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REACH

RESOURCES
FOR CHILD
HEALTH

**EMERGENCY IMMUNIZATION SUPPORT
PROGRAM - TECHNICAL ASSISTANCE IN
COLD CHAIN AND PROGRAM PLANNING:
KYRGYZSTAN**

3 October - 19 November 1992



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**EMERGENCY IMMUNIZATION SUPPORT PROGRAM -
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KYRGYZSTAN**

3 October - 19 November 1992

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ACRONYMS

AID	Agency for International Development
BCG	Bacillus, Calmette, and Guerin Vaccine
BCG-M	Bacillus, Calmette, and Guerin (Attenuated)
CAR	Central Asian Republics
CIS	Commonwealth of Independent States
DOD	Department of Defense
DPT	Diphtheria, Pertussis, Tetanus Vaccine
DT	Diphtheria, Tetanus Vaccine
EPI	Expanded Program on Immunization
FAP	Feldsher Obstetrician (Health) Post
FSU	Former Soviet Union
IMR	Infant Mortality Rate
MOH	Ministry of Health
NIS	Newly Independent States
OFDA	Office of Foreign Disaster Assistance
OPV	Oral Poliomyelitis Vaccine
PIS	Product Information Sheets
REACH	Resources for Child Health
SES	Sanitary and Epidemiology Station
SUB	Rural Outpatient Clinic
SVA	Rural Hospital
TA	Technical Assistance
TT	Tetanus Toxoid Vaccine
UK	United Kingdom
UNICEF	United Nations Children's Fund
USA	United States of America
USAID	United States Agency for International Development
WHO	World Health Organization

I. EXECUTIVE SUMMARY

Funds were allocated in 1992 by the United States Agency for International Development (USAID) for emergency assistance to the childhood immunization service of the newly independent Republic of Kyrgyzstan. Implementation of this assistance was the responsibility of two USAID offices -- the Office of Foreign Disaster Assistance and the Bureau of Research and Development, Office of Health. The objective of the effort was to ensure that a one year cohort of children received the primary series of immunizations for protection against the common vaccine-preventable diseases.

Assistance during the first phase (May 1992) of operations took two forms:

- Quick delivery of needed immunization equipment, supply and vaccines.
- Provision of an immunization program specialist to assist receipt of the new equipment and to determine additional emergency support required.

Assistance during the second phase (September through December 1992) of operations took the following form:

- Provision of additional vaccine, sterilization and cold chain equipment.
- Technical support to:
 - Review field level immunization activities.
 - Conduct an assessment of cold chain and cold chain repair system status.
 - Orient staff to current vaccine handling and cold chain management procedures.
 - Develop mechanisms for international vaccine procurement.
 - Determine additional emergency support requirements (if any).

The implementation of these activities and the concomitant greater understanding of the situation in Kyrgyzstan has resulted in the identification of further emergency immunization support needs for 1993. These include:

- Vaccine support to overcome expected shortfalls in 1993.
- Strengthening of vaccine storage cold rooms at the national level and providing storage capacity at selected health facilities.
- Strengthening of the country's cold chain repair capability.
- Assisting cold chain training, policy development, program planning, vaccine procurement and communications development.

II. PURPOSE OF VISIT

The writer was assigned three sets of tasks in four countries of the Former Soviet Union (FSU) during the period 2 September through 28 November 1992. One set of tasks was to coordinate the USAID/REACH Emergency Immunization Support Program in Tajikistan, Turkmenistan, Kyrgyzstan and Uzbekistan to include assisting Ministries of Health in the first three countries to receive and distribute donated immunization supplies and equipment.

The second task-set was to review and report on the emergency medical situation in Kyrgyzstan resulting from a series of earthquakes in August 1992. A report of findings and recommendations concerning the above two task-sets are found in a separate document (Hasselblad, C. Field Coordination of Second Phase Emergency Immunization Support Program Activities in Four Central Asian Republics: 2 September - 28 November 1992. -- D8¹).

The third scope of work assigned to the writer was to (in Kyrgyzstan):

- Review May and September 1992 vaccine, immunization supply and equipment distribution plans (for donated commodities) 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 the Ministry of Health (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 the MOH to prepare the vaccine/cold chain sections of an immunization operations plan for 1993.

The present document describes the activities, findings and conclusions resulting from this set of tasks.

¹A bibliography of reports related to the NIS work is found in Annex 1. The number (eg., D8) found at the end of the reference refers to the document number in the bibliography.

III. BACKGROUND

The Republic of Kyrgyzstan, one of the newly independent Central Asian Republics, covers an area of 199,000 square kilometers and has a population of 4.4 million persons (including 131,000 children under one year of age). Some 54% of the population is Kyrgyz, 22% Russian, 13% Uzbek and 11% other. With only 1.4% of its population having a monthly per capita income above 300 rubles in 1990, Kyrgyzstan ranks third poorest of all republics of the former Soviet Union (FSU).

Under direction of USAID, a child-immunization program specialist visited Kyrgyzstan from 15-20 March 1992. After reviewing child immunization activities, facilities and support infrastructure, the consultant recommended urgent assistance to the MOH for support of immunization activities (see Steinglass, R. Emergency Childhood Immunization Support Program: Kyrgyzstan, 15 - 20 March 1992, -- A3.). As a result, Kyrgyzstan became one of four Central Asian Republics selected by USAID for emergency immunization program support in 1992. Implementation of this assistance was the joint responsibility of the Office of Foreign Disaster Assistance (OFDA) and the Bureau of Research and Development, Office of Health.

Support in 1992 was provided in two phases. First phase assistance (May 1992) was:

1. Provision of vaccines, syringes and needles, sterilization equipment and vaccine storage/transport equipment (see Annex 2).
2. Provision of an immunization program specialist to:
 - A. Assist the MOH to receive and organize the use of donated supplies and equipment.
 - B. Identify additional emergency program support requirements, if any.

In the event, the immunization specialist recommended provision of additional vaccines and cold chain equipment to Kyrgyzstan as well as technical assistance in cold chain strengthening, in vaccine procurement and in immunization policy review (see Hasselblad, C. Emergency Childhood Immunization Support Program: Kyrgyzstan, 26 April - 5 June 1992, -- B3.).

As a result, second phase (September to November 1992) assistance in Kyrgyzstan consisted of:

1. Provision of additional vaccines, cold chain and sterilization equipment.
2. Provision of cold chain/vaccine handling technical assistance.
3. Provision of technical assistance to develop vaccine procurement mechanisms. (see Woodle, D.: D5.)
4. Provision of technical assistance to review immunization program policy issues. (see Steinglass, R.: D7)

IV. TRIP ACTIVITIES

Other than assisting the MOH to receive/distribute the October commodity shipment, to prepare for the "vaccine procurement" assignment and to prepare for the policy seminars, trip activities included:

- Review and field monitoring (in Jalalabad Oblast) of the distribution and use of donated immunization supply and equipment, including assessment of remote-area cold chain management and vaccine handling operations.
- Arranging assessment of cold chain and cold chain repair system status and subsequent work with MOH staff to identify priority next-steps for strengthening the cold chain system.
- The development, testing and modification (through use) of a seventy page cold chain training manual for operational staff as a means to provide technical guidance and training to program officials.
- Review with the MOH of 1992 vaccine receipt and stock position toward determining 1993 vaccine support requirements.

V. METHODOLOGY AND APPROACHES

All activities described and conclusions reached are a result of discussion and interaction with the Kyrgyzstan MOH. The immunization effort in this country benefits from having exceptionally committed and capable officers. They worked closely with the writer, the local REACH activity manager and interpreters to plan and implement all agreed upon activities.

VI. RESULTS AND CONCLUSIONS

1. COMMODITY ARRIVAL, TRANSFER AND DISTRIBUTION

The second-phase shipment of vaccine, cold chain and sterilization equipment arrived in Kyrgyzstan on two U.S. Air Force C-141 aircraft -- one on 20 October and the second on 27 October 1992.

All vaccine (see Annex 2) arrived according to the number of doses expected and all vaccine monitors in the shipment had all-white "windows" indicating good transport temperature conditions.

All equipment arrived as expected (see Annex 2) with the following exceptions:

- 56 of the expected 56 vaccine freezers did not arrive.
- 24 out of 932 vaccine carriers did not arrive.
- 2,208 (92 Boxes) of 31,032 ice packs for cold boxes did not arrive.

Eventually the 56 freezers were transferred from Uzbekistan. As of December 1992, the 24 vaccine carriers were still in Turkmenistan (that country finding it difficult to arrange transfer). The 92 boxes of ice packs were presumably with the Tajikistan equipment which, having missed shipment, were awaiting ground transport from Germany.

The distribution of the October shipment was completed by the end of November 1992. A summary of commodity distribution throughout Kyrgyzstan, which includes both first phase (May) and second phase (October) shipments, is given in Annex 3.

2. COLD CHAIN OPERATIONS AND VACCINE HANDLING

Service Level

A three day swing visiting facilities in a somewhat remote valley in Kyrgyzstan reinforces previous findings:

- The distribution of USAID-provided equipment and supply has proceeded according to plan.
- Vaccine handling and cold chain management at peripheral levels requires significant strengthening.
- Vaccine storage equipment at many facilities is obsolete or not available.

Regional & National Level

Observation at the oblast and national level shows vaccine handling and cold chain management to be generally of good quality.

Vaccine Production To Country Level

There continues to be no cold chain of any kind from vaccine producers in the Russian Federation to country level.

3. COLD CHAIN ASSESSMENT AND REVIEW OF THE COLD CHAIN REPAIR CAPACITY

Service Level

The Ministry of Health conducted a review of its immunization service and storage facilities and prepared a list (by name of facility and district) of 296 facilities which either have no refrigerator (75) or a refrigerator which is non-functioning or unreliable (221).

The cold chain review also revealed need for a small quantity of additional cold boxes, ice packs and thermometers.

The Kyrgyzstan MOH has been the only country determined to use the new "portable sterilizer" technology made available by USAID. The MOH originally intended to use these sterilizers only at service points staffed by professional health staff (nurses, doctors, etc.). However, they have found the technology so easy to use and appropriate that the MOH wants to provide these units to every immunization service point in the country.

National Level

A cold chain engineer (REACH consultant J. Pott) reviewed the national vaccine storage facilities. He wrote:

"Currently they have . . . two +4°C cold rooms. One of approximately 100cu.m (8x3x4) has two evaporators and compressor/condenser units. The store has glazed tile walls and was clean and very tidy. The refrigeration plants are of the usual old Soviet type with static evaporators (ie. no forced air flow over the evaporators). One was running at a temperature of about +2°C and the other was completely frosted up.

"The other cold room of approximately 80cu.m (6x3x4.5) had the same type of equipment but plain concrete walls. The refrigeration plant was working and the interior temperature of the cold room was +6°C. It was stated that the plant frequently broke down and they had just installed the third and last working compressor unit. They expressed extreme concern about the difficulty of obtaining spare parts for the refrigeration plants.

". . . The present equipment is totally unsuitable for reliability and correct temperature control. Currently it would be extremely unwise to place large shipments of vaccine for long-term storage in either of these cold rooms."

Mr. Pott was also asked to review the cold chain repair system in Kyrgyzstan. He reports that the Kyrgyzstan Med-Technica Organization located in the cities of Bishkek and Osh has the responsibility and technical capability to manage cold chain system repair. However this organization is severely hampered by a lack of cold chain repair equipment, tools, supplies and spare parts. He also reports that some training (on repair of the new USAID provided equipment) would be required for Med-Technica technicians.

4. TECHNICAL ASSISTANCE IN ESTABLISHING AN EFFECTIVE COLD CHAIN SYSTEM AND IN COLD CHAIN TRAINING

Service Level

Although a number of senior program officials in the MOH are knowledgeable about cold chain operations and management, many system officials and staff have a curious mix of correct information, major gaps in information and wrong (or out-

dated) information. A basic cause for this is that no cold chain training materials or operations manual are available to standardize understanding and practice. Thus management, supervision, training and operations are idiosyncratic processes. At the same time, some professional staff are resentful of the idea that they should need to be taught what appears to be simple and common-place operational points.

The way around these difficulties was for the Kyrgyzstan MOH to develop a cold chain training manual for vaccine storage personnel and service providers. It was thought that in the process and struggle to produce a very clear guide for health workers, senior staff would need to fully conceptualize and detail step-by-step procedures for cold chain operations and vaccine handling.

In the event, a 70 page cold chain manual for health workers was drafted and modified through use. The MOH plans to distribute the manual to every health facility in the country and use it as a training and reference document for cold chain operations. This manual is presently undergoing final revision.

Supervisory Level

The materials described above were designed for health service providers and vaccine handlers. No equivalent materials exist for supervisory staff. It should also be noted that the MOH has not yet fully conceptualized the management, supervision and monitoring aspects of the program. The process of conceptualization and detailing point-by-point procedures will be as important as producing the final materials themselves. In any case, although existing WHO training materials are not completely appropriate to the current situation and will require significant revision, they can be used as the basis for developing supervisory level materials. This revision is best done in the countries themselves.

5. VACCINE

The vaccine availability and vaccine potency issues remain the most urgent problems facing the Kyrgyzstan immunization effort. The two issues remain inextricably linked.

The current immunization schedule in Kyrgyzstan (see Annex 4) requires almost double the amount of vaccine than would be used if the WHO recommended schedule was adopted.

Nevertheless, the current multiple-dose schedule is probably operationally more appropriate than the WHO schedule given the perceived low potency levels of the FSU-produced vaccines, the absence of cold chain between FSU producers and the country and the still inadequate (although much improved) cold chain system in the country.

Thus Kyrgyzstan must continue to procure twice the amount of vaccine than might ordinarily be needed. This in turn means higher vaccine costs than the country can

meet under the present economic crisis. This is in addition to the difficulties in obtaining the required quantities of vaccine from some FSU producers.

Nonetheless, as expensive and difficult as it might be to obtain vaccine from FSU producers, it is still cheaper to do so than to purchase even half the amount of vaccine through the UNICEF system or from other non-FSU sources.

Three vaccine procurement problems faced the MOH in 1992:

- FSU producers were unable to contract to provide sufficient quantities of measles and BCG vaccines.
- Even though vaccine contracts were signed, some contractual amounts (eg., for BCG) could not be met by the FSU producers.
- Kyrgyzstan was unable to find and/or transfer (through the deteriorating banking system) sufficient funds to cover the cost of some vaccines which the FSU producers could have provided up to contract amounts.

This last problem of insufficient funds (apart from the issue of fund transfer) is a compound of requiring too much vaccine, of escalating cost (a forty fold price increase in one year) and the fact that no budget provision can be planned at the beginning of the year due to monthly (even weekly) price increases passed on by the producers.

The picture of vaccine procurement in 1992 from FSU producers illustrates the three problems:

**VACCINE REQUEST, CONTRACT AND DELIVERIES
BETWEEN FSU PRODUCERS AND KYRGYZSTAN IN 1992 (In Doses)**

<u>Antigen</u>	<u>Request</u>	<u>Contract</u>	<u>Receipt</u>	<u>% Shortfall</u> ¹
Measles	330,000	68,000	67,000	80% ²
BCG	1,280,000	1,200,000	900,000	30% ³
DPT	720,000	720,000	430,000	40% ⁴
Polio	1,320,000	1,320,000	852,000	35% ⁴

¹ Difference between receipt and request.

² Producer was unable to "contract" for total request but almost totally fulfilled the contract.

³ Producer was not able to contract for total request and was unable to fulfill the contract.

- ⁴ Producers were able to contract for full amount of request and were able to provide full contractual amount. However, Kyrgyzstan did not have sufficient funds to buy these vaccines.

Given this dismal picture of supply and budget problems it was fortuitous that donors supported the immunization effort in 1992. However, donors were only willing to support vaccine needs for the primary series of immunization. The total supply picture in 1992 (including donated vaccines) is as follows:

**VACCINE SUPPLY FROM ALL SOURCES IN KYRGYZSTAN
IN 1992 -- In Doses**

<u>Antigen</u>	<u>Vaccine Needed:</u>		<u>Vaccine Available From all Sources</u>	<u>Enough Vaccine To Cover:</u>	
	<u>For Primary Series</u>	<u>For Total Immunization</u>		<u>Primary Series ?</u>	<u>All Age Groups ?</u>
Measles	157,144	291,577	374,000	Yes	Yes ¹
BCG	601,140	1,495,740	1,312,740	Yes	No
DPT	504,546	670,152	666,600	Yes	Almost
Polio	472,563	1,339,936	1,259,200	Yes	No

- ¹ Although exact figures are not available, many children were not immunized with measles in 1991 and were followed-up for immunization in 1992. Thus, despite the numbers, there was probably not enough measles vaccine in 1992 to immunize all age groups, as vaccine was used to give primary immunization to those who had missed immunization in 1991.

Donor support (see Annex 5) contributed over 80% of the measles vaccine, 27% of the BCG vaccine and over 17% of the polio vaccine in 1992. Even with this contribution, sufficient vaccine was not available for immunization of all age groups. Nevertheless, there was sufficient vaccine to immunize all children requiring the primary series (including children not immunized in 1991 with measles vaccine).

There is evidence to suggest that the same problems of vaccine availability and lack of local funds will continue in 1993 in Kyrgyzstan. Donor support will be required to sustain the immunization effort.

6. PROGRAM DEVELOPMENT

In the transformation of the immunization effort in Kyrgyzstan from a state service in a regulated social and economic order to a national program in a social and economic market system, major decisions and changes must be made. Of the four countries assisted through the Emergency Immunization Support Program, Kyrgyzstan

is the most willing to tackle its problems head on. Because of this, the Kyrgyzstan MOH is both more able but also more in need of moving rapidly ahead to create new understandings and practices before the old ways completely disintegrate. The following are seen as priority issues:

Immunization Policy

Now that the first step in review and revision of national immunization policy (see Steinglass, R.: D7) has been completed, the MOH will need to establish a mechanism for policy making which can identify and analyze those problems amenable to policy reformulation.

National Plan

The MOH has decided to document its policies, goals, and objectives and the procedures selected to implement them. Such a document will serve both as a plan for program development as well as a document which international agencies can use as a guide in providing assistance. The MOH has asked technical assistance to prepare such a plan.

Vaccine Procurement Capability

Apart from the urgent need for continued emergency vaccine donations, the MOH also needs to develop skills in international vaccine procurement that will allow it to properly contract with FSU producers as well as with other international suppliers (see Woodle, D.: D5). Although the MOH received theoretical orientation as to necessary procurement procedures, staff require the practical experience of actual procurement. The Ministry has requested technical assistance in this area. The MOH would also require a donation of hard currency for this exercise.

Communication

As the former methods of social organization break down, MOH officials are aware that they will no longer be able to command the population to present for immunization. The MOH sees the need to be able to effectively communicate with parents and has asked that technical assistance be made available to develop this capability.

VII. RECOMMENDATIONS

1. Commodity shipments to the NIS must be carefully organized. Each major error in distribution from the donor side costs multiple person-weeks of time and use of scarce resources on the recipient side.
2. FSU vaccine producers must be assisted to begin transport of vaccines at correct temperature and according to accepted international standards.
3. Vaccine: To ensure that the immunization effort will not come to a halt in 1993, sufficient stock to cover the expected shortfall in vaccine for immunization of

children with their primary series should be provided (see Annex 8 for details). The following quantities should be made available:

-- BCG	249,000	doses
-- OPV	232,800	"
-- DPT	255,500	"
-- Measles	137,000	"

4. Kyrgyzstan should be provided with one more infusion of cold chain and sterilization equipment. This will bring its cold chain system to international standard (for details see Annex 6). This final support would ensure safe vaccine storage at national level, adequate vaccine storage at the health service level and availability of sterilization equipment at all immunization sites in the country.
5. Kyrgyzstan should also be assisted to upgrade its cold chain repair and maintenance capacity (see Annex 7 for details). This assistance should be in the form of modest amounts of repair equipment, tools and spare parts as well as technical training on the new equipment.
6. Technical assistance in cold chain training and in material development for cold chain training of supervisors should be provided.
7. The MOH's request for technical assistance in immunization program planning, in development of vaccine procurement capability and in communication should be honored. Total technical assistance requirements in 1993 are as follows:

- 1) One cold chain specialist with general immunization program skills.

Tasks

- Coordination of USAID/REACH immunization support effort in Kyrgyzstan.
- Assist commodity receipt and distribution.
- Assist development of training materials for supervisory staff.
- Assist training of first batch of supervisory staff.
- Assist strengthening of cold chain repair system.
- Work with MOH to write the national immunization plan.

Time

- 2.5 months spread over a five month period. **NOTE:** The specialist would assist another country with a similar list of activities during the other 2.5 months.

- 2) One cold chain specialist (indigenous).

Tasks

- Assist with development of training materials for supervisory level and facilitate cold chain training.

Time

- Five weeks divided into two visits.

3) One vaccine procurement specialist.

Tasks

- Assist the MOH to initiate and complete an international vaccine procurement exercise.

Time

- Two weeks over a five month period divided into two visits.

4) One communications specialist to assist further development of health education and social marketing skills.

Annex 1

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A. ASSESSMENT

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- A5. Steinglass, Robert. 1992. Emergency Immunization Support Initiative: Central Asian Republics of the NIS, 7 March - 5 April 1992 [Summary Report]. Arlington, VA: John Snow, REACH.

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- B2. Larsen, Gordon. 1992. Emergency Childhood Immunization Support Program: Turkmenistan, 22 April - 20 May 1992. Arlington, VA: John Snow, REACH.
- B3. Hasselblad, Carl. 1992. Emergency Childhood Immunization Support Program: Kyrgyzstan, 26 April - 5 June 1992. Arlington, VA: John Snow, REACH.
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C. ASSESSMENT AND FIRST PHASE OVERVIEW

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- D5. Woodle, Dian. 1993. Trip Report on EPI Vaccine Acquisition in Uzbekistan, Kyrgyzstan and Turkmenistan: 25 October - 30 November 1992. Arlington, VA: John Snow, REACH.
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- D8. Hasselblad, Carl. 1993. Field Coordination of Second Phase Emergency Immunization Support Program Activities in Four Central Asian Republics: 2 September - 28 November 1992. Arlington, VA: John Snow, REACH.
- E. **1992 OVERVIEW**
- E1. Steinglass, Robert and Hasselblad, Carl. 1993. Review of USAID/REACH Emergency Childhood Immunization Support Activities in 1992 in Four Central Asian Republics and Anticipated Requirements for 1993 [Summary Report]. Arlington, VA: John Snow, REACH.

Annex 2

COMMODITY SUPPORT: KYRGYZSTAN
EMERGENCY IMMUNIZATION PROGRAM SUPPORT: 1992

ITEM	PIS NUMBER	MAY SHIPMENT	OCTOBER SHIPMENT			TOTAL RECEIVED FOR 1992
			EXPECTED	RECEIVED	DISCREPANCY	
1A. Large (horizontal) Vestfrost Freezer	E3/27	8	0	0	--	8
1B. Spare parts for above freezer	E3/27	1	0	0	--	1
2A. Icepack Freezer Electrolux TFW 791	E3/26	8	0	0	--	8
2B. Spare parts for above Icepack freezer	E3/26	1	0	0	--	1
3A. Ice line Refrigerator Vestfrost MK302 (204 lt)	E3/68	0	14	14	--	14
3B. Spare part sets	E3/68	0	4	4	--	4
4A. Vaccine Freezer (188 lt) Vestfrost SB300	E3/27	0	56	56 ¹	--	56
4B. Spare part sets	E3/27	0	12	12	--	12
5A. Refrigerator, Electric Vestfrost MK/MS 4010	E3/75	0	100	100	--	100
5B. Spare part sets	E3/75	0	22	22	--	22

¹ Originally sent to Uzbekistan but subsequently transferred to Kyrgyzstan by truck.

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COMMODITY SUPPORT: KYRGYZSTAN
EMERGENCY IMMUNIZATION PROGRAM SUPPORT: 1992

ITEM	PIS NUMBER	MAY SHIPMENT	OCTOBER SHIPMENT			TOTAL RECEIVED FOR 1992
			EXPECTED	RECEIVED	DISCREPANCY	
6A. Gas/Electric Refrig. RCW 42 EG	E3/21	0	0	0	--	0
6B. Spare part sets	E3/21	0	0	0	--	0
7. Large cold box, 20 lt, Igloo	E4/29	80	50	50	--	130
8. Small cold box, 4.4 lt, Igloo	E4/73	800	576	576	--	1376
9. Vaccine Carrier Thermos, Model 3504/38	E4/18	0	932	908	-24	932 ²
10. Icepacks (cold box type)	E5/16	3,060	31,032	28,824	-2,208	34,092 ²
11. Icepacks (vaccine carrier Thermos type)	Thermos	0	3,744	3,744	--	3,744
12. Voltage Stabilizer, Galatrek FF 500/4R, 0.5 KVA	E7/11	0	0	0	--	0
13. Recording Thermometer, Hyoda AR-GT-S	E6/28	0	2	2	--	2
14. Thermometers	E6/08	800	0	0	--	800

² Total received if all misdirected equipment is transferred to Kyrgyzstan

**COMMODITY SUPPORT: KYRGYZSTAN
EMERGENCY IMMUNIZATION PROGRAM SUPPORT: 1992**

ITEM	PIS NUMBER	MAY SHIPMENT	OCTOBER SHIPMENT			TOTAL RECEIVED FOR 1992
			EXPECTED	RECEIVED	DISCREPANCY	
15A. Sterilizer, Double Rack	E9/09	50	0	0	--	50
15B. Sterilizer, Single Rack	E9/08	200	194	194	--	394
15C. Hardwater Pads	E10/4	250	194	194	--	444
16A. Reusable Syr., Kit A	E8/07	400	832	832	--	1,232
16B. Reusable Syr., Kit B	E8/08	100	0	0	--	100
17A. Disp. Syr. (2ml)	B-D	1,048,000	0	0	--	1,048,000
17B. Disp. Syr. (TB)	B-D	0	0	0	--	0
18. VACCINE						
18A. Measles	Doses	97,800	140,000	140,000	--	237,800
18B. BCG	Doses	0	350,000	350,000	--	350,000
18C. DPT	Doses	0	0	0	--	0
18D. OPV	Doses	218,000	0	0	--	218,000

Annex 3

**DISTRIBUTION LIST FOR ALL COMMODITIES PROVIDED TO KYRGYZSTAN IN 1992
THROUGH THE EMERGENCY IMMUNIZATION SUPPORT PROGRAM**

ITEM	CHU- SKAYA	BISHKEK CITY	TALAS- SKAYA	ISSYKUL	NARYN- SKAYA	JALAL- ABAD	OSH- SKAYA	REPUBLIC SES	MOH	TOTAL
Large Freezer	--	1	1	1	1	1	1	2 ¹	--	8
Icepack Freezer	--	1	1	1	1	1	1	2 ¹	--	8
Ice Line Refrigerator	2	1	2	2	2	2	2	1	--	14
Facility Refrigerator/ Freezer	16	--	15	13	15	26	14	1	--	100
Freezer (District Level)	10	--	5	7	7	14	13	2	--	58 ²
Large Cold Box (20 lt)	21	5	11	15	15	26	25	11	1	130
Small Cold Box (4.4 lt)	151	15	75	173	130	258	417	157	--	1,376
Vaccine Carrier (Thermos)	180	17	52	109	104	184	284	1	1	932 ³
Icepacks for Thermos	720	68	210	440	418	740	1,150	4	4	3,744
Icepacks for Cold Boxes	2,723	515	1,541	3,105	2,469	4,706	6,871	12,162	--	34,092 ³

¹ Chuskaya Oblast, which surrounds Bishkek City, maintains its storage equipment at the Republican SES

² Kyrgyzstan has received two extra freezers which are to be picked up by Turkmenistan MOH

³ Not all of these items have arrived but will be distributed accordingly upon arrival

**DISTRIBUTION LIST FOR ALL COMMODITIES PROVIDED TO KYRGYZSTAN IN 1992
THROUGH THE EMERGENCY IMMUNIZATION SUPPORT PROGRAM**

ITEM	CHU- SKAYA	BISHKEK CITY	TALAS- SKAYA	ISSYKUL	NARYN- SKAYA	JALAL- ABAD	OSH- SKAYA	REPUBLIC SES	MOH	TOTAL
Portable Sterilizers	79	4	26	54	49	110	118	4	--	444
Reusable Syringe Kits	226	8	76	156	142	375	341	8	--	1,332
Disposable Syringes	56,000	56,000	56,000	112,000	56,000	224,000	338,000	150,000	--	1,048,000
Vaccine: Measles (Doses)	27,000	13,500	11,500	22,000	15,000	57,400	91,300	--	--	237,800
Vaccine: Polio (Doses)	12,700	19,200	10,600	20,800	14,300	52,800	88,000	--	--	218,400
Vaccine: BCG (Doses)	39,700	19,900	16,900	32,400	22,100	84,500	134,500	--	--	350,000
Thermometers	70	20	50	110	90	170	270	20	--	800

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Annex 4

IMMUNIZATION SCHEDULE

AGE	Doses Required of Each Vaccine (By Age)						
	BCG	DPT	DT	OPV	Meas	TT	Mumps
by 1 year	1	3		3			
by 2 years				2	1		1
by 3 years		1		2			
by 7 years	1				1		
by 8 years				1			
by 10 years	1		1				
by 14 years							
by 16 years			1	1		1	
by 17 years	1						
TOTAL	4	4	2	9	2	1	1

Annex 5

VACCINE NEEDS AND VACCINE SUPPLY
KYRGYZSTAN 1992

Antigen	Vaccine Needs For:		Balance from 1991	Vaccine Received				Total vaccine on hand (including balance from 1991)	Enough Vaccine from all Sources to Cover:	
	Primary Series	All Immunization		FSU Producers	USAID	Other Donors	Subtotal		Primary Series	Total Immunization
Measles	157,144	291,577	0	67,000	237,000	70,000	374,000	374,000	Yes	Yes ¹
BCG	601,140	1,495,740	62,740	900,000	350,000	--	1,250,000	1,312,740	Yes	No
DPT	504,546	670,152	236,600	430,000	--	--	430,000	666,600	Yes	Almost
Polio	472,563	1,339,936	188,800	852,000	218,400	--	1,070,400	1,259,200	Yes	No

¹ Although figures are not available, it is thought that there was probably not enough measles vaccine for all age groups in 1992. This was due to the fact that many children did not receive their primary series in 1991 (see "Balance from 1991" column) because of a severe vaccine shortage in that year and that those children were followed and immunized in 1992, thus reducing significantly the stock of measles vaccine available for 1992 cohort children.

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Annex 6

ESTIMATED COLD CHAIN AND IMMUNIZATION EQUIPMENT/SUPPLY REQUIREMENTS FOR KYRGYZSTAN: 1993

OBLAST	Large Horizontal Freezer (E3/27)	Icepack Freezer (E3/26)	Upgrade ¹ Cold Room (0 - 8°C)	Health Facility Refrigerator (E3/75)	Sterilizers ² Single Rack (E9/08)	Reusable Syringe Kits (E8/07)	Cold Boxes, 4.4 lt. (E4/73)	Icepacks for Cold Boxes (E5/16)	Thermometers ³ (E6/08)
Chuskaya	1	1	--	76	188	564	20	4,000	198
Bishkek	--	--	--	--	--	--	--	--	18
Talas	--	--	--	11	47	141	10	2,000	55
Isayk-kul	--	--	--	42	127	381	14	2,800	134
Naryn	--	--	--	9	98	294	12	2,400	100
Jalalabad	--	--	--	63	186	558	26	5,200	190
Oshskaya	1	--	--	95	284	852	24	4,800	300
Republican SES	--	--	1	--	--	888 ⁴	8	852	5
TOTAL	2	1	1	296	930	3,678	114	22,052	1000

¹ The cold room needs to be upgraded using locally (FSU) available equipment

² Previously supplied sterilizers were placed in hospitals, urban clinics and rural clinics: the MOH now intends to place sterilizers in all facilities giving immunizations

³ Thermometers for cold chain at facility plus storage levels

⁴ Replacement syringe kits for previously supplied sterilizers

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Annex 7

Estimated Tool and Equipment Needs for Strengthening Regional (Oblast) Cold Chain Repair and Maintenance Systems¹

<u>ITEM</u>	<u>Qty</u>
1. Vacuum pump for evacuating domestic refrigeration systems. 220V 1ph 50Hz.	1
2. Set of charging hoses (a set is three hoses)	2
3. 1/4 inch refrigeration copper tube	50 meter
4. 3/8 inch refrigeration copper tube	50 meter
5. Tube cutter (small diameters)	2
6. Tube cutter (up to 1 inch diameter)	2
7. Lever type bending tool 1/4 to 1 inch	1
8. Flaring tool 3/16 to 5/8 inch	1
9. Swaging tool punch type 1/4 to 1/2 inch	1
10. Low pressure Compound refrigeration gauge showing evaporating temperatures for R12 and R22 with adaptor nipple for connection to quick coupler	2
11. High pressure Compound refrigeration gauge showing evaporating temperatures for R12 and R22 with adaptor nipple for connection to quick coupler	2
12. Test manifold (2 gauges, 2 valves 3 connections)	2
13. Set tube line adapters 1/4 to 3/8 inch	2
14. Pinch off tool	2
15. Digital temperature meter (range minimum -20°C to +50°C)	1
16. Multimeter Volts AC, DC, Amps, Ohms	1
17. Clip (clamp) meter (minimum range 3 to 100 amps)	1
18. Aluminum solder for joining aluminum, brass, copper etc. (with flux if required)	10 meter
19. Copper to copper brazing rods (for small domestic copper piping)	5 Kg
20. Refrigerant gas R12	50 Kg
21. Refrigerant gas R22	25 Kg

NOTE: A quantity of spare parts should also be provided to enable rapid repair of equipment presently out of order. These spare parts can be purchased on the local (FSU) market.

¹ Estimated requirements for one large or a number of small oblasts

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Annex 8

ESTIMATE OF VACCINE REQUIRED FROM NON-FSU PRODUCERS IN 1993 IN KYRGYZSTAN

Antigen	Base Doses for Primary Series	Wastage Factor	New Total Including Wastage	Total Doses Required for Primary Series (including 25% Reserve)	Estimate of Stock Balance at End of Year			Doses to be Procured for Primary Series in 1993	% Shortfall from FSU Producers in 1992 ¹	Total Doses to be Obtained from Outside Donors
					TOTAL + Stock - Deficit	Available (A)/Needed(N) for Primary Series in 1993				
						%	Amount			
Measles	131,000 ³	1.3	170,300	212,875	+83,223	50%	41,612 (A)	171,263	80%	137,010
BCG ²	131,000 ³	5.0	655,000	818,750	-30,000	41%	12,300 (N)	831,050	30%	249,315
DPT	393,000 ⁴	1.3	510,900	638,625	0	--	--	638,625	40%	255,450
Polio	393,000 ⁴	1.3	510,900	638,625	-80,723	33%	26,638 (N)	665,263	35%	232,842

¹ % shortfall are doses requested from a FSU producer minus actual doses received divided by doses requested

² BCG combines requirements for BCG and BCG-M

³ 100% coverage with one dose

⁴ 100% coverage with three doses

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