdown of the community's social structure.

Lessons learned:

- Airdrops can only be successful if there is a team on the ground to control the landing zone, receive the food, organize an equitable distribution, and remain in the community to ensure that stronger factions do not take the food away from weaker members of the society.
- Without a continuing presence of the monitors, villages that receive airdrops soon become prey for armed marauders.
- Airdrops may lead traders to conclude that there is no market for their goods and thus, to cease trading in those villages. This, in turn, could lead to higher out-migration and a subsequent collapse of the social structure and coping mechanisms.

### 3. Operation Provide Comfort (Northern Iraq) 1991

In April, 1991, over 400,000 Kurds fled into the mountains of northern Iraq to escape attacks by the Iraqi military trying to quell the uprising that had occurred in the aftermath of the Gulf War. To supply the Kurds, the US Defence Department ordered the US Air Force to parachute food, blankets, and tents to the Kurds until a relief operation could be mounted. The operation was originally intended to buy time, but it lasted for almost 5 weeks.

As a relief tool, the air drop portion of the overall operation was only a moderate success, but as a political and tactical tool it was brilliant. When the Pentagon first proposed dropping supplies in early April, the initial response of the relief agencies and the US government's humanitarian arm, the Office of US Foreign Disaster Assistance (OFDA), was negative. Experience with airdrops in other situations had convinced them that they were not an effective way of delivering relief supplies. OFDA staff believed that using some combination of trucks and pack animals would be more productive.

However, Dayton Maxwell, the deputy director of OFDA and a consultant (the author) convinced the State Department and the National Security Council to support airdrops in this situation. Maxwell, who had had experience with airdrops in Laos, believed that they could buy the agencies time to get organized. The author argued that the airlifts would provide an entree for a much larger operation. The world would agree to the concept of dropping food and shelter to the Kurds and would recognize the need to provide armed escorts for the aircraft to protect them from Iraqi attacks. Once fighters were committed, it would not be unreasonable to warn the Iraqis to stay away from the area to prevent an incident. Without their own air cover, the Iraqi troops would be forced to withdraw from the border area. Once they pulled back, the Allies

could send NGOs and possibly ground troops into the refugee encampments. Later, when the situation had calmed down, the agencies could send food and other relief goods back to the Kurds villages and draw them back to their homes. Thus, the airdrops could initiate a chain of events that made a larger operation possible. Ostensibly intended to deliver critical relief supplies, the US was able to use the airlift as a "Trojan Horse" to initiate a full-scale humanitarian intervention.

On a technical level, the air drops of food were of marginal value. There were three reasons why. First, the main food dropped was boxes of pre-packed military rations (Meals Ready to Eat or MREs). From a nutritional standpoint, the MREs were of doubtful value and many medical personnel believed that they may have contributed to dehydration and diarrhea. Furthermore, a high percentage of the MREs were thrown away or wasted because the people, who were Muslims, discarded the pork meals (some packs were tossed away because the people thought that the oils were pork fat).

Although the MREs were readily available and easy to deliver, they were not a good choice for the airdrops. Almost one-half the weight of an MRE is in the packing material, which meant that only half the total weight dropped was actually food. (When the weight of the pallet and parachutes is added, the amount of food actually carried by each flight is about 40% of the load.)

The Air Force also attempted to drop bottled water to the camps with very little success: on one drop witnessed by AID's Disaster Assistance Response Team (DART), 95% of the plastic bottles burst when they hit the ground.<sup>4</sup>

Perhaps the worst affect of the airdrops was the chaos that they set off in the ground. Thousands of people would run out into the drop zone to retrieve the supplies and riots would ensue as people fought over the food. Some of the parachutes landed on mine fields or hit people who were rushing to grab food that had already landed. Several people died or were wounded trying to get to the food. Under these circumstances, the weak, the elderly and the young had a hard time getting food, although they were the ones who most needed it. To end the chaos, US Army special forces had to be committed to control the mobs rushing to the drop zone.

Eventually, large helicopters from the US and British armies, (CH-47s), US Air Force (HH-53s) and US Marines (CH-53Es) were able to reach the area and deliver many of the high priority goods as well as food.

The airdrop has to be set against the fact that food

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<sup>4</sup>DART SitRep, April 23, 1992.

deliveries by surface were being made to most of the camps even as the airdrops were beginning. Most of the camps were accessible by truck or pack animal. A review of relief agency, Red Crescent and World Food Programme records during for the period show that the tonnages delivered by land were equal to, and in many cases exceeded, the amounts being dropped. Even when the airdrops became more routine, the amount delivered by land was significantly greater than the amounts parachuted in.

Finally, a word has to be said about the cost of the airdrop. The fuel bill for the C-130s was more than the annual budget of the United Nations High Commissioner for Refugees. Large scale airdrops are expensive.

All these deficiencies, however, must be set against the fact that they provided the entree for the entire humanitarian assistance operation. Without the airdrops, the land phase, which repatriated the refugees back to their villages and helped return the economy to normal, would have been much riskier. From that point alone, the airdrop operation has to be considered a major tactical success.

#### Lessons:

- In some cases, the tactical advantages of an airdrop will outweigh the practical disadvantages.
- Ground teams must be in place before an airdrop commences to receive and organize distribution to prevent the chaos the will ensue if they are not there.
- Since the military is likely to undertake similar humanitarian operations in the future, the Pentagon should consider a variety of options for packaging the common relief foods for air delivery (i.e., a more appropriate MRE or a packaging and delivery system that could be used to provide the basic relief commodities such as grain, beans, oil, sugar, salt, and tea).
- The relative success of the heliborne deliveries that followed the airdrops argues for expanding that capability and augmenting the vertical lift capability of US military forces with aircraft such as the CH-53E heavy lift helicopter and the new V-22 Osprey Tilt Rotor (which has the carrying capacity and range of a small cargo plane and the vertical takeoff and landing capability of helicopters).

#### CONCLUSION

Airdrops should always be a last choice, used only when there

are either no other cost effective means of delivering food or when there are overwhelming political and tactical reasons for using the approach.

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