INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATIONS AS AN INFRASTRUCTURE SUPPORT FOR THE PURCHASE AND DISTRIBUTION OF HUMANITARIAN SUPPLIES EXPORTED TO IRAQ

DRAFT MISSION REPORT

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Baghdad, 30 August 1998

TELECOMMUNICATION MISSION TO IRAQ

**(Joint technical review by United Nations experts
and the relevant Ministries in Iraq)**

16 - 30 August 1998

This mission was undertaken by the team of experts from the International Telecommunication Union (ITU) including:

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- according to the Terms of Reference in Annex 1.

This report is the result of numerous meetings and discussions with many parties involved in the "Oil for Food" Programme in Iraq (Timetable - Annex 2).

The experts also visited several telecommunication sites in Baghdad and other parts of the country and undertook some test measurements together with local staff to evaluate the performance of the telecommunication network and services.

The mission visited sixteen (16) exchange sites, twelve (12) microwave station sites, international exchange and national/international transmission centre, including satellite earth stations in Dujail.

The mission also visited several hospitals and warehouses and discussed with health authorities, including Kamadia Co., responsible for medical supplies, how upgrading telecommunications could improve administration of the medical distribution system and increase its efficiency.

A two-day field visit to the Northern Governorates (Erbil and Suleimaniyah) and meetings with local telecommunications authorities and UN representatives took place. In addition, a two-day field visit to Basrah was undertaken in order to check several microwave stations on the route from Baghdad - Basrah and carry out some test measurements.

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1. INTRODUCTION

The delivery and distribution of medicine, health supplies, foodstuffs and materials and supplies for essential civilian needs to Iraq under Security Council Resolutions 986 (1995), 1111 (1997) and 1143 (1997) - phases I, II & III respectively - continue. Recently, in accordance with resolution 1153 (1998), paragraph 5, the new enhanced distribution plan was submitted by the government of Iraq on 27 May 1998 and started on 30 May 1998.

This is the first time the Telecommunications requirements from the Government of Iraq have been included as an infrastructure support for the distribution of humanitarian supplies exported to Iraq.

The implementation of the "Oil for Food" Humanitarian Programme requires efficient and reliable telecommunication facilities for procurement, approval and distribution of humanitarian supplies.

2. IMPACT OF QUALITY OF TELECOMMUNICATIONS NETWORK ON THE PURCHASE AND DISTRIBUTION OF HUMANITARIAN SUPPLIES

The special rationing system for the population was established by the government of Iraq, and the Ministry of Trade undertakes the distribution of foodstuffs to its 457 Branch Centres spread throughout all governorates. Individual food and wheat flour rationing is controlled by 45,900 ration agents in the 15 governorates of the central/south area, to ensure monthly deliveries to households registered with the concerned agents, and over 10,000 ration agents in the three northern governorates. For the three Northern governorates, namely Dohuk, Erbil and Suleimaniyah, the procurement and distribution of essential humanitarian supplies as well as rehabilitation activities is the responsibility of the United Nations.

There are four entry points to Iraq for the delivery of Humanitarian supplies - Um Qasr sea port in the south; Trebil land-crossing from Jordan; Al-Waleed land-crossing from Syria; and Zakho land-crossing from Turkey. The sites differ greatly from each other in the type and amount of traffic handled. The Ministry of Trade in Baghdad controls the distribution of food items from the entry points to all warehouses and then to all households. The distribution system is rather comprehensive. Each entry point and many warehouses are equipped with a computer. Ration Centres, and some of their Branches, also use computers.

Unfortunately, data telecommunication services are not available in Iraq. Consequently, the computers cannot be connected to a data network. For example, the Ministry of Trade which exerts control over the distribution of food through its 457 Branch centres spread throughout all governorates (approximately 50% of them equipped with a computer), is unable to collate the food distribution data electronically due to inferior connections between these centres and Baghdad. Rather, each centre downloads its data onto floppy diskettes and transfers this

information by road from all areas of the country to Baghdad for analysis, control and calculations regarding registration of beneficiaries, as well as for its re-supply strategy.

The Ministry of Health has its own distribution system for medicine, drugs, medical supplies, medical equipment, spare parts and other essential items necessary for the rehabilitation of health facilities and for the provision of health care services to the population. Kimadia, the State run company plays a major role in the supply and distribution of medicines. This system includes the delivery of medical items from the entry points to Iraq to the main warehouses in Baghdad for certification, and quality control. The medical items are then distributed to the warehouses in the governorates, and thereafter supplied to the 132 Hospitals, 1500 primary Health Care Centres, 52 Private Hospitals and all Pharmacies. Many warehouses and hospitals are equipped with computers which are not connected together to set up a data network.

The quality of telecommunication services in Iraq has a negative impact on the distribution tasks being undertaken by both the Ministry of Trade and the Ministry of Health. Taking into consideration the enormity of the distribution system and the many thousands of personnel involved in its successful execution, it is clear that it is impossible to provide good and efficient administration without reliable telecommunication services. The importance of telecommunications for the implementation of "Oil for Food" Programme cannot be over emphasized.

It is not uncommon for officials implementing the distribution system to have to travel by road from one area to another to deliver instructions or to collect information due to the poor telecommunication services.

The quality of telecommunication channels are so poor that it is not possible to construct a data network to support the distribution plan.

In efforts to maintain the network even under its deteriorated condition, the Ministry of Transport and Telecommunications reduced the number of channels on all systems to make spare parts/units available for the maintenance of the country-wide network. The result is that the congested and poor quality connections between Baghdad and the governorate warehouses are now having a negative impact and contributing to delays in the distribution system.

The ITU team visited several hospitals and warehouses. All of them suffer from poor quality of telecommunication services and limited connection to the network due to the overloaded local exchanges. Let us take as an example the Medical City in Baghdad. This is a complex of several hospitals together with a medical college and some other specialized medical institutions. The city visited from 3,000 to 4,000 patients daily. The city has 2,800 beds and more than 1,000 medical consultants and doctors. There is PABX for 2,500 lines with 32 external lines from which only 16 are working. Thus this creates a situation whereby all lines are constantly engaged and consequently one spends hours to get through.

The Medical City is the referral centre in Iraq. Many hospitals in Baghdad and in the country are sending their patients to the Medical City for consultations and treatment. Normally they should make some arrangements and appointments by telephone or by fax. However, under the present circumstances this is not possible. The Medical City is connected to Bab-Al-Muddan exchange [see Annex 3 (a)].

The UN Agencies working in Iraq are also suffering from poor public telecommunication services. In the letter from WHO office in Baghdad (Annex 6) it is clearly indicated that WHO needs better telecommunications with the Ministry of Health, Kamadia Co. and warehouses. They will save a lot of their working hours getting the required information by the telephone or fax instead of driving by car to all these locations several times a day.

The rehabilitation of telecommunications in key areas of Iraq would provide the essential improvements to the distribution systems in order to safeguard the effective utilization of humanitarian supplies.

3. PRESENT PUBLIC TELECOMMUNICATION NETWORK AND SERVICES

In order to evaluate the quality and performance of the public telecommunication network and services in Iraq the ITU team visited several telecommunication sites (see Annex 2) and made some test measurements.

The conclusion is that the present condition of the telecommunications network and services throughout Iraq is extremely poor and requires urgent attention (see Annex 3). Without urgent remedial action towards its rehabilitation in the immediate future, deterioration of the entire network will accelerate.

There are several contributory factors to this conclusion ; the most important of them are summarized below:

i)   Telephone exchanges are very old and obsolete. Out of 207 exchanges forming the network, 81 are manual (installed more than 25 years ago) and 27 are of the mechanical cross-bar type. There are approximately 100 exchanges of the stored programme controlled (SPC) digital type. It is one of the first models of digital exchanges manufactured in early 1980s. All exchanges are dated between 1973 and 1986 and almost all are now obsolete.

ii)   Out of a total exchange capacity of 770,000 lines prior to 1991, almost one-third or 206,000 lines were destroyed during the 1991 Gulf war. In Baghdad alone 8 out of 19 telephone exchanges were destroyed. Telephone density decreased from 5.6% in 1990 to 3.3% in 1998 due to damaged exchanges and an increase in the population.

iii)	Inter-exchange transmission links (both cable & microwave) in Baghdad were seriously damaged reducing the number of operational channels between exchanges from 220,000 to about 70,000, making those remaining connections insufficient to maintain the minimum proper performance.

iv)	Microwave back-bone networks which use old FDM technology and connect Baghdad with all 15 governorates in the central/south area lost 40% of its capacity (from its previous 26,000 lines to 16,000 lines presently in operation) when 36 microwave stations were damaged.

v)	International communication via satellite was reduced from 700 circuits in 1990, to 250 circuits in 1998 and the operational analogue FDM technology is quickly approaching obsolescence.

vi)	Maintenance of the telecommunications network has become increasingly difficult due to lack of spare parts, cables and cable splicing materials and aging of all equipment. Since 1991 no new or additional equipment was received to support the deteriorating network, nor were parts received to make essential network repairs. The full set of measurement test equipment needed for maintenance is not available to keep the network operating to the required international standards.

vii)	The entire telecommunications infrastructure has deteriorated to such an extent that the quality of services is beyond comprehension. The rate of unsuccessful calls has risen dramatically, while the average number of repeated attempts to make local calls varies from 5 - 20 depending upon the time of day the call is initiated. However, for inter-city or international calls the number of repeated attempts is much higher, and there are many occasions when it is impossible to complete a call due to bad transmission links between Baghdad and other governorates.

viii)	Telecommunication systems/equipment damaged during the war were partially rehabilitated by reconstructing the systems using some equipment from undamaged sites. These measures created the situation, predominant in many sites, whereby no back-up equipment is available to be automatically switched into service when a failure occurs on the main system. Consequently any small or normally insignificant problem can now cause for example an exchange to go out of service for many hours, or even for a few days.

In the Northern governorates (Dohuk, Erbil and Suleimaniyah) the telecommunication network and services are also very poor and limited for the same reasons mentioned above.

Quality Of Service

Most of the telephone connections associated with the humanitarian food and medical supply distributions incorporate one or more telephone exchanges and interexchange transmission routes for calls within the Baghdad area. For calls from

Baghdad to the outer regions of the country, such as Basrah, the long distance microwave transmission link and one or two telephone exchanges in Basrah would also be involved.

The overall quality of these telephone exchanges, interexchange transmission routes and long distance microwave transmission routes involves the following main features:

(1)   Availability of the equipment (not faulty)
(2)   Congestion of the network (cannot reach called party)
(3)   Audibility of the telephone connection (noise degradation)

Further details can be found in Annex 4.

- *Availability*

Telecommunication systems are designed to be available for as close to 100% of the time as possible, while ensuring the cost does not become prohibitively high. When equipment fails or when equipment duplication (protection) mechanisms are not working then the availability drops rapidly.

In general, the subscriber experiences this unavailability by:
(a)   the inability to acquire dial tone (In Iraq, it can be a few seconds to DAYS),
(b)   dropped calls

Measurement taken on the international and national circuits [Annex 4(A)] indicate that during the measurement time many circuits are out-of-service (unavailable). This could be due to failed switching equipment or failed transmission equipment.

- *Congestion*

Congestion is a symptom of (a) an overloaded exchange and/or (b) insufficient lines to forward the calls between exchanges either within a city or between cities.

In general, the subscriber experiences this congestion by:
(a)   incompleted calls (no ringing tone)
(a)   receiving the busy signal even though the called party is not busy (talking)

Indications of congestion can be established in the telephone exchanges (provided they are equipped with such measuring equipment). Annex 4(B) shows some measurements taken in the main national/international exchange in Baghdad. The first table is for international traffic and the second is for national traffic. Scrutiny of these figures indicates there is severe congestion in the national network. The international circuit congestion was not so bad, but that was probably because the measurements were taken on a Saturday, at a time when the traffic from USA and Europe was normally low (in other words outside the busy hour).

- *Noise Degradation*

While the noise in digital systems is mostly unnoticeable, the noise in analog telecommunication systems in Iraq is a major factor in the overall performance of the network [see Annex 4(C)].

In general, the subscriber experiences this noise degradation by:
(a)   background hissing noise while talking to the called party
(b)   the voice of the called party fades from time to time
(c)   the voice of the called party becomes inaudible (in the worst cases)

During the ITU mission, noise measurements were taken over several days, mainly from the transmission section of the national/international exchange at Mamoun, and also during the visits to microwave stations along the route from Baghdad to Basra, and Baghdad to Kirkuk.

These measurements are tabulated in Annex 4(D). The main point to highlight from these measurements is the fact that in all cases the noise was heavily in excess of ITU Recommended values, and more than 25 dB in many cases. In non-technical language, that departure from the ITU recommended values is **TOTALLY UNACCEPTABLY LARGE**. So much so, that it points to many parts of the transmission system being severely degraded.

Practically, this situation causes major problems for the transmission of faxes, and computer file transfer (data) via the telephone network is almost impossible.

The number of spare parts required to correct a problem of this magnitude is so large that they would probably cost more than completely new systems.

4.   **RANGE OF TECHNICAL OPTIONS WHICH WOULD LEAD TO THE IMPROVEMENT OF TELECOMMUNICATION SERVICES DIRECTLY RELATED TO THE IMPLEMENTATION OF "OIL FOR FOOD" PROGRAM**

The rehabilitation and development of the entire telecommunication network in Iraq is a huge development project which requires big investment approximately one billion US$ or more and its implementation could take 7-10 years.

Making an evaluation of the present telecommunication services and selecting only applications which could bring a positive impact to the implementation of the "Oil for Food" Programme and improve its efficiency, several technical options are proposed which are summarized in the table attached to this section.

<u>Interconnection network between local exchanges in Baghdad</u> - This is top priority. Considering all of the problems the ITU team witnessed during its mission, the inadequacy of the traffic forwarding capability stand out as being perhaps the most serious in terms of its contribution to the poor quality of service.

The present modern design philosophy for the interconnection of telephone exchanges in major cities is to construct single mode optical fiber rings carrying STM-16 (2,5 Gb/s) SDH bit streams. But taking into account the urgent need to improve telecommunication services in order to better support the implementation of the "Oil for Food" Programme, interexchange connection using digital microwave radio technology will be more useful because microwave links can be installed more quickly than any other solution.

International communications - It is recommended that a completely new Standard A satellite earth station be installed to replace the existing severely depleted and decrepit station presently in operation.

The latest Standard A earth stations have antennas in the order of 15m diameter. Nowadays, some countries locate these earth stations in the middle of capital cities, instead of the preferred sites of more than 30 km outside the capital city. Depending on the:

(a)   physical ground space available near to the international exchange;
(b)   frequency interference calculations;
(c)   RF noise considerations.

- it may be possible to locate this earth station in Baghdad instead of Dujil (60 km from the international exchange in Baghdad). This would ensure high quality interconnection of the earth station to the international exchange and make some saving excluding the microwave link.

It is also important to have a new small international exchange to replace the one in operation now.

Microwave link Baghdad - Basrah. This microwave link is the first priority among any other microwave links in Iraq which is required for rehabilitation. The main reason for that is the sea port Um Qasr which is the entry point for the main portion of humanitarian commodities for "Oil for Food" Programme. The microwave link should be upgraded from the present analog system to an SDH system (155 Mb/s), with add/drop multiplexers used at all microwave stations that need to add and drop traffic at the towns en-route.

One problem that must be anticipated is the possibility that some of the distances between the existing repeater stations may be too long to allow adequate performance for a digital microwave radio system. This would only be established during the microwave hop surveys necessary prior to a new digital microwave radio installation. In a worst case scenario, the construction of additional repeater stations might be necessary for the longer hops (those of length 50 km or more).

Mobile telecommunication network. The introduction of mobile telecommunication services in Baghdad could be a quick method to improve the quality of telecommunication services rather quickly because the installation of the system could be done in six months.

Replacement of three exchanges in Baghdad. Two digital exchanges and one cross-bar were proposed for replacement. Due to their location they are playing an important role in the communication between many main parties involved in the implementation of the "Oil for Food" Programme. The ITU team has visited these exchanges and the observation is included in the Annex 3.

Northern Governorates. Erbil, Dohuk and Suleimaniyah. Replacement of cross-bar exchanges in Erbil and Suleimaniyah and the installation of a new exchange in Dohuk are required.

Northern Governorates. Erbil, Dohuk and Suleimaniyah, Microwave link. This link will play a very important role in connecting Erbil, Dohuk and Suleimaniyah and facilitate coordination of all humanitarian activities in this region.

Data Communication. This project should be number one for the improvement of the distribution of humanitarian supplies. However, the bad quality of the telecommunication network in Baghdad and everywhere in the country does not allow the introduction of data communication. After the installation of new a interconnection network in Baghdad the situation will be significantly improved and a data communication network could then be set up.

Further to the above projects selected on a priority basis, Annex 5 includes several other potential telecommunication development projects which could be considered in the future according to the availability of financial resources.

It must be noted that the cost estimates presented in the following Table are only approximate ones and more accurate figures would require the check of every project with the requirements and specifications, which would entail a considerably longer   evaluation.

High Priority Telecommunications Requirements

Place	Telecommunication requirements	Cost Million US$	Time Months	Relation with "Oil for Food" Programme Expected improvements in the Programme implementation
Baghdad	Interconnection network between local exchanges using digital microwave systems SDH 155 Mb/s.	19	6	The public telephone network in Baghdad is already playing a very important role in the administration of the "Oil for Food" Programme. Ministries of Trade and Health, their organizations and warehouses, hospitals, health care centres, pharmacies and emergency services, UN agencies - all of them use telecommunications every day and all of them are unhappy with the quality of the services.
Baghdad	International Communication (New Standard A Earth station for 750 channels, microwave link and international exchange 1200)	14	10	Due to the unreliable international communications, Iraq continues to experience difficulties in establishing and maintaining its external contacts with potential producers and suppliers of humanitarian items under the MOU. Many foreign operators connecting to Iraq are complaining of their frustrations over accessing and successfully concluding telephone calls from their countries to Iraq.
Baghdad and seven governorates namely, Babylon, Karbala, Najaf, Qadisyah, Muthanna, Dhi-Qar and Basrah.	Digital microwave link between Baghdad and Basrah with extension to port Um Qasr using SDH technology 155 Mb/s and the replacement of four old cross-bar exchanges (Kerbala, Diwaniyah, Nasiriyah and Basrah).	28	9	The main portion of humanitarian commodities under the MOU is coming to Iraq through the port Um Qasr. This portion will be even bigger soon, because the Ministry of Health for Phase IV is requesting many supplies of medical items to use as an entry point the port Um Qasr instead of Trebil as it was before. The reliable and easy communication between Baghdad and Um Qasr is extremely important for efficient coordination and management. This microwave link will pass seven governorates with a total population more than 7 million, excluding Baghdad. This is the most populated region in Iraq, where there are 382 hospitals and health care centres. All of them will benefit from the improvement in telecommunications.

High Priority Telecommunications Requirements

Place	Telecommunication requirements	Cost Million US$	Time Months	Relation with "Oil for Food" Programme Expected improvements in the Programme implementation
Baghdad	Small mobile telecommunication network for 25,000 subscribers	27	6	The main aim of mobile communication is to provide quick telecommunication services to every essential and important location, related to humanitarian and health (food and medicine) distribution services and activities that have been deprived due to the saturation of the local exchanges and poor quality of their services.
Baghdad	Replacement of digital exchanges of Alwiya, Bab-Al Muddam, and replacement of Dhubat crossbar exchange	12	7	The main hospitals, Medical City, Ministries, UN organizations, Kimadia company and other humanitarian facilities are connected to these malfunctioning exchanges.
Northern governorates: Erbil, Dohuk & Suleimaniyah	Replacement of cross-bar exchanges in Erbil & Suleimaniyah and the installation of a new exchange in Dohuk. Cabling materials should be included for the outside plant repair work.	4.5	7	The deteriorating conditions of the public telephone network in the northern governorates is causing humanitarian aid distribution to be very expensive due to lack of proper communications. Even UN organizations are unable to coordinate their efforts in an economic manner due to the lack of a proper telecom network.
Northern governorates: Erbil, Dohuk & Suleimaniyah	Digital Microwave links between the three governorates	8	9	The nearly non-existence of telecom connection between governorates are almost (and are) causing delays and disrupting the coordination of efforts, adds to the suffering of the people. UN agencies and other organizations involved in "Oil for Food" Programme will be able to work more efficiently and make even some savings from reducing numbers of visits and trips by cars.
Iraq Governorates,	Data Communication Network	10	12	The data network will allow connection into one network, of all computers in all warehouses, and Ministries and other

including Erbil, Dohuk, Suleimaniyah		parties involved in the oil-for-food programme. But the implementation of this project could start after the quality of the transmission lines have been improved.

5. Review of Annex VII of the Enhanced Distribution Plan [S/1998/446]

The ITU Mission reviewed Annex VII which relates to telecommunication equipment required for the enhancement of the distribution plan [S/1998/446] to meet the specific communication problems of the distribution systems used by the Government of Iraq for commodities provided under Security Council Resolutions 986 (1995) and 1153 (1998). The findings are:

1. Annex VII is a Bill of Quantity to cover switching, transmission, cable network, satellite earth station, GSM cellular, and educational TV for the 15 governorates in Central and South of Iraq and the 3 governorates of the North of Iraq.

2. The transmission part of the Annex covers the major routes of the microwave links mainly:

   a) Route 1 Sinek Centre in Baghdad to Basrah. There are 23 microwave stations in this route.
   b) Route 2 Sinek Centre in Baghdad to Basrah. There are 19 microwave stations in this route.
   c) Route 3 Mamoun Centre in Baghdad to Sinjar through Mosul. There are 15 microwave stations in this route.
   d) Route 4 Sinek to Mosul through Kirkuk. There are 14 microwave stations in this route.
   e) Three special links for International Airport, Baquba, Salhiya.
   f) Baghdad Interexchange microwave links covering 18 exchange sites.

3. The exchange part of the Annex covers requirements for the repair of :

   a) Twelve Alcatel switching exchanges of MT 20 type in Baghdad and seven Alcatel switching exchanges of MT type in other cities.
   b) New seven digital exchanges to replace crossbar exchanges in seven cities. Capacity for each exchange is 15000 lines.
   c) Requirements for the repair of national - international exchange in Baghdad.

4. Requirements for the cable network.

5. Installation of new satellite earth station of Standard A type, 18.9 metre antenna.

6. Procurement of a new GSM cellular system to serve 25000 subscribers in Baghdad.

7. Procurement of new wireless local loop for 10000 subscribers for deprived urban areas.

8. Requirements for Educational TV network.

9. Requirements for the Northern Governorates included:

   a) New digital exchanges of 20000 lines in Erbil and Suleimaniyah. Repair of the exchange MT20 in Dohuk.

   b) New digital exchanges of 1000 lines in Kalak - Erbil governorate and new exchanges of 300 lines in 19 cities/villages.

   c) Rural radio for 19 villages.

   d) GSM - Cellular mobile to serve 10000 subscribers.

   e) Several microwave links in the three governorates.

   f) Requirements for Cable Network.

   g) New satellite earth station of 16 channels.

   h) Requirements for Meteorological Office.

   i) Requirements for Educational TV Network.

Conclusion

- Presentation of telecommunications requirements was not done on priority basis to identify the areas where telecommunication can provide infrastructure support for purchase and distribution of humanitarian supplies exported to Iraq.

- As a result of the ITU mission several high priority telecommunication requirements to support the implementation of the "Oil for Food" Programme were identified which are presented in the Table in section 4.

- Some of these telecommunications requirements were included earlier in the Annex VII of the Enhanced Distribution Plan presented to the UN Secretary-General. However, there are some new requirements. For example, it was not advisable to repair the exchanges MT20/25. From economical and technical points of view it is better to make replacement.

- The Annex VII is only a guide and not a document on which purchases could be made. As it stands, the list needs to be accompanied by system configurations. For example, configuration of the planned Baghdad exchanges layout with interlinking interexchange routes; or a microwave link indicating the precise layout of equipment in each terminal station and repeater station.
- In summary, if the urgent telecommunication requirements needed to improve the distribution of humanitarian supplies are approved, then at that time a complete Tender Document can be created from which telecommunication equipment suppliers can bid. Following a bidding exercise, the most appropriate supplier can be identified to supply the equipment.

6. OBSERVATION & MONITORING

The objectives of the observation process as authorized by the United Nations Security Council Resolution 986 (1995) and the MOU between UN and the Government of Iraq are:

a) to confirm whether the distribution of humanitarian supplies to the Iraqi population throughout the country has been equitable;
b) to ensure the effectiveness of the operation;
c) to determine the adequacy of the available resources to meet Iraq's humanitarian needs.

The observation process is undertaken within the various sectors in the food, nutrition, health, water & sanitation, electricity and education sectors throughout the country.

The criteria to assess the mandate objectives of the observation process differ from one sector to another. Procedures common to all sectors include the cross checking of arriving humanitarian supplies with those confirmed by the independent inspection agents at entry points, tracking and spot checks of all commodities entering Iraq from the point of entry to the relevant central warehouse to the regional/governorate warehouse, intermediary storage or processing plants, end-user facilities and, where appropriate, individual recipients.

The observation mechanism documents the tracking of commodities. This involves the monitoring of the supply of commodities from the initiation of orders by the Government of Iraq to the Security Council Committee clearance, the shipping of commodities, authentication by the independent agents, and receipt of goods by the Government. The checks of the physical stock accounting record involve the tracking of items throughout the distribution and utilization phases.

The observation process for telecommunications equipment will follow the procedures explained in the MOU. This process states that observation will be conducted by UN personnel under the overall authority of the Department of Humanitarian Affairs at the UN Headquarters in New York. In addition to the

objectives of the observation process outlined above, i.e. equitability, effectiveness & adequacy of resources, the proposed task of the International Telecommunication Union (ITU) team to be stationed in Iraq, representing the specialized Agency of the UN in Telecommunications, should include the following:

1) Verification that equipment exported to Iraq is used only for the purposes permitted;
2) Assessment of telecommunication requirements for Humanitarian needs with Iraqi counterparts;
3) Reviewing specifications and contracts before presenting to the 661 Committee;
4) Definition of priorities in the telecommunication network requirements for the implementation of "Oil for Food" Programme;
5) Supervising the implementation of the telecommunication network projects in the Northern Governorates;
6) Advising UN agencies present in Iraq on telecommunication matters.

The MOU states that the Government of Iraq or the United Nations Inter-Agency Humanitarian Programme will directly contract suppliers to arrange the purchase of humanitarian supplies, and will conclude the appropriate contractual arrangements. Therefore, the implementation of the telecommunications in the Northern Governorates might necessitate a scope of work including a full cycle of procuring supplies.

7. CONCLUSION & RECOMMENDATION

The ITU mission has concluded that the present conditions of the telecommunication network and services throughout Iraq is extremely poor and requires urgent attention. The entire telecommunication infrastructure has been deteriorating to such an extent that the quality of service is beyond comprehension. Improvement of the telecommunication infrastructure for the microwave backbone and telephone exchanges will no doubt bring immediate improvement in the procurement and distribution system of humanitarian supplies. The necessary data network, for regularly analyzing and gathering information on the distribution of food, medicine and other important items, could be set up quickly. Hospitals and primary Health Care Centres will receive the necessary drugs and every day medical materials without present inherent delays, if available in the warehouse, or a short time later if they are within the consolidated Iraqi database. Cost saving and efficiency for the whole humanitarian programme will be the result of a reasonable telecommunication programme improvement.

The equipment and systems used in the telecommunication network are obsolete. Acquiring spares in most of the cases is out of the question. The telecommunication industry has advanced in the past few years to such an extent that it will be cheaper and more economical from procurement, operation and management point of view to provide new telecommunication systems than to keep the old systems. This will reflect on the improvement of the humanitarian programme.

The ITU team together with representatives from relevant Ministries identified several most urgent telecommunications requirements, the implementation of which will improve many activities related to the "Oil for Food" Programme. They are presented in the Table in Section 4 on a priority basis. However, implementation depends on the availability of financial resources.

Further enhancement of telecommunication services will require supplementary investment. Additional potential telecommunication projects are presented in Annex 5.

The Telecommunication Development Bureau of the International Telecommunication Union will play an important role in the implementation of the identified urgent telecommunications projects in Iraq, as proposed in Section 6.

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