ANNEXES

ANNEXES

ANNEX 1 : PERSONS MET IN BIH

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ANNEX 3 . EXAMPLES OF PROBLEMS WITH DRUG DONATIONS

Remark text in italics is extracted from the inter-agency guidelines for drug donations, May 1996

Nicaragua, 1974
In the aftermath of the earthquake, it was reported that all the supplies stored in a large government warehouse had been destroyed No one checked this information and, once the emergency efforts were over, around US$ 1,000,000 worth of salvageable supplies, which were needed during the relief operation, were finally discovered in that warehouse This is a classic example of lack of coordination in the management and monitoring of drug donations [56]

Guatemala, 1976
Unsorted drugs represented over 90% of the volume of drugs donated to the country after the earthquake Two weeks after the earthquake had struck, 100 tons of unsorted medicines had been delivered, that is between 6,000 to 7,000 boxes Huge volumes were

still coming even though the acute emergency was over for a week Up to 40 students supervised by three pharmacists were working by 3-4 hours shifts to sort between 25-50 boxes a day: a formidable task for months ahead. [2, 3]

Guinea Bissau, 1983

In September 1983 eight tons of donated drugs were sent: all were collected from pharmacies in quantities between 1 and 100 tablets. The donation contained 22,123 packages of 1,714 different drugs which were very difficult to manage and greatly interfered with government efforts to rationalize drug supply and drug use. [6]

Mexico, 1985

Priorities and requests for assistance following the earthquake were for specialised teams and equipment for rescuing trapped people and for water supply. There was no shortage of emergency drugs and medical supplies. In spite of that, one third of the total volume of international aid brought in were plasma, blood, intravenous solutions and drugs: items which were not requested by the country's authorities. Due to the large quantities of blood and plasma received, the authorities had to inform the population, as of the second day of the disaster, not to volunteer to donate blood anymore. They also had to lyophilise plasma and create an albumin bank. [4]

Armenia, 1988

After the earthquake, 5,000 tons of drugs and medical supplies worth US$ 55 million were sent. This quantity far exceeded needs. It took 50 people six. months to gain a clear picture of the drugs that had been received. Eight percent of the drugs had expired on arrival, and 4% were destroyed by frost. Of the remaining 88%, only 30% were easy to identify and only 42% were relevant for an emergency situation. The majority of the drugs were only labelled with brand names. [5]

Eritrea, 1989

During the war for independence, despite careful wording of appeals, many inappropriate donations were received. Examples were: seven truck loads of expired aspirin tablets that took six months to burn, a whole container of unsolicited cardiovascular drugs with two months to expiry; and 30,000 half-litre bottle of expired amino-acid infusion that could not be disposed of anywhere a settlement because of the smell. [21, 22]

Sudan, 1990

A large consignment of drugs was sent to war-devastated southern-Sudan. Each box contained a collection of small packets of drugs, some partly used. All were labelled in French, a language not spoken in Sudan. Most drugs were inappropriate, some could be dangerous. These included: contact lens solution, appetite stimulant, mono-amine oxidase inhibitors (dangerous in Sudan), X-ray solutions, drugs against hypercholesterolaemia, and expired antibiotics. Of 50 boxes, 12 contained drugs of some use. [25, 26]

France, 1991

Pharmaciens sans Frontières collected 4 million kg of unused drugs from 4,000 pharmacies in France. These were sorted out in 88 centres in the country. Only about 20% could be used for international aid programmes, and 80% were burnt. [43]

Russian Federation, 1992

Russian pharmaceutical production has fallen far below its 1990 level, and donations of drugs have been welcomed. However, initial enthusiasm soured when the nature of some donations was discovered. Examples of donations include: 189,000 bottles of dextromethorfan cough syrup; pentoxifylline and clonidine as the only antihypertensive items, triamterene and spironolactone as diuretics, pancreatic enzyme and bismuth preparations as the only gastrointestinal drugs. [27]

Lithuania, 1993

Eleven women in Lithuania temporarily lost their eyesight after using a donated drug. The drug, closantel, was a veterinary anthelmintic but was mistakenly given to treat endometritis. The drug had

been received without product information or package insert, and doctors had tried to identify the product by matching its name with those on leaflets of other products. [28, 29]

Former Yugoslavia, 1994, 1995

Of all drug donations received by the WHO field office in Zagreb in 1994, 15% were completely unusable and 30% were not needed. By the end of 1995, 340 tons of expired drugs were stored in Mostar. Most of these were donated by different European nations. [9, 10, 11, 14, 15]

Rwanda, 1994

At the peak of the refugee crisis, the pharmaceutical giant Eli Lilly proudly announced "the largest one-time pharmaceutical donation ever." Six million pills of antibiotic CeclorCD, which because of the risk of causing resistance to more valuable drugs commonly used in the region, will not be prescribed. As a result, today, the local authorities are still trying to figure out how to dispose of the donation, most of it expired. [8]

India, 1996

On April 1, 1996, amongst much fanfare, an airlift of 50 tons of medicines was received from the USA at Calcutta airport. An analysis of the drugs received revealed that $7.4 million of the $10.5 million worth of drugs donated have either expired already at the time of arrival at Calcutta airport or would expired before March 1997. In addition, 30 out of the 46 types of drugs brought in are non essential medicines [30, 31, 32].

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ANNEX 5 : WEIGHT ASSESSMENT & VALUE ESTIMATION

A. Weight Assessment

Weight assessment was based on the observed volume in the warehouses.

The estimation of the average specific weight was based on several informations provided by the main organisations involved in drugs and medical supplies donations during the war.

MSF (« Kits logistiques et médicaux » 1994)
new emergency health kit	229 kg/m3
basic medico-surgical kit	230 kg/m3
surgical kit	287 kg/m3
hospital kit	289 kg/ m3

TRANSFER (personnal communication)
average specific weight (drugs + medical supplies)	286 kg/ m3
average specific weight (only essential drugs)	333 kg/ m3

PSF (rapport P.S.F.C.I. Bosnie-Herzegovine 1992-1996)
(average during 4 years, on the basis of 1.800 tons provided representing 8.102 m3)

average specific weight	222 kg/ m3

WHO Emergency Kits (WHO Zagreb « Medical kits for former Yugoslavia » 09/94)
new emergency kit	192 kg/ m3
surgical kit (only disposable medical equipment)	124-131 kg/ m3
parenteral fluids	317-352 kg/ m3
anesthesic kit	175-235 kg/ m3

IDA (IDA informations, gathering 1995-96 datas about former yougoslavia)
407.550 kg for 1.340 m3, this means	304 kg/m3

Specific weights applied in the frame of the mission

According to these informations, the average volume to weight ratio is 262 Kg/m3. We have applied a volume to weight ratio of 200 kg/m3, - or 24% less -, because of the small pakcaged drugs and because of the larger volumes of the opened packs. In some cases, the standard was of 250 kg/m3. In these later cases, it has been explained in the text, (for example, heavy products like fluids, ...)

B. Value Estimation

The estimation of the average value of 1 ton is based on several informations provided by several organisations involved in drugs and medical supplies donations during the war.

PSF (rapport P.S.F.C.I. Bosnie-Herzegovine 1995-1996)
675 tons provided representing 40.000.000 FF, this means	11.852 $/ton

WHO (WHO: activities report 1993 to 1995)
1.431 tons provided representing 15.668 M$	10.949 $/ton

IDA (IDA informations, gathering 1995-96 data about former yougoslavia)

ICRC (informations from april 1992 to 1996)
3.347 tons provided representing 41.933 M$	12.499 $/ton

World Vision (cfr packing list 05.02.96)
11.8 tons provided by MAP International. representing 110.568 $	9.370 $/ton

ANNEX 6 - EXPLANATIONS ON THE CALCULATION FOR THE ESTIMATED VOLUME OF MEDICAL SUPPLIES DELIVERED TO BIH

The total volume of medical supplies delivered to BiH from 1992 to mid 1996 is named Y and can be divided as follows

I Good Donor practices conform to WHO guidelines	80 to 100% of Yg	95% of X1 X_{1g} 50 160 m³	5% of X1 X_{1b} 2 640 m³	X_1 52 800 m³
I Donations of mixed unused medicines small quantity packs II Dumping of large quantity packs of inappropriate medicines	20 to 0% of Yg	X_{2g}	X_{2b}	X_2
		Y_g 60 to 40% of Y	Y_b 40 to 60% of Y	Y

Ygood = Yg = total volume of appropriate medicines donated to BiH
Ybad = Yb = total volume of inappropriate medicines donated to BiH

X1 = total volume donated according to practice n I
= total of useful medicines (X1g) + total of inappropriate medicines (X1b)

X2 = total quantity donated according to practices n. II and III
= total of useful medicines (X2g) + total of inappropriate medicines (2b)

→ we will work with the following formulas
- Y = Yg + Yb
- Y = X1 + X2
- X1 = X1g + X1b

Calculation of X1

X1 is the total volume of medicines donated by the four main specialised agencies plus other agencies which contributed on a lesser extent
As indicated in Table 4, the contribution of the four main agencies (MSF/H, PSF, ICRC and WHO) amounted to around 44,000 m3
To this amount, we must add the donations from other international medical agencies such as MDM, MSF/F, MSF/B, Handicap International, the National Red Cross and Red Crescent Societies, etc for whom we do not have a detailed account of what they donated We estimate their contribution at 20% of the volume donated by the four main agencies, which therefore amounts to 20% * 44,000 m3 = 8,800 m3
Therefore, **X1 = 44,000 m3 + 8,800 m3 = 52,800 m3**.

Breakdown of all donations into 'good' and 'bad' supplies

From the data and estimations provided in Table 1 and Table 5, the appropriate donations (Yg) can be estimated at 60 to 40% of the total volume (Y), and therefore the inappropriate donations (Yb) represent 40 to 60% of the total amount

In the simulation, we will estimate the total volume Y and the volume X2 (donations resulting from practices n II and III) according to three hypothesis as follows
1. H1 Yg = 60% of Y
2. H2 Yg = 50% of Y → the most probable
3. H3 Yg = 40% of Y → the most pessimistic/maximalist

Breakdown of the donations according to practice n. I into 'good' and 'bad' supplies

Donations according to practice n I were made by international medical relief agencies (as detailed in Table 12) which donated essential drugs within planned drug supply and distribution programmes We consider that a part of what they provided was not useful or inappropriate and that it represented a maximum of 5%

Therefore, we take the hypothesis that at least 95% of the volume delivered by those agencies was appropriate

This means that
⇨ X1g = 95% of X1 = 95% * 52,800 m3 = 50,160 m3
⇨ X1b = 5% of X1 = 5% * 52,800 m3 = 2,640 m3

Breakdown of the total volume of good donations into appropriate donations resulting from practice n. I and from practices n. II and n. III

According to common sense and what has been mentioned in Table 5 for Sarajevo (90% of the donations from international agencies were appropriate), we take the hypothesis that the donations according to practice n I represented at least 80% of the total volume of appropriate donations delivered to BiH, and that donations according to practices n II and III accounted for a maximum of 20%

In addition, as shown in the simulation table, more we reduce the proportion of appropriate donations resulting from practice n I, more we increase the total volume of drugs delivered to BiH

Therefore, in the simulation, we will estimate the total volume Y and the volume X2 (donations resulting from practices n. II and III) according to three sub-hypothesis as follows
1. h1 X1g = 80% of Yg
2. h2 X1g = 90% of Yg
3. h3 X1g = 100% of Yg → the least probable

Given that X1 = 52800 m3 Given that X1g = 95% of X1 = 50160 m3									
	H1: Yg = 60% of Y			H2: Yg = 50% of Y			H3: Yg = 40% of Y		
therefore	Y = Yg / 0.6			Y = Yg / 0.5			Y = Yg / 0.4		
	h1	h2	h3	h1	h2	h3	h1	h2	h3
	X1g = 80% of Yg	X1g = 90% Yg	X1g = 100% Yg	X1g = 80% of Yg	X1g = 90% Yg	X1g = 100% Yg	X1g = 80% of Yg	X1g = 90% Yg	X1g = 100% Yg
therefore	Yg = X1g/0.8	Yg = X1g/0.9	Yg = X1g	Yg = X1g/0.8	Yg = X1g/0.9	Yg = X1g	Yg = X1g/0.8	Yg = X1g/0.9	Yg = X1g
therefore Yg =	62700	55733	50160	62700	55733	50160	62700	55733	50160
Y =	104500	92889	83600	125400	111467	100320	156750	139333	125400
X2 = Y - X1	51700	40089	30800	72600	58667	47520	103950	86553	72600
Ybad = Y - Yg	41800	37156	33440	62700	55733	50160	94050	83600	75240
					the most probable			the most pessimistic and maximalist	

From this simulation, we draw the conclusion (as indicated in § V.2) that the minimum of the total volume of medical supplies delivered to BiH from 1992 to mid 1996 can be estimated to at least 100 000 m3 from which around 50% are inappropriate supplies to be disposed of