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EMERGENCY IMMUNIZATION SUPPORT PROGRAM

TECHNICAL ASSISTANCE IN COLD CHAIN ASSESSMENT AND PROGRAM PLANNING: UZBEKISTAN

4 September - 18 December 1992



JOHN SNOW, INCORPORATED, 1616 N. FORT MYER DRIVE, ELEVENTH FLOOR, ARLINGTON, VIRGINIA 22209 USA

TEL: (703) 528-7474 • TELEX: 272896 JSIWUR • FAX: (703) 528-7480

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**John B. Pott
REACH Cold Chain Consultant**

**Resources for Child Health Project
1616 N. Fort Myer Drive, 11th Floor
Arlington, VA 22209**

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ACRONYMS

AID	Agency for International Development
ARI	Acute Respiratory Infections
BCG	Bacillus, Calmette and Guerin
CIS	Commonwealth of Independent States
DPT	Diphtheria, Pertussis, Tetanus Vaccine
EPI	Expanded Program on Immunization
FAP	Feldsher Obstetrician (Health) Post
MOH	Ministry of Health
NIS	Newly Independent States
OPV	Oral Poliomyelitis Vaccine
SES	Sanitary and Epidemiology Station
SUB	Rural Outpatient Clinic
SVA	Rural District Hospital
TsRB	Central Rayon Hospital
TT	Tetanus Toxoid Vaccine
WHO	World Health Organization
UNICEF	United Nations Children's Fund

DEFINITIONS

OBLAST	A Region which had considerable autonomy from the MOH.
SES	One of the four main medical management departments of the Health system (the other three are Treatment and Prophylactics, Medical Assistance for Mothers and Children and Higher Medical Education).
RAYON	A district responsible to the oblast.
SVA	A small Polyclinic, responsible to the Rayon, with a maximum of three doctors. In some Rayons the SVA is the last immunization center in the cold chain where vaccine is kept refrigerated.
FAP	An outreach clinic for small villages, staffed by a "doctor's assistant". In many Rayons the FAP has a refrigerator and carries out immunizations.

I. EXECUTIVE SUMMARY

As part of the United States emergency humanitarian assistance to the Newly Independent State of Uzbekistan, funds have been allocated by the Agency for International Development for an Emergency Childhood Immunization Support Program. The emergency effort includes an evaluation of the immunization system and aid in the procurement of needed cold chain equipment and vaccine supplies.

The purpose of this consultancy was to conduct an in-depth survey of the cold chain to determine any future humanitarian aid which may be required from donors.

Following the collapse of the Soviet Union, the Newly Independent States face numerous problems including the loss of traditional suppliers of vaccines and equipment. Suppliers now require payment in advance and in most cases require hard currency. With the banking system in turmoil and a chronic shortage of hard currency, these demands are extremely difficult to meet.

The Ministry of Health (MOH) for Uzbekistan is well aware of these problems and is seeking assistance to maintain its immunization program which up to now has been very successful. Uzbekistan's transition to an independent country, however, requires a complete restructuring of the Ministry's immunization system.

Previously the oblasts had considerable autonomy and made vaccine and supply requests directly to Moscow, with the MOH taking a general management and static role. Today control of the immunization program has been centralized and all vaccine and equipment requests go through the Republican SES. In addition, the SES in Tashkent will have to assume responsibility for vaccine storage and distribution due to severely curtailed air service limiting transportation within the region. Currently the Tashkent SES does not have the storage facilities to meet this obligation and neither they nor the oblasts have the equipment necessary to transport vaccines.

Addressing these problems of Uzbekistan's immunization program will require outside funding and assistance. At both the Republican SES and oblast level, refrigerated storage facilities and equipment necessary to transport vaccines are needed. Training in vaccine storage, handling and transportation is also needed. Additionally, if the immunization program is to be sustainable, maintenance facilities and the spare parts necessary to repair and service the cold chain equipment will be required, as well as the training of technicians to perform this maintenance.

II. PURPOSE OF VISIT

A. COMMODITY RECEIPT

- Ensure MOH preparation for clearance and unloading of arriving aircraft and for transport and temporary storage of arriving commodities.

- Assist in preparing distribution plans for donated commodities.
- Ensure the readiness of the cold chain to accommodate donated vaccines arriving in October.
- Monitor and document the conditions of arrival of vaccine into the central and oblast cold stores.
- Document amount and condition of arriving immunization supplies and equipment.
- Provide technical guidance to establish an effective cold chain utilizing donated and existing resources.
- Provide in-service instruction to key staff in use of donated commodities (vaccines, cold chain equipment, steam sterilizers, and reusable syringes) and determine needs for further training.

B. COLD CHAIN ASSESSMENT/TRAINING

- Review May and September 1992 vaccine, immunization supply and equipment distribution plans (for donated material) and monitor plan implementation at all system levels.
- Assess cold chain management and vaccine handling operations at each functional level.
- Provide technical guidance for the establishment of an effective cold chain system and ensure proper installation/use of all equipment.
- Assist MOH to organize training and facilitate instruction of staff from oblasts and rayons in use of donated commodities (vaccines, vaccine monitors, cold chain equipment, steam sterilizers, and reusable syringes).
- Assist in designing emergency preparedness plans in case of cold chain failures.
- Review vaccine stock position and vaccine receipt to determine size, nature and timing of further emergency requirements, if any.
- Determine need for and timing of additional short-term and medium-term technical and immunization supply/equipment assistance.
- Assist Ministry of Health to prepare the vaccine/cold chain sections of an immunization operations plan for 1993.

III. BACKGROUND

The Republic of Uzbekistan, one of the newly independent Central Asian Republics, covers an area of approximately 447,000 square kilometers and has a population of 20.3 million persons (with a population density that ranges from as few as 8 persons to as many as 426 persons per square kilometer). Some 70% of the population is Uzbek, 8% Russian, 5% Tajik, 4% Kazakh and 13% other.

The economy of the country is based primarily on cotton production, with 70% of the former Soviet Union's cotton supplied by Uzbekistan. As Uzbekistan moves toward a market economy following the dissolution of the Soviet Union, it faces rampant inflation, a lack of

hard currency and a break down of established trading relationships and mechanisms, resulting in disruptions and shortages in the supply of goods and services including the supply of vaccines and cold chain equipment.

In addition to problems which can be attributed to a changing economic structure, Uzbekistan's national immunization program has a number of inherent problems as well. Foremost among these problems are serious cold chain deficiencies at the oblast level and low potency vaccine which the oblasts have been accustomed to receiving.

The current system has evolved in a number of ways to try to overcome these problems. Deficiencies in the cold chain have been addressed in the following ways:

- Holding vaccine at the oblast level for only as long as is necessary to check the vaccine potency (usually about 10 days).
- Virtually closing down the immunization program during the hot summer months. (Until the arrival in May and October, 1992 of deep freezers, neither polio nor measles vaccine was stored at -20°C as no facilities existed in most oblasts and if they did, were not used.)
- Receiving vaccine supplies from the manufacturers in relatively small quantities.
- Maintaining the absolute minimum of stock, if any, at the oblast level. (In many countries a central store may hold three months' supply of vaccine.)

The problem of low vaccine potency has been "addressed" by the following two methods:

- Testing vaccine potency upon arrival from the manufacturers.
- Testing the children's antibody level and giving boosters as required.

IV. TRIP ACTIVITIES

Seven of Uzbekistan's fourteen oblasts were visited and within each oblast numerous immunization sites seen, including children's hospitals, factory hospitals, rural district hospitals (SVA'S) and Feldsher Obstetrician Posts (FAP's). Other organizations related to the Ministry of Health or directly under the MOH's jurisdiction were also visited. On all visits, complete cooperation was received.

V. METHODOLOGY AND APPROACHES

The methodology adopted was to visit as many immunization sites as possible discussing with MOH staff, oblast SES personnel, and personnel of other related organizations the following:

- How the immunization system worked.
- How vaccines were handled.
- What the quality of the cold chain equipment was like and what was needed for a sustainable cold chain.
- The logistics involved and preparations necessary for receiving the October, 1992 humanitarian supplies.

In approaching humanitarian assistance to Uzbekistan, it should be noted that many people in Uzbekistan resent that their country is viewed by some as a "developing country". Persons in Uzbekistan regard their country as having had an effective system of government administration and services. There is a recognition of the problems now facing the country and a desire for practical assistance from the outside but not assistance given in a condescending manner.

Also, with little orientation toward Western organizational practices and methods, and having already experienced humanitarian aid groups that visited the Ministry of Health, asked innumerable questions, took up considerable time of the MOH staff and then departed, the MOH is somewhat wary of humanitarian aid.

The key to the success of this consultancy lay in the fact that equipment and vaccine was supplied. Without exception the consultant had complete co-operation and was asked in many cases to assist with matters that had no connection with the cold chain or EPI.

VI. RESULTS AND CONCLUSIONS

This report covers the arrival, storage and distribution of the October, 1992 humanitarian supplies and covers an in depth survey of the existing cold chain in seven of Uzbekistan's fourteen oblasts.

Receipt of Humanitarian Aid -- October 1992

Cold Chain equipment and vaccine (measles and BCG) were received on two flights. For the first flight, Uzbekistan Television and other news media were in attendance along with the American Ambassador and senior officials from the MOH. A short clip was shown on the evening news and there was considerable radio and news paper coverage as well.

The unloading and the transport to the MOH godown was efficient and without any problems. The measles was stored in a room at about -15^o C and the BCG at about 4^o C. The monitor card for both vaccines were all white, indicating that the vaccines had been kept within the recommended temperature range. A complete list of items received is attached as appendix 17.

Unfortunately, 58 refrigerators and a box of temperature charts scheduled for Bishkek were sent to Tashkent. With considerable assistance from the MOH, arrangements were made for these items to be transported to Bishkek. The distribution lists for the equipment and vaccine (see appendices 18 and 19) were drawn up by the MOH and all distributed within 10 days of receipt. The measles and BCG vaccine arrived in Samarkand and Bukhara oblasts and the first window on the monitor cards were blue, indicating that the vaccines had some exposure to temperatures above recommended limits. In these two oblasts the measles vaccine was stored at -20^o C and the BCG vaccine at 4^o C. At the Republican SES and oblast SES levels the operation of refrigerators was explained, and in particular how to set up the ice liner refrigerators. The USAID labels were on all the equipment seen.

Cold Chain Management and Equipment

Previously, vaccine was delivered directly from the manufacturer to the oblast and its purchase, storage and distribution were the responsibility of the oblast. Currently, with major disruptions (due to economic conditions) in air service from Moscow to Uzbekistan and the curtailment of service between oblasts, it has been decided by the MOH that there will be central vaccine purchases. Therefore, all vaccine will have to be shipped through Tashkent. Additional observations of cold chain management and equipment included the following:

- Cold chain equipment at Tashkent SES and oblast level is out of date and in most cases not sufficient to maintain the required temperature of 1° to 8° C even in the moderate temperature months.
- The only facilities for keeping measles and polio vaccine at -20° C are the deep freezers supplied by USAID in May and October, 1992.
- During the winter months the cold chain is "switched off" at oblast level and temperature controlled by the ambient temperature.
- During the summer months the immunization programme virtually comes to a halt due to the absence of a cold chain.
- Most oblasts have insufficient or no cold boxes for either long or short-range use, and many oblasts are short of ice packs and domestic refrigerators.
- Some rayons immunize at the FAP level by outreach only due to a lack of refrigerators or electricity.
- Almost all oblasts are out of measles vaccine and are dependent on the October humanitarian supplies.
- There is a chronic shortage of repair facilities and spare parts to maintain cold chain equipment.

Management of the cold chain has been based in the past on receiving small quantities of vaccine and using it as quickly as possible. Storage has been based on instruction leaflets sent from the manufacturer along with the vaccine. It was observed at the oblast level that the person in charge did not seem to be aware of the importance of keeping the vaccines at the correct temperatures, or if they were aware, they could not keep the correct temperature due to the poor state of the equipment.

At the rayon level, storage conditions were generally much better and in all the rayons visited, the vaccines were being kept correctly with polio and measles vaccine normally stored in the deep freezer section of the refrigerator. At the polyclinic and FAP level, vaccine was also being stored correctly.

The existing cold chain has a vast amount of equipment (see appendix 20); however, nearly all the cold rooms are unsuitable for vaccine storage as the equipment is old and poorly maintained. The domestic refrigerators in the system are generally in good working order. The cold boxes, with the exception of those delivered with the humanitarian aid, are not suitable, having little insulation value. Prior to the humanitarian aid, few ice packs were available and no freezing capacity was available except by using the refrigerator's freezer compartment.

May Equipment

The May equipment had been distributed (see appendix 21) and was being used by the time of the writer's Fall visit. The sterilizers were being used but not for the immunization program and only disposable syringes were allowed to be used. In some oblasts, disposable syringes were in short supply and parents of the children were required to purchase the syringes on the local market.

Vaccines for 1993

The Republican SES and the MOH have received vaccine requirements from the oblasts for 1993. (see appendix 22 - Note: This list is an approximation, as the MOH slightly changed the total numbers.) It was estimated that there will be a shortfall from the Russian manufacturers in measles and polio vaccine.

From numerous visits and discussions, it is obvious that Uzbekistan requires considerable additional funding to maintain immunization coverage, cold chain equipment and the necessary supporting logistics. The following table shows an estimate of Uzbekistan's equipment requirements. See appendix 23 for the amount of vaccine required by each oblast for a three month period, and the number of cold boxes necessary to store that amount of vaccine.

ESTIMATE OF EQUIPMENT REQUIRED FOR UPGRADING COLD CHAIN UZBEKISTAN

OBLAST	Total No. of doses (1000's) of vaccine per 3 months	Cold Rooms +4°C required	Cold Rooms - 20°C required	Cold Rooms Storage Capacity	Long range cold boxes	Short range cold boxes	Gas/Solar Powered Refrigerators
Republican SES	3861	3	1	10cu.m.	0	0	0
Tashkent City	206.25	1	0	10cu.m.	10	50	TO
Andizhan	251.25	1	0	10cu.m.	12	59	
Bukhara	259.50	1	0	10cu.m.	12	59	BE
Dzhizak	144.25	1	0	10cu.m.	7	33	
Kashkadarya	296.25	0	0	0	15	74	D
Navoyi	336.25	1	0	10cu.m.	16	80	E
Namangan	317.50	1	0	10cu.m.	15	73	T
Samarkand	402.75	1	0	10cu.m.	19	95	E
Surkandar	268.75	1	0	10cu.m.	14	68	R
Syrdar	205.00	1	0	10cu.m.	8	40	M
Tashkent	362.50	1	0	10cu.m.	17	83	I
Fergana	336.25	1	0	10cu.m.	17	84	N
Khorezm	230.75	1	0	10cu.m.	10	50	E
Karakalpak	243.75	1	0	10cu.m.	12	60	D
TOTALS	3861	13	1		182	908	

To establish the exact number of Gas/Electric or Solar powered refrigerators required further information is required

VII. RECOMMENDATIONS

The main recommendation is that the Republican SES, Tashkent be supplied with two 10cu.m. 4° C stores and one 10cu.m. -20° C store and that each oblast be supplied with 150 long range cold boxes (see appendix 24 for equipment specifications). Additional recommendations include:

- Nearly all of the oblast central stores require a 10cu.m. walk-in 4° C cold room capable of maintaining the required temperature regardless of the surrounding temperature.
- The oblasts need to have sufficient long and short-range cold boxes of the recommended type, vaccine carriers and more ice packs.
- There is a need for RCW 42 (EG) refrigerators at FAP's located in remote areas of desert oblasts where no electricity is available.
- As the MOH faces the likely prospect of having to purchase vaccine from suppliers outside of the former Soviet Union, they will need considerable guidance both with negotiating purchases in an international market (and having to do so with a lack of hard currency), and with the logistics of receiving vaccines from outside suppliers.
- In depth training of the cold chain personnel is required to change the attitudes and the misconceptions carried over from the Soviet system.
- Repair and maintenance facilities are necessary at the Republican SES level to serve the Tashkent Oblast, and increased capacity of these facilities is necessary at the oblast level (either each oblast having its own facility or adjacent oblasts sharing a facility). [see appendix 25]

VIII. FOLLOW-UP ACTION REQUIRED

1. To maintain communication and coordination with other donor organizations regarding funding requirements.
2. Monitor the vaccine supply situation in 1993 with the aim of finding funding for vaccine purchases and making up any shortfall in vaccine supply with emergency aid.

APPENDICES

APPENDIX 1

NOTES ON THE REPUBLICAN SES

Chief Dr. Mustafaev Khayzulle MURTAZAEVICH Tel. 78-49-51

Secretary Tel. 78-49-67

Mrs STUPNIKOVA Larisa Alex. Head of Epid. Dept. Tel. 78-49-67

Vladimir ANDRIANOV Tel. 78-59-46

Meeting with Vladimir and Stupnikova. Informed that the person responsible for equipment and vaccine in the MOH is:

SHARIPOV Alisher Mirkhamid Chief of Children's Infections (Pediatrician) Tel. 44-14-91

1. Receipt of October Shipment.

- If necessary an arrangement can be made with the meat factory to store measles vaccine.
- Responsibility of the Republican SES for humanitarian aid is:
 - Distribution List (To be approved by Iskandarov at MOH)
 - Vaccine storage
 - Informing Oblasts and ensuring correct methods of distribution (i.e. transport, cold boxes etc.)

2. Vaccine Ordering System.

Oblast sends requirements to the Republican SES. They consolidate the orders by supplier and pass on the order to the supplier, giving Oblast, quantity and date required.

The supplier currently sends the vaccine directly to the Oblast and the Oblast pays the supplier directly. With the reduction in internal flights future vaccine will be sent to the Oblasts via the Republican SES. The price is "agreed" at the time of order but it is not fixed and supplies are not guaranteed. So far in 1992 there have been three price rises.

Vaccine	Unit	Jan 1992 Cost/Unit Rubles	Sept 1992 Cost/Unit Rubles	% Increase
BCG	1000 doses	1,792	4,100	128%
DPT	1 liter	1,100	3,500	218%
Measles	1000 doses	2,963	12,000	305%
Polio	1000 doses	2,500	2,500	0%
TT	1 liter	500	1,500	200%

January to September there have been 4 salary increases. Typical figures - January 800/month. September 3000/month (an increase of 275%).

At the beginning of 1992 the Republican SES had a 16 line budget. By September 1992 because of the above price and salary increases, the 16 line budget had been effectively reduced to two, vaccine and salaries.

In the third week of September there were discussions with Turkish Government and business officials regarding finance for vaccines, with two options mentioned: 1. Hard currency. 2. Barter deal. Initial prices quoted were: Measles \$2 US/dose, HepB \$17 US/dose, BCG not known.

New Oblast formed about 6 months ago, called Navoiy, covers the Gold Mining area.

The so-called autonomous region of the Karakalpak Republic is now considered as an Oblast and the autonomous title has been dropped.

Mr MUKHAMEDJANOV Salikh has been with the Republican SES for 30 years and is regarded as the Oblast expert.

NEW OBLAST data. Total Pop. 652,900

1000's	Total	Urban	Rural
Rayons:-			
- The City of Navoiy	112.1	122.1	0
- Navoiy Rayon	72.4	17.7	54.7
- Novbakhor	66.6	0	66.6
- Farndinsky	28.3	0	28.3
- Kanimebhsky	14.7	1.3	13.4
- Kyzyltepa	92.9	10.8	82.1
- Muruntau	9.6	9.6	0
- Nuratyn	61.8	27.5	34.3
- Khatyrchinsky	120.2	15.8	104.4

Name of Principle CITY of the Oblast-

<u>OBLAST</u>	<u>PRINCIPLE CITY</u>	<u>OBLAST</u>	<u>PRINCIPLE CITY</u>
Tashkent City	City of.	Syrdar	GULISTAN
Tashkent	Tashkent	Fergana	City of.
Andizhan	City of.	Khorezm	URGENCH
Bukhara	City of.	Karakalpak	NUKUS
Dzhizak	City of.	Navoiy	City of.
Kashkadarya	KARSHY		
Namangan	City of.		
Samarkand	City of.		
Surkandar	TURNEZ		

Summary of Vaccine ordered for 1993
Note the quantities have been changed slightly

Vaccine	Qty	Est. Price	Price/dose
BCG	237.5	973750	4.1 Rubles
DPT	1432.2	5012700	3.5 Rubles
MEASLES	1428.3	17139600	12.00 Rubles
POLIO	7031.0	17577500	2.5 Rubles
TT	270.6	405900	1.9 Rubles
TOTAL		41,109,450	

The prices are updated monthly, or as increases are advised by the suppliers and the MOH advised.

In the first 9 months of 1992, the average price increase of the above antigens was 170%. If this applies in 1993, the budget will have to rise to 111,077,733.9 rubles.

APPENDIX 2

NOTES ON THE CITY OF TASHKENT OBLAST SES

Chief Dr. Mirtojiev Tursun

Deputy Chief Dr. Gatur Khodjibaevich Tadjilaev.

The City of Tashkent is divided into 11 Rayons:

1. Mirabad
2. Ulujbec
3. Shayhantaur
4. Unus-Abad
5. Yacka-saroy
6. Chilanjaz
7. Sergely
8. Kharnza
9. Salir-Rahimov
10. Akmal-Ikam
11. Beaktenir

In addition there are the following Polyclinics:

1. 34 for Children.
2. 45 for adults.
3. 16 Dentist for adults
4. 10 Dentist for children
5. 19 General dispensary

Also the following Hospitals:

1. 14 maternity
2. 12 children's
3. 10 Infectious
4. 21 Adult Hospitals

The 1991 vaccine supply shortages were partly made up by UNICEF and USAID. 1992 Shortages in Polio, Measles, and Gamma Globulin. 306,000 doses of Measles were received from UNICEF.

Vaccines for 1993 have been ordered; 80% from Republic of Russia, and the balance from other Republics. The contract is not fixed price so the manufacturer/supplier can raise the price before delivery.

Finance - Ministry of Finance - City Finance Dept - Medical services 10% for SES. There have been various shortages due to price increases.

There is an annual and five year guidance plan for the MOH - Republican SES - Oblasts.

MOH: Medical services and Dept. Minister
Dr Rizaev Kulmahmad TASHPULATOV

The guidelines for the immunization antigens is the leaflet included by the manufacturer with the vaccine. No WHO guidelines are available. If they were, translation into Uzbeki would be required. A Russian translation may cause some nationalistic problems.

THE CITY OF TASHKENT CENTRAL VACCINE STORAGE

Person in charge: Mrs Muhabbat Agzamovia.

The cold chain is a small building external to the main building consisting of two rooms; one for +4°C and the other for -20°C vaccine. The ambient temperature ranges from -10°C to +45°C. During the winter months, when the refrigeration equipment is switched off, the vaccine is held at ambient temperatures.

1. The +4°C section comprises a room (internal dimensions approx 4.5 m x 7.5 m) with one walk-in cold room (about 10 m³) and 10 refrigerated cabinets of the type that were seen in shops 40 years ago. Each has a capacity of about 2 to 3 m³ The walk-in cold room had been out of order since 28 August 1992 but was in the process of being repaired (so the consultant was told).

All the cabinets are of very old design (at least 40 years or more) with very poor insulation values by today's standards. The compressor/condenser units (one unit has a manufacturer's date of 1973) have small open belt-driven compressors with air cooled condensers. Judging by the visible oil leaks they all had refrigerant leakages and had not been cleaned or serviced for a considerable time, possibly several years. The condensers were discharging their heat directly into the room which had no signs of forced external ventilation or air conditioning (so what the conditions must be like in the summer leaves little to the imagination).

All the evaporators were blocked with ice (totally frosted up) and either the evaporator control devices (capillary tubes or TEV's) were out of setting or the plants were overcharged with refrigerant gas as the suction pipes were iced up right back to the compressors very badly. The Consultant has never seen refrigeration equipment running under these conditions before. On the second visit with Mr. Clay these units had broken down.

No temperature in any cabinet was below 12°C and the highest was 16°C although the thermometers read 5° to 6° C. The daily log book of temperatures recorded these temperatures.

One cabinet had a mercury glass thermometer with a very expanded scale so that 10°C approximated to 1 cm. (reading 15°C) The other cabinets had a bi-metal horizontal reading thermometers, none of which appeared to be accurate.

It was understood that a technician visits three times a week and is also on call.

No vaccines should be kept in these 'refrigerated' cabinets. The vaccines should immediately be replaced as it would appear pointless to assume that the vaccine would retain potency under these conditions. In none of the nine countries that the Consultant has surveyed the cold chain has vaccine storage been so inadequate.

No vaccine monitor cards were seen.

2. The -20°C room had a new AID-donated ice pack freezer and a new AID-donated Vestfrost freezer. The ice pack freezer had a few ice packs in it. The Vestfrost had vaccine including Measles but it was operating at -15°C with the thermostat set at the minimum setting. When the Consultant asked why it was not set to -20°C, the Deputy Chief Doctor informed him that at any lower temperature it would freeze the Measles vaccine and so break the vials.

Following visits to immunization sites, it would appear that there is no problem with disposal of used syringes and needles. After use at the immunization site, the needle, barrel and plunger are separated and placed in a sterilization liquid. They are then collected and sent for recycling.

All polyclinics etc. test children for antibodies to all antigens, and if not satisfactory, booster immunizations are given.

16 February 1992

Visit to Sabir Rakhimov Rayon.

This Rayon immunizes between 5600 and 6000 children per year. The Rayon has 4 Child polyclinics, 5 Adult and 3 medical (Factories)

The question was raised of vaccine monitor cards and whether the staff had seen or used them. It appeared that they had heard of them but never seen them.

The staff reported no current shortage of vaccine. There was some shortage of BCG syringes but the supply of syringes for the other antigens was adequate. Only disposable syringes were used.

The vaccine store has 4 domestic refrigerators plus one larger one. All had thermometers with the following temperatures: +5°C, +2°C, +2°C, +3°C, +4°C. Two required defrosting. Otherwise the vaccine storage was without fault.

The record book of twice daily temperatures was up to date as was this record in all the polyclinics.

Children's Polyclinic No.21.

As with all the other polyclinics visited, BCG vaccinations are only carried out one day per week while the others are available any day of the week. All vaccines are disposed of after the session except for Polio which is kept open until used or for a maximum of 5 days.

There was one small refrigerator, in excellent condition, with open vials of Measles and Polio vaccines.

Children's Polyclinic No.4

This clinic serves a population of 22,000 people and immunizes between 400 and 500 children per month. There was one domestic refrigerator with the vaccine stored correctly and a thermometer reading 1°C on the middle shelf. There was a second refrigerator which was used as the 'main' store; this also could not be faulted. The temperature reading was 3°C, middle shelf.

Children's Polyclinic No.7.

Serves a population of 25,000. They immunize 25-30 per day. The two domestic refrigerators were at 5°C and 6°C. The vaccines were correctly placed.

Children's Joint Hospital Polyclinic No.7

They had the same system of a refrigerator in the immunization room with a very small quantity of vaccine and two more refrigerators in the store room, one of which has been broken down for the last year. In the working refrigerators the temperatures were 5°C and 4°C, middle shelf.

Rayon -- Unus-Abad 17 Sept 1992

It was established that the 5 'A' Sterilizers issued to this Rayon had been distributed as follows:-

- Maternity Hospital
- Special Children's Hospital
- Dentist Hospital
- Children's Polyclinic No.5
- Children's Polyclinic No.25

The nine 'B' sterilizers were not mentioned.

Both at City level and at this Rayon they said that they understood that the reusable syringes/needles were good for 200 sterilizations but what happened after that as they had no more reusables?

This Rayon has a population of 288,400 including 5271 children under 2 (2455 immunized at polyclinics and 2816 at other centers). They have 22 medical sites, of which 10 are polyclinics, 8 are hospitals and the balance are dentist and factory sites.

There are 3 refrigerators, all in working order, with temperatures of +4°C, +5°C, +4°C, middle shelf. The oldest (about 40 years) needed defrosting. The vaccines were all stored correctly.

Polyclinic No.26

30,167 children registered, 2500 under 2.

This clinic does about 40 immunizations per day. In the store room there were 3 refrigerators, with temperatures of +4°C, +6°C and +6°C. They only had 5 ice packs and two "cold water" bottles frozen. They said that they needed more ice packs. There were also two vaccine carriers about the size of the Igloo 20lt which had Peltier effect refrigeration plants operated by plugging into a car cigar lighter socket. One was not working. They pointed out that they did not have a car.

The immunization room had 2 refrigerators with temperatures of +2°C, +5°C, all correct.

Polyclinic No.5.

Pop. 27,000, 40 immunizations per day. 2 refrigerators in the store room +1°C and +4°C all correct.

2 refrigerators were in the store room, 1 for vaccine from central store, the other for immunization vaccine.

Polyclinic No.12

Store room had one refrigerator (temp. +4°C). Cold box plus Peltier effect.

Immunization room one refrigerator (temp. +12°C which caused some consternation).

SALIR RAHIMOV RAYON 21 September

Pop. 230,000 Children 70,000.

Hospitals

1-Children's

2-Adult

1-mixed

Polyclinics

4-Adult

2-Children's

1-Children's (can't read notes)

1-Dentist Adult

1-Dentist Child

1-Skin.

1st disease for Children is Diarrhea, 2nd is ARI.

Shortage of cold boxes and ice packs.

Polyclinic No.10

35,700 Children. Storage room had 2 refrigerators, one needing defrosting, otherwise very good.

Immunization room, refrigerator needed defrosting, otherwise very good. As with all the Polyclinics refrigerators, rather old.

Usual shortage of Cold boxes and ice packs.

APPENDIX 4

TASHKENT OBLAST SES

Chief Dr. Masharipov Rajabboy MASHARIPOVICI. Tel. 68-82-75
Deputy Chief Dr. Baymetova Nasiba HASHIMOUNA. Tel. 68-82-65

This Oblast has 15 rayons and 7 Towns each with its own SES.
Pop. 2,178,000 Children under fourteen - 789,113. Under one - 59,222, At age one - 58,705. Under two - 57,912. Total children under two - 175,845.

Medical facilities in this Rayon:

- 47 Central Rayon Hospitals.
- 57 Rural District Hospitals
- 30 Central Rayon Polyclinics
- 39 Central Rayon Children's Polyclinics
- 25 Central Rayon Adult Polyclinics
- 129 Rural Ambulance Treatment centers.
- 208 Industrial Plants
- 895 Kindergartens
- 722 Schools

TOWNS

1. Almalyk
2. Anjren
3. Bebobod
4. Chirchich
5. Yangiyul
6. Yangiabad
7. Krasnogorsk

RAYONS

- | | |
|--------------------|-------------------|
| 1. Ackurgan | 10. Parkent |
| 2. Akhangaran | 11. Piskent |
| 3. Beckabad | 12. Urtachirchick |
| 4. Bostonlyck | 13. Tashkentsky |
| 5. Bookingsky | 14. Chinaz |
| 6. Kuyachirchick | 15. Yangiyul |
| 7. Zangiatin | |
| 8. Yukarichirchick | |
| 9. Kybray | |

This year they have a shortfall of 150,000 doses of measles. They received 29,000 doses but on testing for potency it proved inadequate so it is being returned to the Russian supplier. They also reported that they had a shortage of syringes, the actual supply being the responsibility of the Medical department, not the SES.

In this Oblast some of the Rayons do not immunize at FAP level as they don't have refrigerators. The immunization is carried out at the next level up. One of these Rayons is Zangiatin.

The Consultant was given a complete breakdown of the Oblasts vaccine requirement for 1993 and 1994 as well as a list of equipment available and required for Cold Chain.

This Oblast reported that with inflation 80% of their budget went to cover salaries, with the result that there was a considerable shortfall of equipment, spare parts etc.

Oblast Cold Rooms

Person in charge Mrs Nasirava Raiga GAZUZOVNA.

1. 1- Ice pack freezer (May supplies)

1- Vestfrost freezer (May supplies)

1- Old refrigerator Cabinet, not working.

2. They have three 5m³ walk-in cold rooms with external compressor/condenser units. One unit is not working and the compressor/condenser unit is stripped down awaiting spare parts. The two working cold rooms are both at +5°C. As with other cold rooms seen, the evaporators and suction pipes were completely frosted. This would appear to be due to the fact that the evaporators do not have a fan circulating air over the evaporator. The only circulation in the rooms is by natural convection. The room containing the cold rooms has two air conditioners fitted.

3. One large refrigerator

Two cabinet type refrigerators (both at +4°C)

One old refrigerator not working.

The current supplies of vaccine are received in relatively small quantities, because they have serious problems with the cold chain. So the following system has been developed to take account of the system:

Vaccine on arrival at the airport is normally collected the same day by the Oblast. On rare occasions it is kept at the airport overnight. On arrival at the Oblast central store, samples are sent for potency testing which takes about 10 days. If the potency tests are OK the vaccine is distributed to the Rayons and down the system. It is estimated that the time from arrival at the airport to immunization of a child is at best three weeks and at worst eight weeks. The children are tested for antibodies and re-immunized if found to be deficient. It seems that the whole system has evolved around a bad cold chain and poor potency vaccine.

Staff said that they had seen one vaccine monitor card with some USAID supplied Measles vaccine. They are also planning a "central" vaccine store at the Yangiyul Rayon SES as a back-up to the Oblast SES storage facilities but it is unlikely that it will be completed due to price increases and the lack of finance.

Maintenance and repairs are carried out by a independent "State repairing service" with which the Oblast has an annual contract. It would appear, however, that this arrangement will probably change as more organizations are privatized. This will have the result of again raising the costs.

Visit to Rayon SES - Zangiatin

Chief Dr. Abduhaliev MUHAMMAD

This is only an administration and vaccine distribution center, not an immunization site. Population 143,000. Children under fourteen - 53,191. Children under two - 11,479.

This Rayon has:

- 1 - Central Hospital
- 2 - Medical Industrial sites
- 10 - Hospitals
- 4 - Polyclinics
- 46 - FAP's
- 2 - Children's Hospitals
- 21 - Drug stores
- 6 - Medical sites
- 9 - Ambulance sites
- 2 - Sanatoriums
- 1 - TT dispensary

Reported 40% shortage of drugs (antibiotics etc.) Also a serious shortage of disinfectants. As with the whole Oblast, no Measles vaccine. TT is also out of stock.

Their cold room consisted of three domestic refrigerators plus 8 ice packs. Refrigerator temperatures were +2°C, +5°C, +6°C. One of the refrigerators is very old (20-30 years) They also have 3 more domestic refrigerators but only one working.

Visit to Medical site (Polyclinic and Hospital) for Meat processing plant, employees and Local Cooperatives

Chief Dr. Mahkam ISLAMBECEB.

5000 children under fourteen, 550 under two. They still had disposable syringes for immunization but used reusable syringes for all other injections. Immunization room had one domestic refrigerator (temp. +7°C). They also suffered electrical power failures once a month for 2-3 hours. Opened polio vaccine was discarded at the end of every day.

Gained the impression, categorically denied, that disposable syringes were being sterilized and reused.

APPENDIX 5

SCIENTIFIC RESEARCH INSTITUTE OF PEDIATRICS. MOH

Visited 23rd September 1992

Director/Professor Orchan S. MACHMUDOV

Three particular areas:

- Study of injections and have a special program following the break-up of the Soviet Union.
- Spread of infectious diseases.
- Program given by WHO.

Immunization at high ambient temperature is less effective than at lower temperatures.

Children with contraindications should be given a weaker dose.

40-60% children are anemic. Women 80% mainly because of high birth rate (12% of women have a child each year). 30% of families have more than five children. (Applies mainly to Rural areas.) Other causes: food shortages, family budget, lack of protein.

Reported serious problems with Cold Chain as Uzbekistan does not have a refrigerator factory.

Domestic vaccine does not meet international standards.

For Measles, 85% coverage but 25% do not have antibodies - i.e. only 63% fully immunized. 96% DPT, 98% TT.

Last big outbreak of Measles 1987 appears to be over five year cycle, 1992?? Polio last outbreak 1960's immunized 100% of total population. Since 1-3 cases full paralysis.

Breast feeding was 2 years, now changing due to social changes. 1990 38% exclusively for 6 months but now decreased to 2 months. In villages breast feeding for 1 year, city 4-5 months and combined to 1-1½ years. Advertising of baby food has been stopped.

Figures for 1986-1990 cases per 100,000 children:

	1986	1987	1988	1989	1990
Diphtheria	0.41	0.44	0.30	0.10	0.05
Pertussis	2.4	4.1	5.4	3.9	3.5
Measles	67.1	68.7	11.8	9.2	19.3
Polio	0.1	0.3	0.2	0.1	0.2

Source City SES for whole Republic.

Hard physical work contributes to low birth weight as does previous conscription to picking cotton crop (Uzbekistan supplied 75% Soviet Union), since workers were contaminated by pesticides.

Three largest causes of infant mortality:

- Bronchial pneumonia
- Genetic defects
- Diarrhea

These three cause 95% of deaths.

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APPENDIX 6

NOTES ON VISIT TO FERGANA OBLAST

15-16 Oct 1992

2nd Deputy Chief Dr. ALIEV Eldor Reshatovich
Also met briefly the Chief Dr. of the Medical Department:
Dr. RUZIEV Yalkin Makhmudovich

At the present time, the vaccine comes directly from the manufacturer to the Fergana Airport. Normally collected immediately, but if there is a delay the airport has refrigeration. The vaccine can be held at the Oblast for up to three months depending on the time of year and deliveries received. The furthest Rayon is 130 kms, time about 1½ hrs. by road. They do not test potency of vaccine or do antibody tests.

<u>Outbreaks:</u>	<u>1991</u>	<u>1992</u>
Measles	203	664
Polio	1	0
Hep A	6840	5682

No shortages of disposable syringes reported for 1992, but they were not very optimistic for 1993.

OBLAST Cold Rooms:

The store room is situated in the basement of the Oblast building, which is dark and dirty. However, the office of the person in charge was very clean and orderly.

There are two walk-in cold rooms, both theoretically -20°C, built 22 years ago. The refrigeration plant is an antique. One room is about 1½m x 6m and the other 2m x 5m. The latter was not working (I was informed that it had been out of order for a week) but it was full of vaccines including TT and BCG. The working room was at -5°C and had Mumps and Measles vaccine. By the sound of the compressor/condenser unit it was liable to break down at any minute. The condenser was water cooled. There was no thermostatic control and presumably the plant ran continuously or was switched off by the operator.

There was another room with a double door refrigerator which was very old and broken down.

FAPs with bad electricity supplies and no refrigerators:

RAYON

- Buwaydin - K. Marks Collective farm, Chuganay.
- Altiaric - State farm Pakhakor, Belaric District,
State farm Karimov, Kyzyl-Yulduz.
- Uzbekistan - Gulorn District, Belak District.
- Uchkupric -
- Aknunbabaev -

Cuwa -
Tashlak -
Dangarin -

FERGANA RAYON (about 30 km from Fargana City)

Chief Dr. KHALIKOV Mamajou Carimovich. The Rayon SES was rebuilt after a very bad flood in 1977.

This Rayon has 1 Central Hospital, 2 Rayon Hospitals and 4 Rural Hospitals as well as 4 Polyclinics (1 Children's), 8 Ambulances and 46 FAPs. The vaccine storage was in an underground bunker and contained 2 large refrigerators (one not working, the other at +5°C), 2 small refrigerators (both at +4°C) and one large very old double door cabinet (not working). The vaccines were stored correctly, but there was no record of temperature.

Central Rayon Children's Polyclinic

Chief Dr. ERALIEV Umarali Lanievich. 12,653 under age fourteen, 972 under age one, and 1800 under age 2.

They had one refrigerator (+4°C) with 2 ice packs and all correct.

APPENDIX 7

FERGANA OBLAST

RAYON	Total Children			SES's					CHILDREN'S POLYCLINICS				ADULT POLYCLINICS			
	New Born	Under One	Under Two	Immuz. Sites	CURRENT EQUIPMENT				No.	CURRENT EQUIPMENT			No.	CURRENT EQUIPMENT		
					Cold-rooms	Domestic Refrig.	Cold Boxes	Thermos		Domestic Refrig.		Cold Boxes		Domestic Refrig.		Cold Boxes
										Total	Not Wk			Total	Not Wk	
Fergana	3337	3556	3873	1	2	2	4		5	15	N	15	8	22	N	12
Kokand	4198	4215	4466	1	0	6	4		5	10	O	7	7	7	O	7
Margilan	3876	3531	3772	1	0	4	2		4	4	T	4	5	5	T	5
Cuasay	1811	1666	1712	1	0	3	1		1	1		1	1	1		3
Altiaric	4532	3884	3487	1	0	3	4		1	2	A	3	1	1	A	
Akhunbabayev	4354	3983	3674	1	0	3	4		1	1	V	3	1		V	2
Baghdad	4201	3781	3569	1	0	9	4	2	1	2	A	1	1	2	A	2
Buwaydin	4123	3926	3789	1	0	8	3		1	2	I	2	1	1	I	1
Kirov/Besharic	4183	4383	4234	1	0	5	3		1	1	L	3	1	1	L	2
Kuva	5134	4494	4145	1	0	2	4		1	1	A	2	1	1	A	1
Uhcupric	4390	3950	3893	1	0	4	4		1	2	B	2	1	1	B	1
Rishtan	3940	3922	3526	1	0	3	2		1	1	L	1	1	1	L	
Sokn	1286	1330	1227	1	0	1	5				E		1	1	E	
Tashzac	3962	3578	3322	1	0	4	3		1	1		1	1	1		1
Uzbekistan	4639	4367	4284	1	0	3	8		1	2		3	1	1		1
Fergona	4558	3879	3867	1	0	4	20		1	2		3	1	2		3
Feunze	3497	3477	2878	1	0	7	10		1	1		1	2	2		2
Furkat	2403	2233	2150	1	0	0	0		1	1						
Yazavak	2098	2032	1924	1	0	3	4						1	2		1
Central Med. Site	334	312	338	1	0	1	2						1	1		1
Kirguli Fergan	836	942	1029	1	0	2	2		1	2		1	2	1		1
TOTALS	71692	67441	65159	21	2	77	93	2	29	51	0	53	39	54	0	46

1

24

RURAL, CITY & RAYON HOSP.				RURAL AMBULANCES				FAP's				SMALL MEDICAL SITES				KINDERGARDENS			
No.	CURRENT EQUIPMENT			No.	CURRENT EQUIPMENT			No.	CURRENT EQUIPMENT			No.	CURRENT EQUIPMENT			No.	CURRENT EQUIPMENT		
	Domestic Refrig.		Cold		Domestic Refrig.		Cold		Domestic Refrig.		Cold		Domestic Refrig.		Cold		Domestic Refrig.		Cold
	Total	Not Wk.	Boxes		Total	Not Wk.	Boxes		Total	Not Wk.	Boxes		Total	Not Wk.	Boxes		Total	Not Wk.	Boxes
1	1	N		2	2	N		4	4	N		26	28	N		88	41	N	0
		O				O				O		43	42	O		71	71	O	0
		T				T				T		15	15	T		38	37	T	0
				4	14		2	17	17		2	7	7		1	31	27		0
4	3	A	5	8	8	A	4	45	43	A	9	4	4	A		75	27	A	0
2	3	V	2	8	8	V	8	48	48	V		4	4	V		78		V	0
4	3	A	3	9	9	A	9	48	48	A		3	2	A		87	87	A	0
5	5	I		13	13	I	13	45	45	I		5	5	I		12	12	I	0
2	2	L	3	9	9	L	2	53	50	L	9	2	2	L		104	69	L	0
7	7	A	3	14	14	A	4	42	41	A	5	7	7	A		80	21	A	0
3	3	B		12	12	B		41	41	B	2	1	1	B		50	50	B	0
5	5	L	5	16	16	L	16	26	24	L		3	3	L		100		L	0
1	1	E		2	2	E		18	18	E	10	1	1	E		29		E	0
2	2		2	9	9		9	31	31		8	7	7			44	15		0
3	5		8	12	9			35	32		5	1	1			139	7		0
5	5			9	9			44	44		5	2	2			31	31		0
6	6		8	1	1		2	56	44			7	3			82	80		0
3	3			8	8			33	31			2	2			65	15		0
3	3		5	5	5		5	23	23			3	1			45	11		0
												23	23			5	5		0
				1	1			2	2			11	12			23	23		0
56	57	0	44	142	149	0	74	611	586	0	55	177	172	0	1	1277	629	0	0

2

25

SCHOOLS			
No.	CURRENT EQUIPMENT		
	Domestic Refrig.		Cold
	Total	Not Wk.	Boxes
37	8	N	0
33	11	O	0
38	37	T	0
30	2		0
41		A	0
46		V	0
47	19	A	0
45	8	I	0
51	8	L	0
51	8	A	0
70	8	B	0
52	1	L	0
21		E	0
40	7		0
72	2		0
55	21		0
39	39		0
30			0
32			0
2	2		0
7	7		0
839	188	0	0

26

APPENDIX 8

NOTES ON DZHIZAK OBLAST

6-7 October 1992

Chief Dr. RAJABOV Muhtan Nigmatovich.
Deputy. YULDASHEV Shukhret Nozielvich

This Oblast has 12 Rayons:

Dzhizak Town
Arnasai
Bakhmal
Aralsk
Dzhizak
Zaamin
Mirzachul
Oktiaber
Pakhtakor
Farish
Buston Village
Zarbdez

The vaccine is received either via Tashkent or Samarkand airports. Tashkent - Dzhizak (200 km - 3 hours). Samarkand - Dzhizak (120 km - 2½ hours). Collection by car, no proper cold boxes (only small Russian cold boxes). Collections are made throughout the year.

Oblast Cold rooms:

5 walk-in cold rooms plus 2 cabinets all situated in a closed room with no external ventilation with condenser/compressor units situated in room. No evaporator fans; natural circulation.

Cold rooms:

- No. 1. Thermostat not working, switched off at night to prevent temperature falling too low (?)
- No. 2. Not working Condenser/compressor unit in pieces.
- No. 3. Not working Condenser/compressor unit in pieces.
- No. 4. Working temperature?
- No. 5. Not working.

Two cabinets reported as working, very old.

There was Measles vaccine and Mumps vaccine stacked on the floor having just been received. (Could not establish whether this referred to today or yesterday). No cold room was down to temperature to receive this vaccine. This could indicate the usual method of vaccine receipt. Vaccines were in small, non-insulated Russian wooden boxes. No temperature records. Polio out of stock.

New building for the cold room complex. Cold room (+4°C) to be 60m² (about 6m x 10m) in sub-basement of building. When contracted, cost was 100K rubles; now contractor asking 600K rubles. It would appear in view of current situation that this building is unlikely to be finished.

CITY SES

Chief Dr. SHAKHZODAEVA Fikria Kamalovna.

Vaccine in the refrigerator (new) in the office of above +5°C. Stated only disposable syringes used for EPI. Shortages of syringes. Required 160,000. Shortage 80,000 of which total 42,000 required for BCG (50% shortage). Parents bring their own syringes therefore, calendar of injections fulfilled. Factory for syringe manufacturer planned for this Oblast.

Polyclinic No.1. Central Polyclinic of the Town.

No. of Children under 14 years of age - 26,360
under 1 year of age - 2,069

Reported Mumps and DPT shortage. Donated measles vaccine available.

Injection/storage room 2 refrigerators (both at +2°C). Measles and TT in stock.

Polyclinic No.2 City Area

under 14 years 14,603, Under 2 years 2,246.

Injection/storage room one refrigerator (new) at +5°C. DPT, BCG, and Polio in freezer compartment.

7 Oct. Meeting with deputy Mayor.

Medial department

Chief Dr. SADIKOV Manavar Abdullaevich.

Required 2.6 million syringes for Oblast. Price rise Jan.- Oct. 1992 from 5 Rubles to 10 Rubles.

RAYON - DUSTLIK

Chief Dr. ERMANOD Mamarasul Ezmatovich

1- Hospital, 7 Rural Ambulance, 1- Polyclinic, No FAPs. 1 Medical sire (Felcher site) 14 years old 18,990, 2 years 3,000, 1 years 1560. Collect vaccine from Oblast 2-3 times a month. 1 Russian type cold box. Vaccination continues in the summer except for polio none from May to October. OK for disposable syringes. 1 refrigerator (very old but reliable) at +3°C temp. 2nd large refrigerator (very old) half defrosted due to power failure.

Central rayon Polyclinic and Hospital

Chief Dr. PARDAEVA Tamare Abdullaevna.

2 refrigerators - one working (temp. +4°C), the other broken down, (old - frequent break downs) plus 2 cold boxes (Russian type). Hospital has 50% shortage of refrigerators. Understood that a refrigerator from Samarkand factory costs 18,000 Rubles but they are difficulty to purchase as manufacturer requires cash, not bank transfer.

Mirzachul Rayon

Chief Dr. SADULOV Saparlec Saparovich.

Deputy Chief Dr. NURNIAJOVA Shamanyul Nurniajeova.

Pop. 50,000. Children under 14 - 19,000. under 2 - 4509. under 1 - 1,620.

1- central hospital, 3- polyclinics:- 1 children's, 1 Adult, 1 Dentist. 2- FAPs, 5 Rural Ambulances.

Vaccine transport time from Oblast 30 km 1 hr.

1 refrigerator at +2°C, 1 cabinet at +5°C, 1 not working. Syringe situation OK.

APPENDIX 9

DZHIZAK OBLAST

RAYON	CHILDREN				SES's					POLYCLINICS				RURAL HOSP /AMB					
	Total Pop.	New Born	Under one	Under two	Immuz. Sites	CURRENT EQUIPMENT				No.	CURRENT EQUIPMENT			Immuz Sites	CURRENT EQU				
						Cold- rooms	Domestic Refrig.	Cold Boxes	Thermos		Domestic Refrig.		Cold Boxes		Thermos	Domestic Refrig	Cold Boxes	Thermos	
											Working	Not Wk.							Working
Oblast SES	n/p				1	5	2	0	0			2							
Dzhizak City	115300				1	0	1	0	0	10	10		7	1	0				
Aznasay	33100				1	0	1	0	0	1	4	1	0	5	5				
Bakhmal	77100				1	0	1	0	5	3	3	1	1	14	14	3		1	
Aralsk	97500				1	0	7	1	7	4	3		2	3	22	17	4	5	
Dzhizak	114000				1	0	1	1	0	2	3	1	3	14	14	3		1	
Dustlik	42000				1	0	2	1	3	2	2		2	7	7	1			
Zaamin	96600				1	0	3	0	2	2	2		2	9	8	2			
Mirzachul	47000				1	0	3	0	3	4	4	1	4	5	5				
Octiaber	31100				1	0	4	0	1	4	4	1	0	3	3				
Pakhtakor	47300				1	0	2	0	1	3	4	1	0	1	5	2	5		
Farish	66300				1	0	3	0	1	3	4	2	1	16	10	2		1	
Buston Village	n/a				1	0	1	0	1	2	4	1	1	12	3				
Zarbdar	37700				1	0	1	2	0	1	4	1	2	2	2				
Kaytash	n/a				1	0	1	0	0	1	2		0	2	2				
Totals	805000				15	5	33	5	24	42	53	12	2	26	113	95	17	12	6

Immuz. Sites	FAP'S				FAP's	
	CURRENT EQU.				With no Elect.	Number broken Refrig
	Domestic Refrig.		Cold	Thermos		
Working	Not Wk.	Boxes				
24	15	2				
5	5	1				
45	39	3		7		
60	38	2	9			
37	33	3				
2	2	2	2			
44	38	3		2		
18	13	1				
3	3	0				
	6	1				
58	51	3		36		
	3	0				
5	3	1	1			
7	3	1	9			
308	252	23	21	45	0	

APPENDIX 10

NOTES ON VISIT TO KASHKADARYA OBLAST 9/10 NOVEMBER

Chief Dr. SES MYZAPAPOB Pabuui Kaiuaobeer
Tel. Home 5-27-49 Office 5-18-23

SUMMARY

This Oblast has more than adequate vaccine storage facilities for +4°C vaccine but no walk-in cold rooms for -20°C. The only deep freezers they have are those supplied in the October Humanitarian shipment. The Oblast needs long range cold boxes for collecting vaccine from Tashkent and for delivery to Rayons. Consideration should also be given to providing a small repair workshop at MedTechnica. This would involve a small quantity of tools and the purchase of some spare parts from the local market as initial stock.

COLD ROOMS AND VACCINE STORAGE FACILITIES AT OBLAST LEVEL

One 8m³ (+4°C) with forced air evaporators and two compressor/condenser units 2-3 years old.

One 16m³ (+4°C) with forced air evaporators and two compressor/condenser units.

One (+4°C) Cabinet twin door.

In the basement:

Four domestic refrigerators

Two 16m³ (+4°C) cold rooms with twin evaporators and compressor/condenser units.

In a third room one 16m³ (+4°C) with six working but very old domestic refrigerators in reserve. They were also building a new cold room of about 30 m³.

All the units were in good working order. They had no problems with the repair of refrigerators as they have a contract with a local company but there is a large problem with spare parts. Therefore, when a plant failure occurs it takes considerable time to repair the units.

The consultant also visited MedTechnica, which repairs all the Oblast MOH equipment except the refrigerators. For the longer term, consideration should be given to equipping and setting up a refrigeration repair section, as it would appear that as privatization continues the cost of repair will rise to unacceptable levels.

The Consultant also visited two Rayons and three Polyclinics. All had refrigerators in good working order.

APPENDIX 11

KASHKADARYA OBLAST

RAYON	Total Pop.	Total Children			SES's						CENTR. HOS. & POLYCLINICS				RURAL HOSP			
		New Born	Under One	Under Two	CURRENT EQUIPMENT						CURRENT EQUIPMENT				CURRENT EQUIPMENT			
					Immuz. Sites	Cold-rooms	Domestic Refrig	Not Working	Cold Boxes	Thermos	No.	Domestic Refrig Total	Not Wk	Cold Boxes	No.	Domestic Refrig Total	Not Wk	Cold Boxes
Karshi City		4583	3657	3488	1		5				6	6						
Shakhrisabz City		1898	1590	1568	1		3		1		4	4						
Karshi		5170	4436	4508	1		3			3	3	3			15	15		
Shekhrisabz		6112	5483	5209	1		4			4	4	4			12	12		
Ulyanov		4362	3773	3756	1		3			5	2	4			13	13		
Guzar		4394	3756	3649	1		2		2	3	3	3			20	20		
D - Abad		3605	3143	3129	1		2	1		3	1	1			7	7		
Kamashi		6143	5145	4836	1		3			6	1	1						
Kitab		1417	1166	1113	1		3			4	4	4			12	12		
Kasan		6270	5260	5220	1		6	2	1	5	1	1			3	3		
Chirakeh		9139	7608	7409	1		5	2	1	6	3	3			17	17		
Kakkabar		6351	5309	4891	1		4	2		7	2	2			20	20		
Nishan		2989	2661	2585	1		3		1	3	3	3			13	13		
Mubarek		1889	1684	1501	1		2			2	2	2			8	8		
U - Yusupov		1699	1489	1485	1		3			4	2	2			8	8		
Bakharistan		983	978	989	1		1			5	2				4	4		
Kitab		4548	3812	3717														
TOTALS		71552	60950	59053	16	0	52		6	60	43	43	0	0	152	152	0	0

Total refrigerators 911
 Total not working 139

ch

AMBULANCES				FAP'S			
CURRENT EQUIPMENT				CURRENT EQUIPMENT			
Domestic Refrig. Cold				Domestic Refrig No			
No.	Total	Not Wk.	Boxes	No.	Total	Not Wk.	Elec.
				50	50		
				12	12		
				60	58	12	
				76	72	24	
				54	30	14	10
				55	53	2	1
4	4			57	33	4	14
				67	67	14	7
				76	72	14	
11	11			40	39	2	1
3				89	79	31	
				13	55	10	9
				13	13	4	
				8	8	8	
				6	5		1
				3	3		
18	15	0	0	679	649	139	43

2/2

APPENDIX 12

NOTES ON VISIT TO BUKHARA OBLAST 10 NOVEMBER 1992

Deputy Chief Dr of SES KHARENOV Alisher Khasenovich

SUMMARY

This Oblast is well equipped with -20°C cold rooms at the SES level but the $+4^{\circ}\text{C}$ cold room is very unsatisfactory. They have a considerable number of FAPs with no electricity, quite high targets and remote. A very good case for gas or solar powered refrigerators could be made. As in other Oblasts, there are difficulties in getting refrigerators repaired, and a small repair workshop is required. As the transportation time from Tashkent for the vaccine is 12 hrs. by road, 24 hrs. by rail, long range cold boxes are required.

COLD ROOMS AND VACCINE STORAGE FACILITIES AT OBLAST LEVEL

One refrigerated truck 4m x 2.5m x 2.5m which currently is operational but not used due to the fuel costs and should it break down the current situation with spare parts would make it difficult to repair.

One 16m³ ($+4^{\circ}\text{C}$) cold room. The equipment is very old and not suitable for storing vaccine unless a new refrigeration plant is fitted to give the correct air distribution and temperature control.

One 4m³ (-20°C) cold room knock down construction, in good working order and new.

One 8m³ (-20°C) cold room as above.

The furthest Rayon is 100 km, about 3 hrs. They stated that they needed 200 cold boxes with a special need for long range cold boxes. This Oblast still has one flight a week from Moscow for the tourist industry. They have the usual problem with repairs and spare parts.

APPENDIX 13

BUKHARA OBLAST

RAYON	Total Pop.	Total Children			SES's					CENTR. HOS. & POLYCLINICS			RURAL HOSP & AMBUL.				
		New Born	Under One	Under Two	Immuz. Sites	CURRENT EQUIPMENT				No	CURRENT EQUIPMENT		No.	CURRENT EQUIPMENT			
						Cold-rooms	Domestic Refrig.	car cold Boxes	Thermos		Domestic Refrig			Cold Boxes	Domestic Refrig	Cold	
											Total	Not Wk					Total
Bulhara City	23400	4251	5448	5472	2	3	2	1	10	12	50			5	5		
Gijdiwan City	33500																
Kagan City	50800	830	871	903	1		2		1	5	4						
Alat	59600	2156	1959	1960	1		2		2	2	2			8	8		8
Bukahara	87600	2862	2721	2533	1		2		3	3	3		2	11	11		11
Vabkent	82500	2777	2544	2494	1	1	1		4	3	2		1	10	10		10
Gijduwan	2E+05	6470	5688	5550	1	1	2		3	3	3		2	19	18		19
Kagan	53400	1736	1584	1501	1					1	1		1	15	7		3
Karakul	9700	3235	3153	3136	1	1	2		4	3	8			15	15		13
Peshkue	67700	2381	2378	2128	1		2		2	2	2			12	12		10
Ramitan	86900	2903	2820	2807	1	1	4		2	6	6			9	12		9
Sverdlow	99600	3461	3441	3318	1	1	3		2	3	2		1	14	14		17
Shafirkan	1E+05	3820	3280	3066	1	2			4	2	2			14	14		13
TOTALS	9E+05	36882	35887	34868	13	10	22	1	37	45	85	0	7	132	126	0	113

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FAP's & SMALL MED. SITES				SCHOOLS				KINDERGARDENS				EQUIP. NOT WORKING			FAP'S WITH NO ELEC.				
No.	CURRENT EQUIPMENT			No.	CURRENT EQUIPMENT			No.	CURRENT EQUIPMENT			Rooms	CURRENT EQUIPMENT			No.	CURRENT EQUIPMENT		
	Domestic Refrig.		Cold		Domestic Refrig.		Cold		Domestic Refrig.		Cold		Domestic Refrig.		Cold		Domestic Refrig.		Cold
	Total	Not Wk.	Boxes		Total	Not Wk.	Boxes		Total	Not Wk.	Boxes		Total	Not Wk.	Boxes		Total	Not Wk.	Boxes
4	4			39	19			109	74										
					8														
2	2			9	5			22	21				3						
22	20		14	30	12			31	9				4		1				
41	40		2	44	5			51	51		1		2						
34	34			34	42			60	52		1								
55	44			53				98	70		1		5		3				
38	38		1	25				40					4						
33	32		3	38				57	8										
38	34		4	28	8			35	10						3				
31	28		3	40	15			60	18						3				
48	47		2	46				58							3				
39	35		2	46				94			1		1		2				
385	358	0	31	432	114	0	0	715	313	0	0	4	0	19	0	15	0	0	0

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APPENDIX 14

BUKHARA OBLAST Names of FAPs where there are no refrigerators

<u>RAYON</u>	<u>FAP Name</u>	<u>People Served</u>
Bukhara	No. 6	1128
	No. 41	785
	No. 42	1093
	No. 39	356
	Yaungi	1275
Vabkent	No. 8	1700
	No. 32	1694
	No. 22	1610
	No. 33	1673
Kagan	Frunze	1412
	Chalok	900
Romitan	Shekhoncha	703
	No. 28	590
	No. 27	280
	No. 26	270
	No. 7	1254
Jandar	K. Ravvat	203
	No. 3	1162
	No. 22	345
Gijuvan	Mekhat	650
	Rabot	1950
	Karakhoneh	1860
	Bogdorichilik	550
	Pakhtaobod	1900
	Kuljabbov	1873
Shifirkan	Okrabot	1250

APPENDIX 15

NOTES ON VISIT TO SAMARKAND OBLAST

Chief Dr. SES SALAKHUTJUSLT Makhmud Syradjinovich
Tel. 37-33-81-, 37-73-83.

SUMMARY

The only refrigeration equipment (in addition to the October shipment) they have is one extremely old cold room in a basement. It was impossible to see the evaporator as half the room was filled with apples. They have a need for a repair workshop, with tools and spare parts as well as for long range cold boxes, short range cold boxes and vaccine carriers. As with Bukhara Oblast they have remote FAPs without electricity and the need for Solar powered refrigerators exists.

COLD ROOMS AND VACCINE STORAGE FACILITIES AT OBLAST LEVEL

As they are so lacking in cold rooms/refrigerators it would appear that the October shipment of refrigerators/freezers will have to be held at Oblast level to provide correct vaccine storage. Their one +4°C cold room (100 m³) would have to have new plant and even then it is doubtful if it would be economic or even practical. They are building a new complex with the provision of cold rooms in the basement, but the entrance is via a steep narrow staircase and carrying vaccine boxes up and down these stairs would not be easy. From a technical point of view it was difficult to see how they proposed to install the compressor/condenser units and provide outside air for the condenser. As with a lot of Oblasts the cold chain personnel would benefit from training in the proper storage and transportation of vaccine.

It was very disappointing to see that on the monitor cards with the October shipment of Measles and BCG vaccine the 'A' section of the card was all blue.

APPENDIX 16

SAMARKAND

RAYON

	Total Children		SES's					CENTR HOS. & POLYCLINICS						
	Total Pop.	Under 14 years	New Born	Under One	Under Two	Immuz. Sites	CURRENT EQUIPMENT				No.	CURRENT EQUIPMENT		
							Cold- rooms	Domestic Refrig.	Cold Boxes	Thermos		Domestic Refrig		Cold Boxes
												Total	Not Wk	
Samarkand City	371500					1	1	8	4		18	18		
Kum-Kurgan C.						1		2	1		3	3		3
Aktash City	14000					1					2			
Ackdaria	82900					1		1	4		1	1		1
Guzalkent						1		1	3		1	1		1
Bulungur	99500					1		2	2		1	1		1
Jambay	93000					1		1	2		1	2		2
Jshikhau	118200					1		1	6		2	2		6
K-Kivigan	148300					1		2	3		2	2		1
Kushzabad	88600					1		1	2		2	3		1
Narpay	88600					1		1	1		1	1		1
Payariye	126800					1		1	1		1	1		2
Pastargom	146400					1		2	2		3	3		
Patagin	94600					1		2	2		1	2		2
Samarkand						1		5	6		3	3		3
Nuiabad						1		1	2		1	1		1
Jaylak						1		2	4		2	2		2
Urput	7000					1		3	3		2	2		3
Chelek	209000					1		1	2		1	1		1
TOTAL	1688400	0	0	0	0	19	1	37	50	0	48	49	0	31

1

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2

RURAL HOSP. & AMBUL.				FAP's & SMALL MED. SITES				SCHOOLS				KINDERGARDENS			
No.	CURRENT EQUIPMENT			No.	CURRENT EQUIPMENT			No.	CURRENT EQUIPMENT			No.	CURRENT EQUIPMENT		
	Domestic Refrig.		Cold		Domestic Refrig.		Cold		Domestic Refrig.		Cold		Domestic Refrig.		Cold
	Total	Not Wk.	Boxes		Total	Not Wk.	Boxes		Total	Not Wk.	Boxes		Total	Not Wk.	Boxes
								62	6			134	28		
								25				27	25		
								10				23			
11	9		17	65	61		12	48				52			
9	5		1	36	26			33				18			
9	9		7	44	42		24	56	4			55	20		
12	11		9	51	45			51				67	8		
17	15		30	95	83			79				96			
9	8		3	85	75			8				92			
10	10		10	62	31		28	69				24	20		
7	7		7	62	53		4	48	1			56	2		
8	8		6	46	43			39				28			
15	11		10	65	56			64				62			
8	8		10	54	44			44				43			
22	22		22	41	40		1	62				50			
12	12		12	49	45		35	67				23			
13	13		12	43	35		9	49	14			54	50		
37	32		54	89	63		6	114				79	9		
8	8		12	33	30			29				40	8		
207	188	0	222	920	772	0	119	957	25	0	0	1023	170	0	0

411

EQUIP. NOT WORKING				FAP'S WITH NO ELEC.			
Cold Rooms	CURRENT EQUIPMENT			No.	CURRENT EQUIPMENT		
	Domestic Refrig.		Cold		Domestic Refrig.		Cold
	Total	Not Wk.	Boxes		Total	Not Wk.	Boxes
			1				
			7				
			5				
			6				
			8				
			9				
			6				
			11	19			
			4				
			6				
			9	9			
			11				
			2				
			4				
			1				
			5				
			3				
	0	0	98	0	28	0	0

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APPENDIX 17

EQUIPMENT RECEIVED 23 AND 26 OCTOBER 1992
REPUBLIC OF UZBEKISTAN

ITEM	TOTAL RECEIVED	FOR UBEKISTAN	FOR OTHER CIS COUNTRY	COMMENT
Freezer type SB 300 see note (3)	109	51	58	error
Ice pack freezer TFW 791	11	11	0	correct
Ice liner refrigerator MK302	27	27	0	correct
Freezers HF506 see note (3)	11	12	0	1 short
Cold Boxes	115	115	0	correct
One Box spare parts see below (1)	1	1	0	correct
One box temperature charts	1	0	1	error
One box spare parts see below (2)	1	1	0	correct
Measles Vaccine 15 boxes 36x50x10 doses	270000	270000	0	correct
Measles Vaccine 1 box 20x50x10	10000	10000	0	correct
TOTAL doses	280000	280000		correct
BCG Vaccine 15 boxes 36x50x20	540000	540000	0	correct
BCG Vaccine 1 box 18x50x20	18000	18000	0	correct
TOTAL doses	558000	558000		correct
Diluent 14 boxes 20x100x5ml				correct
Diluent 1 box 38x50x1ml				correct
Diluent 13 boxes 40x50x1ml				correct

(1) Spares 17 compressors, 18 thermostats, 20 start relays

(2) Spares 4 compressors, thermostats, capacitors and starting relays

(3) One SB300 to many compensates for the missing HF506

Plus Hospital equipment

43

APPENDIX 18

**DISTRIBUTION LIST FOR EQUIPMENT
HUMANITARIAN AID SHIPMENT OCTOBER 1992**

OBLAST	Horz. Refrig. E3/27	Ice Line Refrig. E3/68	Vacc. Freez. E3/27	Cold Boxes E4/29	Ice Pack E5/16	Ice Pack Freez. E3/26
Tashkent City	-	-	-	-	950	-
Andizhan	1	2	3	6	420	1
Bukhara	1	2	5	10	700	1
Dzhizak	1	2	5	10	700	1
Kashkadarya	1	2	5	12	840	1
Navoyi	1	2	3	6	420	-
Namangan	1	2	3	6	420	1
Samarkand	1	2	3	12	820	1
Sukandar	1	2	5	10	700	1
Syrdar	1	2	3	6	420	1
Tashkent	-	2	3	6	420	-
Fergana	1	2	3	10	700	1
Khorezm	1	2	3	7	490	1
Karakalpak	1	2	5	12	840	1
Republican SES	1	-	1	2	20	-

NOTE: All spares will be held at the Republican SES until a decision is made regarding maintenance and repairs.

Source MOH/Republican SES October 1992

APPENDIX 19

DISTRIBUTION LIST FOR VACCINES HUMANITARIAN AID SHIPMENT OCTOBER 1992

OBLAST	Measles Vaccine 1000's of doses	BCG 1000 sets*
Tashkent City	-	2.0
Andizhanh	25.0	2.0
Bukhara	20.0	2.0
Dzhizak	20.0	1.5
Kashkadarya	25.0	2.0
Navoyi	20.0	2.0
Namanganh	20.0	1.5
Samarkand	25.0	2.5
Sukandarh	25.0	2.0
Syrdar	15.0	1.5
Tashkenth	10.0	2.0
Fergana	25.0	2.5
Khorezm	20.0	2.0
Karakalpak	20.0	2.0
Med Sites of Navoyi	10.0	0.4

* 1 set = 20 doses

245

APPENDIX 20

Current Equipment Status of Medical Sites
and SES's of the Republic of Uzbekistan
(Source Republican SES 1 January 1992
and corrected by Oblast Visits)

OBLAST	Children		SES's					POLYCLINICS			RURAL HOSP /AMB.			FAP'S			FAP's	
	Total Pop.	Under 14 Years	No.	CURRENT EQUIPMENT				No.	CURRENT EQU.		No.	CURRENT EQU.		No.	CURRENT EQU.		With no Elect.	Number broken Refrig.
				Cold- rooms	Domestic Refrig.	Cold Boxes	Thermos		Domestic Refrig.	Cold Boxes		Domestic Refrig.	Cold Boxes		Domestic Refrig.	Cold Boxes		
Tashkent City	2132500	607921	13	17	36	18	10											
Andizhan	1838700	721719	17	5	35	22	18	32	59	39	167	154	79	464	444	99	0	
Bukhara	1281200	477720	20	14	45	56		26	26	18	183	179	156	566	482	490	61	38
Dzhizak	806200	343106	15	5	31	27		42	52	24	113	95	70	308	252	64	10	43
Kashkadarya	1756200	783321	17	11	61	64		50	50	52	197	197	183	735	644	365	5	147
Navoyi	652900	253464																
Na.angan	1604100	656196	15	2	47	49	14	38	39	18	105	107	25	510	510	0		
Samarkand	2264800	960580	20	0	54	30	34	54	108	56	233	223	261	1003	876	859		
Surkandar	1384700	615017	15	7	45	56	12	38	57	38	167	178	150	769	654	38	13	125
Syrdar	587100	253699	12	5	23	26		23	24	14	73	72	43	199	146	37	13	120
Tashkent	2205200	818167	20	5	69	83		67	80	73	57	81	48	700	634	144		
Fergana	2282200	884640	21	1	77	93	2	29	51	53	54	57	44	611	586	55		
Khorezm	1100300	473782	13	8	36	24		40	55	4	77	79	19	383	363	71		27
Karakalpak Rep	1310700	565428	18	9	47	85		36	41	24	44	43	37	593	475	208		
TOTALS	21206800	8414760	216	89	606	633	90	475	642	413	1470	1465	1115	6841	6066	2430	102	500

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APPENDIX 21

DISTRIBUTION LIST FOR EQUIPMENT RECEIVED IN MAY 1992

TASHKENT CITY

Rayon/ Place	Chest Freezer	Free- zer	Ice packs	Sterilizer		Cold Box Big	Cold Box Small	Therm.	Syringe		Disp. Syringe
				A	B				A	B	
1. Mirabad	-	-	20	4	4	-	4	4	4	-	1500
2. Ulujbec	-	-	20	2	9	1	2	3	1	4	4000
3. Shayhantaur	-	-	20	5	1	1	2	3	5	4	4000
4. Unus-Abad	-	-	20	5	6	-	4	4	5	2	3000
5. Yacka-saroy	-	-	20	3	3	-	4	4	3	-	1500
6. Chilanjaz	-	-	20	4	4	1	2	3	4	-	3000
7. sergely	-	-	20	5	5	-	4	4	5	-	2000
8. Kharnza	-	-	20	4	5	-	4	4	4	2	3000
9. Salir-Rahimov	-	-	20	8	9	1	2	3	8	2	4000
10. Akmal-Ikam	-	-	20	3	4	1	2	3	3	2	3000
11. Beaktemir	-	-	20	2	2	-	4	4	2	-	1000
Labs.	-	-	-	-	-	-	2	2	-	-	-
Bacteria Labs	-	-	-	-	-	-	2	2	-	-	-
Virology	1	1	260	-	-	-	2	2	-	-	-
Drug Store SES	-	-	-	-	-	-	5	8	6	2	6800
Dept. Infect. Dea.	-	-	-	-	-	-	1	-	-	-	-

TASHKENT OBLAST

Rayon/ Place	Chest Freezer	Free- zer	Ice packs	Sterilizer		Cold Box Big	Cold Box Small	Therm.	Syringe		Disp. Syringe
				A	B				A	B	
TOWNS											
1. Almalykn	-	-	-	-	1	-	-	7	-	2	1700
2. Angren	-	-	-	-	1	-	2	7	-	2	1700
3. Bekobod	-	-	-	-	1	-	2	7	-	2	1700
4. Chirchick	-	-	-	-	1	2	-	7	-	2	1700
5. Yangiyul	-	-	-	-	1	2	-	7	-	2	1700
6. Yangiabad	-	-	-	-	-	2	-	2	-	-	1000
7. Krasnogorsk	-	-	-	-	-	2	-	2	-	-	1000
RAYONS											
1. Ackurgan	-	-	-	1	1	2	-	7	2	2	1700
2. Akhangaran	-	-	-	1	1	2	-	7	2	2	1700
3. Beckabad	-	-	-	1	1	-	2	7	2	2	1700
4. Bostonlyck	-	-	-	1	1	2	-	7	2	2	1700
5. Bookingsky	-	-	-	1	1	2	-	7	2	2	1700
6. Kuyachirchick	-	-	-	1	1	2	-	7	2	2	1700
7. Zangiadin	-	-	-	1	1	2	-	7	2	2	1700
8. Yukarichirchick	-	-	-	1	1	2	-	7	2	2	1700
9. Kybray	-	-	-	1	1	2	-	7	2	2	1700
10. Parkent	-	-	-	1	1	2	-	7	2	2	1700
11. Piskent	-	-	-	1	1	2	-	7	2	2	1700
12. Urtachirchick	-	-	-	1	1	2	-	7	2	2	1700
13. Tashkent sky	-	-	-	1	1	2	-	7	2	2	1700
14. Chinaz	-	-	-	1	1	2	-	7	2	2	1700
15. Yangiyul	-	-	-	-	1	-	-	7	2	2	1700
Oblast SES	-	-	-	-	1	10	2	2	56	2	800

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APPENDIX 22
VACCINE STATUS 1992 - 1993
REPUBLIC OF UZBEKISTAN

OBLAST	MEASLES/1000 doses						BCG/1000 sets				
	Required	Supplies	Deficit	Recev.	Stock	Required	Required	Supplies	Received	Stock	Required
	1992	available	1992	1st Half	01.07.92	1993	1992	available	1st Half	01.07.92	1993
Tashkent City	90.00	22.00	68.00	7.40	3.80	70.00	18.00	18.00	8.00	4.00	11.00
Andizhan	120.00	28.00	92.00	9.50	2.50	100.00	25.00	25.00	9.40	4.00	15.00
Bukhara*	110.00	26.00	84.00	8.80	1.30	79.00	24.00	24.00	8.00	0.05	19.00
Dzhizak	80.00	19.00	61.00	6.00	0.00	60.00	10.00	10.00	1.50	0.00	10.00
Kashkadarya	120.00	28.00	92.00	9.50	0.00	130.00	25.00	25.00	14.00	4.00	12.00
Na.angan	120.00	29.00	91.00	6.30	1.00	120.00	18.00	18.00	9.70	5.00	20.00
Samarkand*	122.00	29.00	93.00	7.80	0.00	120.00	34.00	34.00	15.00	0.00	22.00
Surkandar	170.00	30.00	140.00	10.00	0.00	150.00	25.00	25.00	13.00	0.30	25.00
Syrdar	18.00	10.00	8.00	4.50	4.00	60.00	9.50	9.50	6.00	7.60	9.00
Tashkent	120.00	29.00	91.00	12.60	6.50	150.00	25.00	25.00	12.00	9.50	25.00
Fergana	150.00	35.00	115.00	17.00	13.00	160.00	25.00	25.00	10.50	8.30	25.00
Khorezm	80.00	19.00	61.00	6.40	2.00	80.00	15.00	15.00	11.00	5.40	13.00
Karakalpak	100.00	23.00	77.00	7.80	0.00	100.00	29.00	29.00	16.00	12.40	20.00
*Navoyi	0.00	0.00	0.00	0.00	0.00	49.30	0.00	0.00	0.00	0.00	11.50
TOTALS	1400.00	327.00	1073.00	113.60	34.10	1428.30	282.50	282.50	134.10	60.55	237.50

Est. Cost Sep. 92 in Rubles

17139800

973750

APPENDIX 23

Source Republican SES October 1992

Total No. of Doses 1000's by Oblast each 3 months and the No. of Cold Boxes Rqd.

	Mea.	No. of cold Boxes	BCG	No. of cold Boxes	Polio	No. of cold Boxes	DPT	No. of cold Boxes	TT	No. of cold Boxes	total no. cold of boxes	total no. doses
Tashkent City	17.50	0.97	55.00	1.53	100.00	5.56	21.25	1.18	12.50	0.69	9.93	206.25
Andizhan	25.00	1.39	75.00	2.08	125.00	6.94	20.00	1.11	6.25	0.35	11.88	251.25
Bukhara	19.75	1.10	95.00	2.64	122.50	6.81	18.75	1.04	3.50	0.19	11.78	259.50
Dzhizak	15.00	0.83	50.00	1.39	60.00	3.33	18.00	1.00	1.25	0.07	6.63	144.25
Kashkadarya	32.50	1.81	60.00	1.67	175.00	9.72	25.00	1.39	3.75	0.21	14.79	296.25
*Navoyi	32.50	1.81	100.00	2.78	175.00	9.72	25.00	1.39	3.75	0.21	15.90	336.25
Na.angan	30.00	1.67	110.00	3.06	143.75	7.99	30.00	1.67	3.75	0.21	14.58	317.50
Samarkand	30.00	1.67	125.00	3.47	197.50	10.97	45.00	2.50	5.25	0.29	18.90	402.75
Surkandar	37.50	2.08	45.00	1.25	150.00	8.33	30.00	1.67	6.25	0.35	13.68	268.75
Syrdar	15.00	0.83	125.00	3.47	50.00	2.78	12.50	0.69	2.50	0.14	7.92	205.00
Tashkent	37.50	2.08	125.00	3.47	162.50	9.03	32.50	1.81	5.00	0.28	16.67	362.50
Fergana	40.00	2.22	65.00	1.81	180.00	10.00	45.00	2.50	6.25	0.35	16.88	336.25
Khorezm	20.00	1.11	100.00	2.78	87.50	4.86	18.75	1.04	4.50	0.25	10.04	230.75
Karakalpak	25.00	1.39	57.50	1.60	130.00	7.22	27.50	1.53	3.75	0.21	11.94	243.75
REPUB. SES	377.25	20.96	1187.50	32.99	1858.75	103.26	369.25	20.51	68.25	3.79	181.51	3861.00
REPUB. SES TOTAL BOXES RQD. EACH 3 MONTHS		181.51										

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	POLIO					DPT				
	Required	Available	Received	Stock	Required	Required	Available	Received	Stock	Required
	1992	1992	1st Half	01.07.92	1993	1992	1992	1st Half	01.07.92	1993
Tashkent City	500.00	500.00	250.00	120.00	400.00	95.00	95.00	64.00	50.00	85.00
Andizhan	800.00	800.00	400.00	85.00	500.00	130.00	130.00	51.00	50.80	80.00
Bukhara*	630.00	630.00	314.00	22.30	490.00	90.00	90.00	42.00	8.10	75.00
Dzhizak	250.00	250.00	125.00	97.00	240.00	26.00	26.00	13.00	2.60	72.00
Kashkadarya	750.00	750.00	374.00	50.00	700.00	80.00	80.00	47.00	14.00	100.00
Na.angan	620.00	620.00	310.00	0.00	575.00	130.00	130.00	61.00	18.00	120.00
Samarkand*	1161.00	1161.00	581.00	0.00	790.00	172.00	172.00	85.00	0.00	180.00
Surkandar	700.00	700.00	350.00	4.80	600.00	115.00	115.00	53.00	10.70	120.00
Syrdar	200.00	200.00	100.00	55.00	200.00	40.00	40.00	36.00	15.00	50.00
Tashkent	900.00	900.00	450.00	210.00	650.00	160.00	160.00	60.00	87.00	130.00
Fergana	800.00	800.00	400.00	240.00	720.00	170.00	170.00	90.00	73.00	180.00
Khorezm	450.00	450.00	225.00	43.00	350.00	90.00	90.00	70.00	64.60	75.00
Karakalpak	600.00	600.00	300.00	121.00	520.00	110.00	110.00	44.50	36.00	110.00
*Navoyi	0.00	0.00	0.00	0.00	295.00	0.00	0.00	0.00	0.00	550.00
TOTALS	8361.00	8361.00	4179.00	1048.10	7030.00	1408.00	1408.00	716.50	429.80	1927.00

709.5 462.9 1432

Est. cost Sep. 92 in rubles

17577500

17139800

*Navoyi is a new Oblast made up of Rayons
taken from Bakhara and Samarkand Oblasts

Source Republican SES October 1992

	TT				
	Required	Available	Received	Stock	Required
	1992	1992	1st Half	01.07.92	1993
Tashkent City	80.00	80.00	50.00	14.50	50.00
Andizhan	25.00	25.00	21.00	7.00	25.00
Bukhara	20.00	20.00	10.00	78.00	14.00
Dzhizak	17.00	17.00	9.00	9.00	5.00
Kashkadarya	15.00	15.00	7.00	3.15	15.00
Na.angan	25.00	25.00	16.50	10.00	15.00
Samarkand	30.00	30.00	15.00	0.00	21.00
Surkandar	25.00	25.00	16.00	4.00	25.00
Syrdar	15.00	15.00	12.00	8.00	10.00
Tashkent	20.00	20.00	13.00	9.00	20.00
Fergana	20.00	20.00	15.00	16.60	25.00
Khorezm	18.00	18.00	11.00	7.50	18.00
Karakalpak	10.00	10.00	0.00	0.00	15.00
*Navoyi	0.00	0.00	0.00	0.00	12.60
TOTAL	320.00	320.00	195.50	166.75	270.60

167.5 195.5

Est. cost Sep. 92 in rubles

405%

* Navoyi is a new Oblast made out of Rayons taken from Bukhara and Samarkand Oblasts

APPENDIX 24

GENERAL SPECIFICATION FOR WALK-IN COLD ROOMS

Country of installation	Republic of Uzbekistan
Ambient conditions	-20°C to +50°C RH 30%-100%
Required for	The storage of vaccine
Storage temperature	+4°C or -20°C as specified
Storage Capacity	10m ³ or 8m ³ as specified
Refrigeration plant	Two independent plants to maintain the specified temperature regardless of ambient temperature.
Location	To be assembled outside under a plastic or galvanized roof.
Wall insulation	To suit ambient conditions.
Voltage	220 Volts 1ph 50Hz 380 Volts 3ph 50Hz
Condensing units	Forced air condenser, filter dryer, sight glass, service valves.
Evaporator units	Forced air, electric defrost, ceiling mounted with condensate drip tray and rain connections.
Door	To be lockable with 100% fail-safe provision for opening from the inside.
Electrical controls	To enable either unit to be switched on or both.
Temperature monitoring	Preferably digital reading with provision for temperature printout.
Accessories	Shelving to be provided.
General	Refrigeration units to be preferably pre-charged with pre-charged self-sealing evaporator-condenser hoses.
Spares	To meet ASHRAE specifications. To be supplied with recommended spares.

APPENDIX 25

LIST OF RECOMMENDED EQUIPMENT AND CONSUMABLES FOR COLD CHAIN REPAIR FACILITIES

To establish reasonable repair centers for EPI Cold Chain **each repair** center would require funding for the following tools and equipment:

<u>ITEM</u>	<u>Qty</u>	<u>Est. Cost Total US\$</u>
1. Vacuum pump for evacuating domestic refrigeration systems. 220V 1ph 50Hz.	2	600
2. Set of charging hoses (a set is three hoses)	2	100
3. 1/4 inch refrigeration copper tube	50 meter	100
4. 3/8 inch refrigeration copper tube	50 meter	120
5. Tube cutter (small diameters)	2	25
6. Tube cutter (up to 1 inch diameter)	2	35
7. Lever type bending tool 1/4 to 1 inch	1	50
8. Flaring tool 3/16 to 5/8 inch	1	35
9. Swaging tool punch type 1/4 to 1/2 inch	1	40
10. Low pressure Compound refrigeration gauge showing evaporating temperatures for R12 and R22 with adaptor nipple for connection to quick coupler	2	60
11. High pressure Compound refrigeration gauge showing evaporating temperatures for R12 and R22 with adaptor nipple for connection to quick coupler	2	60
12. Test manifold (2 gauges, 2 valves 3 connections)	2	80
13. Set tube line adapters 1/4 to 3/8 inch	2	100
14. Pinch off tool	2	50
15. Digital temperature meter (range minimum -20°C to +50°C)	1	100
16. Multimeter Volts AC, DC, Amps, Ohms	1	150
17. Clip (clamp) meter (minimum range 3 to 100 amps)	1	100
18. Aluminum solder for joining aluminum, brass, copper etc. (with flux if required)	10 meter	100
19. Copper to copper brazing rods (for small domestic copper piping)	5 Kg	70
20. Refrigerant gas R12	50 Kg	400
21. Refrigerant gas R22	25 Kg	200
22. To enable them to start repairing immediately some spare refrigeration compressors would be required. Exact sizes would have to be determined, but possibly the best and cheapest source would be Russian suppliers.		3000
Sum for local purchase	TOTAL	5470

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APPENDIX 26

LIST OF PERSONS CONTACTED

UZBEKISTAN

- ISKANDAROV Tulkin Iskandarovich - Deputy Minister and Chief Sanitary Doctor of the Republic of Uzbekistan
Tel. Off. 41-16-24 Tel. Home 46-24-97
- KASIMOV - Head of Epidemiology Department
- SHARIPOV Alisher Mirkhamid - Chief Doctor for Children's Infections and Head of Committee for Humanitarian Affairs
Tel. Off. 41-18-51/44-14-91 Fax. 41-16-41
- TASHPULATOV Rizaev Kulmahmad - Medical Services and Deputy Minister
- SARIMASKOV (Mr. S) Abdulkharim Khalilovich - National Committee for the Reception of Humanitarian Aid; Inspector for the General Management of Epidemiology
Tel. 41-57-20
- TURSONOVA Dilbrom Alimbovna - Specialist of the First Category of the Sanitary and Epidemiological Department (Head of Cold Chain)
Tel. 41-16-03
- DJURAYEV Nasyr Djurayevich - Deputy Head, Sanitary and Epidemiological Department
Tel. 44-16-03

COUNCIL OF MINISTERS

- BALKUNOV Valadislav Fiodorovich - Senior Expert Immunization
Tel. Off. 39-80-22

CITY OF TASHKENT SES

- TURSUN Mirtojiev - Chief Doctor
- TADJIBAEV Gatur Khodjibaevich - Deputy Chief Doctor
- AGZAMOVNA Muhabbat - In charge of cold rooms

TASHKENT OBLAST

- MASHARIPOVICH Masharipov Rajabboy - Chief Doctor
Tel. 68-82-75
- HASHIMOUNA Baymetova Nasiba - Deputy Chief Doctor
Tel. 68-82-65

CITY HEALTH CENTER (Health Publicity Department)

- MUKHAMEDOVA Mamyahat K. - Chief Doctor
Tel. 67-83-32/68-55-30/68-59-23

SCIENTIFIC RESEARCH INSTITUTE OF PEDIATRICS

- MACHMUDOV Orchan S. - Director/Professor
Tel. 29-38-73/29-38-74 Home 32-37-81
- DILBAR Makhmudova - Chief of Laboratory of Infectious Diseases
- DILBAR Askarova - Senior Scientific Worker of the Lab

INSTITUTION OF MICROBIOLOGY, EPIDEMIOLOGY AND INFECTIOUS DISEASES. MOH

- ISAKOVICH Musabaev Erkin - Deputy Director Head of Department of Chronical Hepatitis

UNITED AGENCY FOR INTERNATIONAL DEVELOPMENT

- CLAY Robert M. - Chief, Health Services Division
- FEENEY Paula - General Development Officer, Kazakhstan and Central Asia

TASHKENT REPUBLICAN SES

- MURTAZAEVICH Mustafaev Khayzulle - Chief Doctor
Tel. 78-40-51 Secretary 78-49-67
- ANDRIANOV Vladimir - Chief Doctor's Representative SES
Tel. 78-59-46
- STUPNIKOVA (Mrs) Larisa Alex - Head of Epidemiology Department
Tel. 78-49-67

DZHIZAK OBLAST

- RAJABOV Muhtan Nigmatovich - Chief Doctor
Tel. Off. 2-24-17/3-57-44 Res. 2-16-52
- YULDASHEV Shukhret Nozielvich - Deputy

MOH EXTERNAL ECONOMIC ACTIVITY DEPARTMENT EXTERNAL RELATIONS SECTION

- ZHIHAREVA Larisa N.
Tel. Off. (3712) 68-13-12 Res. (3712) 34-99-73

AIRPORT

- KASHIMOV Rustam Nurmatovich - Chief of Mailing-Shipping Services
Tel. Off. 55-48-95

REPUBLIC TRADING SUPPLY COMPANY RTSO Tibtaminot

- MUNIMOV Sabirjon Sokievich - Director General
Tel. Off. 48-79-82/48-56-06

KYRGYZSTAN

Medtechnica Bishkek

- TOKOCHEV BOLOTBEK - Director General
Tel. Off. 43-04-34
- RYSKULBEKOV Mirghiyaz - Senior Engineer

Medtechnica Osh

- KLUS Anatoliy Ivanovich - Chief Engineer

Bishkek City SES

- SAVCHENKO Victor Ivanovich - Chief Doctor

Osh MOH SES

- ASILBEK Bayaliyev - Chief Doctor
- ERALIYEV Artikbay Eralivevich - Deputy Chief Doctor

Osh Oblast

- RISALIJEV Damir Jusupbekivich - Chief Doctor