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EMERGENCY CHILDHOOD IMMUNIZATION SUPPORT PROGRAM

TURKMENISTAN

22 April - 20 May 1992

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EMERGENCY CHILDHOOD IMMUNIZATION

SUPPORT PROGRAM

TURKMENISTAN

22 April - 20 May 1992

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ACRONYMS

BCG	Bacillus Calmette Guerin
BCG-M	Bacillus Calmette Guerin - (Attenuated)
CIS	Commonwealth of Independent States
DPT	Diphtheria, Pertussis, Tetanus
EPI	Expanded Program on Immunization
FSU	Former Soviet Union
MCHS	Maternal and Child Health Services
MOH	Ministry of Health
NIS	Newly Independent States
PIS	Product Information Sheets; WHO/UNICEF publication
REACH	Resources for Child Health
S.E.S.	Sanitary and Epidemiology Station
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

I. EXECUTIVE SUMMARY

1. Background

Within a program of humanitarian assistance to Newly Independent States of the former Soviet Union, the United States Government, through the Agency for International Development, is providing funds for an emergency immunization support program in the four central Asian States of Tajikistan, Turkmenistan, Kyeargyzstan and Uzbekistan. The offices of Foreign Disaster Assistance and the Bureau of Research and Development/Office of Health are responsible for this program, and have requested REACH to provide consultancies in each of the 4 states, to assist with its implementation.

The objective of this emergency support program is to provide vaccines, consumable materials and some equipment, to ensure that infants under the age of two years are protected against the common vaccine preventable diseases immediately, and until the end of the 1992 winter season.

This report details assistance given to the Government of Turkmenistan in preparation, reception and distribution of the first consignment of emergency materials.

2. Main Findings

The supply of emergency materials has provided much-needed assistance to the Government of Turkmenistan, and commodities were received with great appreciation and enthusiasm at all levels. In the process of helping with the reception and distribution of the donated commodities, a number of additional urgent problems and difficulties were identified, and the need for further emergency support quickly became evident. Immediate attention to these new problem areas is strongly recommended, in order to safeguard the investments already made in donated vaccines and commodities.

3. Summary of Recommendations

Additional amounts of vaccine are needed to replace reserve stocks which, as a result of recurrent shortages, have been run down in recent years. These amounts are over and above the requirements estimated for routine, 3rd and 4th quarter consumption.

The follow-up delivery of vaccines, currently scheduled for September 1992, must be sent in 2 separate consignments in September and December respectively. Capacity and integrity limitations in the present cold chain will not permit a combined shipment.

Additional icepacks for vaccine transport boxes are urgently needed to replace those omitted from the initial emergency consignment.

Further, small-capacity vaccine carriers are needed for immediate use at the Rayon and health clinic levels.

The peripheral cold chain is particularly weak, and requires urgent strengthening. Small, gas/electric absorption refrigerators are recommended to provide an immediate measure of support at this level.

II. BACKGROUND

As part of a program of humanitarian assistance to the Newly Independent States (NIS) of the former Soviet Union, the United States Government, through the Agency for International Development (USAID), is providing funds for an emergency immunization support program in four central Asian States: Tajikistan, Turkmenistan, Kyeargyzstan and Uzbekistan.

These states, having formerly achieved high immunization coverage levels of their infant populations, are now suffering from disruption of supply lines for vaccines and other medical consummables, resulting from dissolution of the Soviet Union. Acute shortages are being experienced throughout the various health programs, immunization coverage rates are falling, and the most vulnerable children are being exposed to unnecessary risk of morbidity and mortality from the immunizable diseases. The objective of this emergency support program is to provide vaccines, consumable materials and some equipment, to ensure that infants under the age of two years are protected against the common vaccine preventable diseases immediately, and until the end of the 1992 winter season.

For Turkmenistan, an earlier mission[1] had identified the basic amounts of emergency supplies needed, and orders for the items at Annex 1 had already been placed. An initial delivery of these supplies was expected approximately 10 days after the start of this follow-up mission.

This report details assistance given to the Government of Turkmenistan in preparation, reception and distribution of the first consignment of emergency materials.

III. PURPOSE OF VISIT

The scope of work for the mission was to:

1. Ensure the readiness of the cold chain in Turkmenistan to accommodate donated vaccines arriving in early May 1992, and assist in preparing distribution plans for donated commodities;

2. Monitor and document the conditions of arrival of vaccine into the central and Oblast stores;

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[1] Basset D. Emergency Childhood Immunization Support Programme. Arlington, VA: Resources for Child Health (REACH) Project. John Snow, Inc. 1992 March.

3. Provide technical guidance in establishment of an effective cold chain, utilizing donated and existing resources;

4. Identify and specify additional materials needed on an emergency procurement basis, to ensure integrity and extension of the cold chain;

5. Review vaccine stock position to determine size, nature and timing of emergency requirements, and assess likelihood of procurement mechanisms being re-established;

6. Provide in-service instruction to key staff in the use of donated commodities, (vaccines, cold chain equipment, steam sterilizers and re-usable syringes) and determine needs for further training;

7. Assist in designing emergency preparedness plans, in case of cold chain failures;

8. Ensure donated vaccines are targeted to children less than 2 years old, and work out a reporting procedure to estimate immunizations performed with donated vaccines;

9. Determine need for, and timing of, additional emergency and medium-term technical assistance, and draft a plan of action.

IV. TRIP ACTIVITIES

1. Preparations for Arrival of Vaccines:

The central cold store at the Republican S.E.S. in Ashkhabad is a simple, built-in structure of 50 cub.m gross storage at a nominal +4 deg.C, with hand controlled capacity regulation, and rudimentary, open-system cooling equipment. Additional refrigeration during hot weather is provided by manually connecting extra cooling circuits, and manually regulating airflow to the condenser.

Temperature control is also manual, and a small stem thermometer is used for monitoring purposes, although no temperature records were apparent.

The quality of storage is reasonable, with sufficient space for the expected consignment of DPT and BCG, but temperature monitoring needs urgent improvement.

Two additional pre-fabricated cold stores of 8 cub.m each at a nominal +4 deg.C are also available, but neither has thermostatic temperature control, nor any proper thermometer.

One store held a consignment of DPT vaccine when seen, but a check of storage temperature revealed -7 deg.C, and a random sample of DPT vials were found to be frozen.

Storage here is very unsatisfactory, and should not be used for keeping vaccines without substantial upgrading.

No frozen storage space was formerly available, and until arrival and installation of donated equipment, there were no proper storage facilities for POLIO and MEASLES vaccine. Rented frozen storage space at the Republican Meat & Milk Enterprise Store in Ashkhabad City, where excellent facilities are provided, was used in the interim.

New vaccine freezers arriving with the consignment of emergency supplies would be set up at the Republican S.E.S. as a first priority, and frozen vaccines would be transferred from rented storage as soon as correct operating temperatures had been reached.

This principle would also be followed at the Oblast level. New equipment would be installed and operated for at least 24 hrs, to ensure that correct temperatures obtained. Vaccines would then be packed at the Republican S.E.S. and forwarded, using new transport boxes, to each Oblast store.

Power supplies in Ashkhabad are erratic, and several failures affected the central store during the period of this mission. Voltage fluctuations are also common, and voltage stabilizers should be provided urgently to protect all new vaccine and ice-pack freezers.

2. Distribution Plans:

Requirements for vaccine, consummables and equipment at each Oblast were estimated, based on the 0-1 year target population (1-2 year for Measles), and the distribution plans at Annex 2 and 3 were drawn up. Volumes of all items were estimated, and the capacity of vehicles needed to transport commodities from the airport, and to each Oblast, were calculated. (Annex 4)

The large quantities of disposable syringes and needles expected posed problems, given the current shortages throughout the health service, and doubts were expressed that use could be restricted to infant immunizations only. Quantities for delivery in May had been estimated on the basis of the whole national requirement until December 1992, and should thus last for vaccines delivered in May, plus those planned for September, and for a final delivery in December.

It was agreed that only one-third of disposable syringes and needles would be distributed immediately, with the balance being kept at the Republican S.E.S. for use with later vaccine deliveries.

Retention of quantities of vaccines at each level as a reserve stock was considered, but since the consignment due in May would have insufficient vaccine for this purpose, the requirement will have to be deferred until the September vaccine delivery. During the summer months therefore, no reserve vaccine stocks will be held.

3. Target Age-Group & Reporting:

Immunization using donated vaccines will be limited to 0-1 year children for BCG, DPT and Polio, and to 1-2 year children for Measles. It was clear to MOH that vaccine

quantities to be supplied will not be sufficient for re-immunizations, and the target group was emphasized frequently to health staff by senior officials.

Reporting of immunizations performed with donated vaccines will be through the regular information system, and no attempt will be made to separate the returns. For donor information however, results of the support program can be assessed by the proportion of donated to total vaccine supply for the year, times total immunizations performed in the same period.

These data will only be available in the early part of 1993 when Oblast returns are collected. In the meantime, an estimate of performance maybe obtained using standard WHO vaccine utilization rates, to calculate approximate numbers of infants protected.

4. Training Seminar:

Instruction of staff in use of the donated items was an important activity, since vaccines, consummables and equipment all differed from those previously used in the Republic. A training seminar was planned for key officers from each Oblast, from Ashkhabad City, the Republican S.E.S., and from sections of the MOH. This was to be held after arrival of the consignment, and the objectives and targets of the support program, together with presentations, discussions and demonstrations of the new materials were scheduled.

Staff from all parts of the Republic were invited, but last-minute changes in the flight schedule resulted in the seminar being held one day before eventual delivery of the new materials. Demonstrations were thus postponed, and given individually after equipment was distributed.

5. Oblast, Rayon and the Peripheral Cold Chain:

An assessment was made of present and future equipment needs for storage and transport of vaccines at each level of the cold chain. Currently, 3 out of 6 Oblast stores have 8 cub.m walk-in cold rooms for storage at +4 deg.C, and the remainder have sufficient domestic-type refrigerators for 3 month vaccine stocks. As in the central store, temperature monitoring is poor, and none of these stores have proper thermometers. No vaccine freezing capacity is available, and MEASLES and POLIO vaccines have been routinely stored at +4 deg.C. New freezers and large cold boxes to be supplied will complement existing equipment, providing sufficient storage at - 20 deg.C, and secure facilities for vaccine transport.

Electric supplies at the Oblast level are again variable, and voltage stabilizers will be required to protect the new equipment.

For Rayon levels, dependence on domestic refrigerators is universal, and most were thought to have sufficient capacity for a one-month vaccine supply. Storage quality was not known. Transport to Rayon stores will be improved by the new medium cold boxes, but for further distribution to the immunizing clinics, very few insulated containers are available, and staff routinely use plastic bags or cardboard boxes to carry their supplies of vaccine.

There is an urgent need to provide additional, smaller vaccine carriers for clinic levels, to protect vaccine during transport to the lowest, and often the weakest level of the cold chain. Such carriers may also double as point-of-use containers to protect vaccines during immunizing sessions, where the current practice is to use open trays with icecubes. For this purpose, vaccine carriers should be provided with foam inserts to hold the opened vials whilst they are being used.

At this lowest level of the cold chain, many refrigerators were said to be in poor condition, with an unknown number out of order. Spare parts for equipment, which is mainly of Russian or Bulgarian manufacture, are very difficult to obtain in all areas. It was estimated that up to 50%of sites in some Oblasts have no permanent, 24 hr electrical supply, and for many such clinics, no refrigerator is provided at all. In these cases, immunization is conducted by scheduled outreach service from a Rayon or other established clinic.

It thus appears, that whilst reasonable provision has been made for the higher levels of the cold chain, insufficient attention has been given to the periphery. In many cases, vaccine quality may be seriously compromised by the time it reaches the child, and immunizations may be given with weak or impotent vaccine, due to inadequate protection at the lowest levels. This situation may have contributed to the recently reported outbreaks of diphtheria and polio in the Republic.[2]

Strengthening of the peripheral cold chain is therefore an urgent matter both to reduce the risk of further outbreaks, and to safeguard the investment in donated commodities. Small electric refrigerators may be used for those clinics which have regular power, but for those which do not, LP gas absorption equipment would be the preferred alternative.

All communities in Turkmenia have supplies of LP gas, in the larger centers, from a permanent pipeline (butane), or for more isolated areas, from re-fillable steel cylinders (apparently propane). There is thus a realistic option to use gas as an alternative energy source for the cold chain at the periphery, and to overcome weakness in those communities beyond the reach of the electric grid.

Quantitative needs are difficult to assess without further information, but it is recommended that a small-scale initiative be undertaken in one or more areas as a matter of urgency. In parallel with this effort, data should be collected from all peripheral areas on the status of the present cold chain and sources of energy available. This will determine the magnitude of the problem and the potential for solution.

6. Vaccine Stocks:

The MOH has placed orders for 1992 vaccine needs with suppliers in the former Soviet Union as in the past, but due to production constraints, some contracts signed are for less than the full MOH requirements. Delivery was requested in 4 x quarterly consignments, but at the time of this mission, only the following amounts had been received:

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[2] WHO document ICP/EPI/010, 3685n; February 1992.

Table 1: 1992 Vaccine Needs & Deliveries: Turkmenistan
(doses in '000s)

	1992 Estim'd Needs (? MoH)	1992 Contracts	Deliveries Rec'd (@ 20/05/92) 1st	2nd	3rd	4th
BCG	1396	1012	14			
BCG-M	NA	126				
DPT	500	500	154			
Measles	231	153				
Polio	1466	1466	573	382		

In the MOH, there is a hope - although not an expectation - that deliveries from suppliers in FSU will somehow be resumed, but no contingency plans apparently exist if this does not happen. Under-production of some vaccines is a recurrent problem, and for the years 1989-91, BCG supply has averaged only 40% of total needs, BCG-M 67% of needs, and Measles 70%.

Current stocks are therefore low, although in the case of Measles, a delivery of 60,000 doses was received from UNICEF in March, followed by 15,000 doses from Pakistan in April 1992.

Reserve stocks of vaccine have not been held during recent years due to such shortages, although MOH policy requires that reserves should be maintained at each level. Officials expressed concern that no back-up currently exists for outbreak control, cold chain failures, or other unplanned demands on vaccine stocks.

Assurance of vaccine supplies for at least the short-term needs in the Republic is an urgent requirement, and 2nd quarter deliveries to Oblast stores are already overdue. Vaccines expected under the emergency support program are thus very timely, and the initial consignment will be needed immediately to fill 2nd quarter commitments.

For 3rd quarter needs, it is recommended that an additional quantity should be provided under the emergency support program to replace the reserve stocks of each vaccine which have been run down. These amount to 46% of quarterly consumption rates, distributed as follows:-

33% of 3 months supply for Republican central store;
10% of 3 months supply for each Oblast store;
10% of 1 months supply for each Rayon store.

Net quantities recommended for 3rd and 4th quarter delivery under the emergency support program thus amount to:

Table 2: Recommended Vaccine Deliveries; 3rd & 4th Quarter 1992
(doses in '000s)

	3rd Qtr 0-1year Needs	+46% Reserve Stock	=Total 3rd Qtr Delivery Proposed	4th Qtr 0-1year Needs
BCG	141,600	33,700	175,300	73,200
DPT	166,400	74,900	241,300	162,800
Measles	58,600	27,700	86,300	60,200
Polio	162,800	74,900	237,700	162,800

In original plans for the emergency support program, there was some discussion that 3rd and 4th quarter deliveries might be combined for ease of shipment. Given the present status of the cold chain, it is now clear that neither the capacity nor integrity exists to permit this, especially at the lower levels. Much vaccine would inevitably lose potency before it could be used, creating unacceptable hazards for target infants, and the risk of extreme damage to public confidence and to the whole support program effort. It is of great importance that 3rd and 4th quarter deliveries are NOT combined, but forwarded in separate shipments as recommended in Table 2.

Total vaccine donations recommended for Turkmenistan during 1992 are:

Table 3: Total Vaccine Donation Recommended; Turkmenistan 1992
(doses in '000s)

	May delivery expected 08/05/92	3rd Qtr Delivery Proposed	4th Qtr Delivery Proposed	Total 1992 Donation Proposed	Total 1992 Infant Needs
BCG	64,000	175,300	73,200	312,500	292,500
DPT	168,000	241,300	162,800	572,100	651,300
Measles	47,000	86,300	60,200	193,500	240,500
Polio	140,000	237,700	162,800	540,500	651,300

The MOH estimates for 1992 vaccine needs in Table 1 generally exceed those shown in Table 3, due to multiple re-immunizations in the present MOH schedule, and use of different methods for estimation.

7. Arrival of Donated Vaccines & Commodities:

The initial emergency consignment of vaccines, consummables and equipment, occupying an entire DC9 cargo aircraft, reached Ashkhabad at 20.00 hrs on May 8, 1992. Arrangements for unloading and transporting the consignment were completed smoothly, with all quantities found to be correct and all commodities received in good condition. Vaccine cold chain monitor cards included with each shipping carton confirmed that vaccines had been safely transported with zero heat exposure, and that 100% potency was retained on arrival at the central store. As planned, DPT and BCG vaccines were stored in the Republican S.E.S., whilst POLIO and MEASLES were transferred to temporary storage at the Meat and Milk Enterprise Store. Vaccine arrival reports (Annex 5) were completed in each case.

Distribution of the commodities also proceeded according to plan, with vehicles from each Oblast arriving the following day as pre-arranged, for collection of items and quantities shown in Annex 3.

Installation of the new equipment was supervised at the Republican S.E.S., where correct storage temperatures were confirmed after 24 hrs, and in the Oblasts of Mari and Chardzou. Due to limited time on this mission, distribution of vaccines to the Oblast stores was not supervised, but detailed instruction on use of the new transport boxes, and procedures for completion of vaccine monitor cards was given.

It was discovered only later that all large and medium vaccine transport boxes had been shipped without the standard quantities of icepacks, and that as a result, a serious icepack shortage had been created. Fortunately, a small quantity of spare icepacks was included in the emergency consignment, so that at least some were available for immediate use. This number will by no means be sufficient for routine use of the new transport boxes however, and shipment of additional icepacks must be treated as an urgent priority. A similar situation has occurred in the other 3 Republics assisted under the emergency support program, and total needs for extra icepacks are detailed in Annex 6.

8. Security:

Donated vaccines differed in dose size, presentation and storage requirements from those normally used by health staff in Turkmenia, and proper identification of each type of vaccine was of critical importance. It was decided that additional labels in Russian should be fixed to each individual packet of donated vaccine to provide essential information, and avoid confusion on the part of the user. Suitable self-adhesive labels were prepared in advance and shipped with the vaccine consignment for attachment at the central vaccine store.

Russian language cold chain monitor cards were also requested for the vaccine consignment, but it transpired that cards in English were actually sent. Several copies of

monitor cards in Russian were provided to senior staff to facilitate training of health personnel.

Identification of all donated commodities was also important, both to prevent possible misuse or misappropriation, and also to ensure that due credit was given to the source of donation. For this purpose, self-adhesive "United States of America" labels were provided for all major items of equipment, and attached to as many of the commodities as possible.

9. Publicity:

Attempts were made to publicize and document this emergency support program as far as possible, and to explain its objectives and components to all concerned. The MOH undertook to involve the local press, and the US Embassy in Ashkhabad was invited to represent the donor. Arrangements were made for video recording of many of the program components relating to staff training, planning, arrival and distribution of donated materials, and of the various follow-up activities.

The video film, which was made without charge by a MOH institution, is available with this report.

V. METHODOLOGY & APPROACHES

Working with an interpreter, initial planning for the reception and distribution of donated commodities was undertaken at the Ministry of Health headquarters, and with the appropriate officials at the central institutions.

A series of visits, meetings and interviews were conducted in Ashkhabad City, and later, after arrival of vaccines and equipment, more detailed studies were carried out in the company of the chief doctor of the Republican S.E.S., at Oblast, Rayon and health unit levels in Mari and Chardzou.

All activities were undertaken in close co-operation with local Ministry of Health staff, and the decisions and proposals contained in this report are a result of that co-operation.

VI. CONCLUSIONS & RECOMMENDATIONS

The emergency immunization support program has provided much-needed assistance to the Government of Turkmenistan, and donated commodities were received with great appreciation and enthusiasm at all levels. In the process of helping the MOH to prepare for, and distribute these materials, a number of further urgent problems and shortcomings were identified, and the need for additional emergency support quickly became evident. Attention to these outstanding problems is required immediately, in order to safeguard the investment already made in donated vaccines and commodities.

1. Vaccines:

1.1 Additional amounts of vaccine are needed to replace reserve stocks which have been run down in recent years. There are currently no reserve stocks in hand. The quantities recommended are detailed in Table 2, and it is proposed that these amounts be sent together with the next vaccine delivery scheduled for September 1992. Action is needed immediately to revise the quantities which were originally planned for delivery in September.

1.2 A further vaccine delivery should be scheduled for December 1992, to provide for 4th quarter needs, which will last through until the end of the 1992 winter season. Capacity and integrity limitations in the present cold chain will not permit a combined 3rd and 4th quarter delivery to be made, and plans for this should be revised urgently.

1.3 Total vaccine donations recommended for the whole of 1992 are summarized in Table 3.

1.4 A special request was received from the Deputy Minister of Health in person, for assistance with a small quantity of Hepatitis B vaccine, for protection of high-risk MOH staff. This is not within the context of the emergency support program, but it is suggested that consideration might be given to the matter as a gesture of goodwill. The MOH estimate that 1000 staff would need protection.

2. Cold Chain & Related Items:

2.1 Additional icepacks are needed urgently to replace those omitted from the shipment of medium and large vaccine transport boxes. The quantity needed for the 4 Republics receiving donations under the emergency support program amounts to 2,800 cases of 24 icepacks each, PIS ref.E5/09. Breakdown by country is detailed in Annex 6.

2.2 There is an urgent need to provide additional, smaller vaccine carriers for clinic levels, to protect vaccine during transport at the weakest level of the cold chain. 500 carriers are required immediately, and models Polyfoam 1.7lt PIS ref.E4/19, or King Seeley 1.7lt, PIS ref.E4/18 are recommended. In either case, carriers should be provided with foam inserts to hold the opened vials during immunization sessions.

2.3 Voltage stabilizers are required as soon as possible to protect all new vaccine and icepack freezers against power fluctuations, and prevent premature failures. A total of 14 are needed for Turkmenistan, and 50 for the 4 Republics combined. Type recommended is Galatrek model FF 500/4R, 0.5 kVA, PIS ref.E7/11.

2.4 All cold stores are in urgent need of proper thermometers for routine monitoring of storage temperatures. 6 are required for central and Oblast cold stores, and type recommended is Hyoda model AR10-GT-S, PIS ref.E6/28.

2.5 The cold chain at the periphery is particularly weak, and requires urgent strengthening. This observation has already been made in a number of earlier reports, although quantitative data on the scope of the problem is lacking. It is recommended that 20 gas/electric absorption refrigerators be provided as an immediate initiative, and that simultaneously, data be collected from all peripheral areas on the status of the existing cold chain and the available energy sources. Refrigerator model recommended for this purpose is Electrolux RCW42EG, PIS ref.E3/21.

3. Technical Assistance (Medium Term Support):

In addition to the emergency provision of commodities, a need for short and medium-term technical assistance to the MOH was also identified. Due to long years of isolation, training and updating of staff knowledge and practices in a number of areas is seen to be necessary.

3.1 If vaccine supplies from the FSU are re-established, the very serious weaknesses in cold chain and transportation practices between those manufacturers and the Republic need to be addressed. Packing standards, adoption of international vaccine shipping guidelines and proper containers, use of cold chain monitors and advance notification are all areas where the MOH could be assisted.

3.2 If supplies from the FSU are not re-established, there will be an urgent need to help the MOH with identifying alternative sources of supply, and with contracting and funding or financing arrangements, perhaps through the use of revolving funds with UNICEF or other agencies, and with forecasting and delivery scheduling, monitoring and quality control of incoming supplies.

3.3 Whichever source of vaccine supply is used in future, a need to assist with vaccine stock control and management is identified. General cold chain and logistics training is required for health personnel who are concerning with program planning and estimating, storage, handling, distribution, reporting and recording of vaccine supplies. Specific training on use of vaccine cold chain monitor cards as a management aid is also needed, particularly in relation to the reported weaknesses in the peripheral cold chain.

3.4 A direct request has already been received from the MOH for assistance in updating their current immunization schedule, and with starting BCG and Polio immunizations from birth. Recommendations concerning contra-indications to immunization, and a review of their current policy on re-immunizations would also be appreciated.

3.5 Immunization performance is measured only by the administrative method at present, and training and practice in the use of coverage surveys would help program managers to identify weaknesses and improve services.

3.6 Routine preventive maintenance training for users of cold chain equipment is required, together with repair and servicing training for MOH technicians. Provision of material support would be required in this context, and the Universal Spare Part Kits for refrigerators developed by WHO/UNICEF would enable suitably trained technicians to solve many of the technical problems observed with the existing cold chain equipment.

VII. FOLLOW-UP ACTION & PLAN

	Activity	Responsible	Timing
1.	Vaccine supply, 3rd Qtr needs + reserve stock (table 3)	AID/REACH	Sept.92
2.	Vaccine supply, 4th Qtr needs (table 3)	AID/REACH	Dec.92
3.	Supply missing icepacks for all 4 Republics (Annex 6)	AID/REACH	Soonest
4.	500 x Clinic level vaccine carriers	AID/REACH	Soonest
5.	14 x Voltage Stabilizers	AID/REACH	Soonest
6.	6 x Recording Thermometers for Central & Oblast Cold Rooms	AID/REACH	Soonest
7.	Collect data on Peripheral Clinic Cold chain Status	MOH Turkmenistan	Soonest
8.	20 x Gas/Electric Peripheral Clinic Refrigerators.	AID/REACH	Soonest
9.	Initial discussions on scope and content of Technical Assistance program for the medium-term.	AID/REACH	3rd Qtr 1992

ANNEX 1

EMERGENCY IMMUNISATION SUPPORT PROGRAMME
TURKMENISTAN

-INITIAL SHIPMENT OF EMERGENCY SUPPLIES-

VACCINES:

MEASLES VACCINE	(doses)	47000
MEASLES DILUENT	(")	47000
BCG VACCINE	(")	64000
BCG DILUENT	(")	64000
DPT VACCINE	(")	168000
POLIO VACCINE	(")	140000
POLIO DROPPER		140000

CONSUMMABLES:

DISPOSABLE NEEDLE/SYRINGE	1.0ml/ 25mm.23G	650000
DISPOSABLE NEEDLE/SYRINGE	BCG	195000
STERILIZER KIT A	E9/08	80
STERILIZER KIT B	E9/09	20
SYRINGE KIT A	E8/07	160
SYRINGE KIT B	E8/08	40
HARDWATER PAD	E10/04	100
SPARE PARTS	(E3/26)	7

EQUIPMENT:

VACCINE FREEZER	500lt	7
COLD BOX, MEDIUM	E4/73	600
COLD BOX, LARGE	E4/29	60
ICE PACK	E5/09	6000
THERMOMETER	E6/27	500
ICEPACK FREEZER	E3/26	7

ANNEX 2

EMERGENCY IMMUNISATION SUPPORT PROGRAMME
TURKMENISTAN

-DISTRIBUTION PLAN FOR VACCINES-

	ASH'BAT CITY	BALKAN OBLAST	MARI OBLAST	TASHAUZ OBLAST	CHARZOU OBLAST	ASH'BAT OBLAST	REPUB. SES	TOTALS
POPUL'N;1991	416400	368800	859500	738000	774700	556700	-	3714100
% DISTRIB'N	11.21	9.93	23.14	19.87	20.86	14.99	-	100.0
% 0-1 POPL'N	2.3442	3.8502	3.54	3.58	3.48	3.383	-	3.41
CITIES	1	3	2	1	1	1	-	9
RAYONS	0	6	10	8	13	8	-	45
POLYCLINICS	11	5	2	2	2	0	-	22
AMBUL.CLINIC	0	6	10	8	12	8	-	44
Asst.CLINICS	4	93	349	306	344	184	-	1280
0-1 POP;1991	9761	14200	30426	26420	26960	18833	-	126600
VACCINE DISTRIBUTION; ANNUAL NEEDS:- (1992 Population Basis)								
BCG	22553	32807	70298	61043	62288	43513		292502
POLIO	50217	73050	156530	135922	138695	96888		651303
DPT	50217	73050	156530	135922	138695	96888		651303
MEASLES	18543	26975	57801	50191	51215	35777		240501
VACCINE DISTRIBUTION; 2nd QUARTER NEEDS:- (1992 Population Basis)								
BCG	5638	8202	17574	15261	15572	10878		73125
POLIO	12554	18263	39133	33980	34674	24222		162826
DPT	12554	18263	39133	33980	34674	24222		162826
MEASLES	4636	6744	14450	12548	12804	8944		60125
VACCINE DISTRIBUTION; 2nd QUARTER NEEDS:- (Population Basis + Reserves)								
BCG	6371	9268	19869	17245	17596	12292	24131	106763
POLIO	14186	20637	44220	38398	39181	27371	53732	237726
DPT	14186	20637	44220	38398	39181	27371	53732	237726
MEASLES	5238	7620	16329	14179	14468	10107	19841	87783
VACCINE DISTRIBUTION; 2nd QUARTER:- (Actual; Based on Quantities Received)								
BCG	2800	8200	10200	11600	18200	13000		64000
POLIO	10000	10000	35000	30000	30000	25000		140000
DPT	13000	13000	44000	36000	32000	30000		168000
MEASLES	4000	4000	11500	10000	9500	8000		47000
STORAGE VOLUMES REQUIRED:- (lt)								
+4 Deg.C	32	37	110	93	90	80	443	443
-20 Deg.C	19	19	61	53	52	43	248	248

ANNEX 3

EMERGENCY IMMUNISATION SUPPORT PROGRAMME
TURKMENISTAN

-DISTRIBUTION PLAN FOR COLD CHAIN SUPPLIES-

	ASH'BAT CITY	BALKAN OBLAST	MARI OBLAST	TASHAUZ OBLAST	CHARZOU OBLAST	ASH'BAT OBLAST	REPUB. SES	TOTALS
POPUL'N;1991	416400	368800	859500	738000	774700	556700	-	3714100
% DISTRIB'N	11.21	9.93	23.14	19.87	20.86	14.99	-	100.0
% 0-1 POPL'N	2.3442	3.8502	3.54	3.58	3.48	3.383	-	3.41
CITIES	1	3	2	1	1	1	-	9
RAYONS	0	6	10	8	13	8	-	45
POLYCLINICS	11	5	2	2	2	0	-	22
AMBUL.CLINIC	0	6	10	8	12	8	-	44
Asst.CLINICS	4	93	349	306	344	184	-	1280
0-1 POP;1991	9761	14200	30426	26420	26960	18833	-	126600
COLD ROOMS	1@8m3	0	1@8m3	1@36m3	0	0	3	6
REF's(Oblast	2	?	10	3	6	0	0	21
EQUIPMENT DISTRIBUTION:-								
VACCINE FREEZER;5001	1	1	1	1	1	*(1)	1	7
ICEPACK FREEZE E3/26	0	1	1	1	1	(1)	2	7
COLDBOX, SMALL; E4/73	30	50	160	120	120	(100)	20	600
COLDBOX, LARGE; E4/29	5	5	14	12	12	(10)	2	60
ICEPACK; E5/09	300	600	1300	1100	1100	1000	600	6000
THERMOMETER; E6/27	40	40	120	100	100	(85)	15	500
SPARE PARTS;	0	0	0	0	0	0	7	7
DISP.NEEDLE+ SYR;(DPT/M)	22	22 (in cases of 800 each)	70	58	52	48	540.5	812.5
DISP.NEEDLE+ SYR; (BCG);	3	3 (in cases of 800 each)	8	5	8	6	210.7	243.75
STERILIZER A Small; E9/08	2	14	18	16	18	12	-	80
STERILIZER B Large; E9/09	8	4	2	2	2	2	-	20
SYRINGE KIT A(Sml);E8/07	4	28	36	32	36	24	-	160
SYRINGE KIT B(Lge);E8/08	16	8	4	4	4	4	-	40
HARDWATER PAD; E10/04	10	18	20	18	20	14	-	100

*Items for Ashgabat Obl.Shown ( ) Temporarily to Republican SES

ANNEX 4

EMERGENCY IMMUNISATION SUPPORT PROGRAMME
TURKMENISTAN

-VOLUMES FOR EMERGENCY SUPPLIES DISTRIBUTED-

	ASH'BAT CITY	BALKAN OBLAST	MARI OBLAST	TASHAUZ OBLAST	CHARZOU OBLAST	ASH'BAT OBLAST	REPUB. SES	TOTALS
QUANTITIES & VOLUMES OF EQUIPMENT TO BE DISTRIBUTED:- (m3)								
VACCINE FREEZER;5001	1	1	1	1	1	(1)	1	7
	1.5	1.5	1.5	1.5	1.5	1.5	1.5	10.5
ICEPACK FREEZE E3/26	0	1	1	1	1	(1)	2	7
	0	0.65	0.65	0.65	0.65	0.65	1.3	4.55
COLDBOX, SMALL; E4/73	30	50	160	120	120	(100)	20	600
	1.085	1.775	5.68	4.26	4.26	3.55	0.71	21.3
COLDBOX, LARGE: E4/29	5	5	14	12	12	(10)	2	60
	0.66	0.66	1.848	1.584	1.584	1.32	0.264	7.92
ICEPACK: E5/09	300	600	1300	1100	1100	(1000)	600	6000
	0.228	0.456	0.988	0.836	0.836	0.76	0.456	4.56
THERMOMETER: E6/27	40	40	120	100	100	(85)	15	500
	0.002	0.002	0.006	0.005	0.005	0.004	0.000	0.025
SPARE PARTS: (for E3/26)	0	0	0	0	0	0	7	7
							1.4	1.4
DISP.NEEDLE & SYR;(DPT/M	17.6	17.6	56	46.4	41.6	38.4	432.4	650
			(in 000's of items)					
	0.99792	0.9979	3.1752	2.63088	2.35872	2.1772	24.51	36.855
DISP.NEEDLE & SYR; (BCG)	2.4	2.4	6.4	4	6.4	4.8	168.6	195
			(in 000's of items)					
	0.13608	0.1360	0.36288	0.2268	0.36288	0.2721	9.559	11.0565
STERILIZER A SMALL: E9/08	2	14	18	16	18	12	-	80
	0.094	0.658	0.846	0.752	0.846	0.564		3.76
STERILIZER B LARGE; E9/09	8	4	2	2	2	2	-	20
	0.4	0.2	0.1	0.1	0.1	0.1		1
SYRINGE KIT A(sml);E8/07	4	28	36	32	36	24	-	160
	0.016	0.112	0.144	0.128	0.144	0.096		0.64
SYRINGE KIT B(lge);E8/08	16	8	4	4	4	4	-	40
	0.096	0.048	0.024	0.024	0.024	0.024		0.24
HARDWATER PAD: E10/04	10	18	20	18	20	14	-	100
	0.086	0.1548	0.172	0.1548	0.172	0.1204		0.86
	5.3	7.3	15.5	12.9	12.8	11.1	39.7	104.7
TRUCKS @ 10m3	1	1	2	2	2	2	4	14

ANNEX 5

VACCINE ARRIVAL REPORT

1. Flight Details:

Date of Report 08 MAY 92

Airport of origin COPENHAGEN

Scheduled stopover(s) en route FRANKFURT (USAF RHEINMAIN)

Day, date & time of arrival FRIDAY 08 MAY 1992, 20.00 hrs

Airline(s) & flight number(s) EVERGREEN Co: FLT 503302

2. Vaccine:

Vaccine types _____ Manufacturer PASTEUR - MERIEUX

Vaccine	No of vials	Doses /vial	Batch No(s)	Expiry Date(s)
BCG	2400	10	G5956	4/94
~~BCG~~	~~800~~	~~10~~	~~G5993~~	~~5/94~~
DPT	2800	10	H5139	9/94
"	2500	10	H5137	9/94
"	1500	10	H5116	8/94
Diluent (for BCG)	3200	10	H5006	3/95

Water resistant glue used on vaccine labels ? Yes/No YES

3. Shipping Procedures:

Date advance telex sent _____ By whom _____

To which address/phone No _____ For attn of ? _____

Who received message at imm. proj.? _____

On what date & time ? _____ Text (or copy) _____

Details of telex adequate ? _____

Describe any differences between telex information and actual arrival details:

Not applicable. Delivery details advised by phone only

8

Does airway bill state:
Consignee's name, address & telephone number ? Yes/No _____

"Telephone consignee immediately upon arrival" ? Yes/No _____

"Store vaccine at 0 to +8 deg C" ? Yes/No _____

"Do not freeze" (if DPT,DT Td or TT vaccine) ? Yes/No _____

Were other airwaybill details correct & adequate ? Yes/No _____

If not, describe: Not applicable

Were packages properly labelled using EPI "VACCINE RUSH" tape/stickers ? Yes/No YES

If not, was there clear warning about:
Packages contain vaccine ? Yes/No —

Need to keep refrigerated ? —

Need for urgent handling ? —

Do not freeze (if DPT,DT Td or TT vaccine) ? Yes/No —

What was the state of the packaging on arrival ? EXCELLENT

For DPT, BCG, Polio & Measles:
Were correct language cold chain monitors included ? Yes/No No (English instead of Russian)

Vaccine type	DPT	BCG		
No.of VCCM's	31	3		
No.showing: A	0	0		
B	0	0		
C	0	0		
A+D	0	0		
B+D	0	0		
C+D	0	0		

For DT or TT, were blue shipping indicators included ? Yes/No _____
Vaccine type: _____

No.of monitors: _____

No.showing grey(OK): _____

No.showing black(bad): _____

Time last vials were put in project cold storage ? 24.00 hrs

Comment & suggestions for future improvement ? Use correct language monitors for shipment.

EMERGENCY IMMUNISATION SUPPORT PROGRAMME
COMMONWEALTH OF INDEPENDENT STATES

OUTSTANDING ICEPACK NEEDS for VACCINE TRANSPORT BOXES SUPPLIED

	TAJIK	TURKMEN	KYRGYZ	UZBEK	TOTAL
LARGE COLD BOX (E4/29)	100	60	75	15	250
SMALL COLD BOX (E4/73)	1050	600	800	100	2550
TOTAL ICEPACKS NEEDED (E5/09)	33200	19200	25200	3600	81200
ICEPACKS SUPPLIED TO DATE (E5/09)	4000	6000	3000	1000	14000
REMAINING SHORTFALL (E5/09)	29200	13200	22200	2600	67200
No CASES OF 24pcs of icepacks each.	1217	550	925	108	2800
SHIPPING VOLUME, m3 (@ 20.0 lt/case)	24.34	11	18.5	2.16	56