



## *Working Paper*

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*UNITED NATIONS / WORLD BANK*

*JOINT IRAQ NEEDS ASSESSMENT*

*Health*

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**TASK MANAGER: DAVID NABARRO, WHO**  
**AGENCIES PARTICIPATING: WHO, UNICEF, UNEP, UNFPA, WORLD BANK**

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**Note to the Reader on *Process*:** This assessment was written following staff work by the WHO, World Bank, and other UNDG members, and then a Workshop on Health Sector priorities convened by the Ministry of Health and the Coalition Provisional Authority (CPA), with support from WHO, and the participation of many MOH officials, representatives from the Northern Governorates, from Iraqi and international NGOs, resident medical officers, military medical services, development assistance agencies of the UK, US, and EC, UNICEF and the World Bank, August 17<sup>th</sup> – 19<sup>th</sup> 2003 at the Iraq Ministry of Health Building in Baghdad. Further work by the MOH, CPA, World Bank, WHO, UNICEF and UNFPA yielded this agreed document, which should serve as a basis for dialogue on support for Iraq's health sector at the proposed reconstruction conference in late October

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## IRAQ'S HEALTH SECTOR: SITUATION ASSESSMENT AND STRATEGY OPTIONS

### EXECUTIVE SUMMARY

#### Population health status, and key policy and institutional issues

- i. *Historical Perspective:* During the 1970s and early 80s, several critical indicators of the Iraqi people's health status improved substantially. Infant Mortality Rates decreased from 80 per 1000 live births in 1979 to 40 in 1989. In the same period, Under-5 Mortality Rates fell from 120 to 60<sup>1</sup>.
- ii. However, the regime, which ruled Iraq between 1979 and 2003, established priorities for government programmes, and budgetary allocations, that did not reflect population needs and priorities. Health policy choices were inappropriate, especially in relation to health care financing. Patterns of resource distribution tended to favour specific political, ethnic and geographic groups. As a result, serious gaps developed in the provision of health services. The overall capacity and performance of the health system started to deteriorate during the 1980s: the decline was exacerbated as a result both of wars and of political and economic sanctions.
- iii. Within the last decade per capita spending on health fell dramatically – indeed, current analysis by the Ministry of Health suggests that during the 1990s the funds available for health were reduced by 90%. The health care system became increasingly politicized, centrally controlled, and poorly suited to respond to changing population health needs. At the same time, many health professionals left the country.
- iv. The result was that health indicators, at least in the Centre and South of Iraq<sup>2</sup>, fell to levels comparable to some of the least developed countries. From 1990 to 1996, infant, child, and maternal mortality rates more than doubled.
- v. *Burden of Disease:* Health outcomes are now among the poorest in the region. Maternal and infant mortality and malnutrition are high, certain communicable diseases have re-emerged to join non-communicable conditions in a double burden of disease. Malaria, cholera and leishmaniasis are endemic in several parts of the country. The registered number of cases of HIV/AIDS is relatively low; however, all risk factors are present for increased rates of transmission. In the aftermath of conflict, general insecurity and gender violence have prevented women from seeking health care for themselves and their children. During the 1990s, there was a trend of increasing vulnerabilities for women and maternal mortality grew close to three-fold in that period. It is estimated that 30% of women gave birth without a qualified health worker in attendance.
- vi. *Health system and services:* The health care system is inefficient and access is inequitable. The system is based on a hospital-oriented, capital-intensive model that requires large-scale imports of medicines, medical equipment and even health workers. Although the system ran fairly effectively, little health service data was collected. This led to a lack of cost-effective public health

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<sup>1</sup> UNICEF and WHO: Iraq Watching Briefs, July 2003

<sup>2</sup> Throughout the document, Centre and South include all the country, minus the three Northern Governorates

interventions, and services only partially matched population health needs. To this day, the levels and distribution of available human resources for health is inadequate.

vii. *Health infrastructure:* The physical infrastructure has deteriorated as a result of over 20 years of under-investment, poor management and conflict. The functional capacity of health care services was further weakened by widespread looting in April 2003, the subsequent unpredictability of electricity and water supply, and the general insecurity that created an extremely inhospitable working environment for health personnel, particularly women. Although NGOs and UN agencies started rehabilitating some health facilities in the late 1990s, by early 2003 most of the health infrastructure continues to be in poor condition.

viii. *The challenge ahead:* Iraqi policy makers, health workers, and the donor community must restore basic services in the short-term and initiate long-term transformation of the current system into a de-centralised and sustainable model based on primary care, prevention, partnership, and evidence-based policy.

### **Immediate needs (2004)**

ix. Priorities in 2004 include:

1. Restore effective control and ensure stewardship over the health care system
2. Secure effective implementation of public health programmes and interventions
3. Provide equitable access to effective health care, taking services as close to the client as possible, and with the full involvement of community groups
4. Increase focus on improving public health, with particular attention to women, children and other vulnerable groups
5. Address imbalances in the distribution and skill-mix of health professionals
6. Rehabilitate essential infrastructure and health services to render them more responsive to priority needs of the Iraqi population
7. Develop a national health plan, with focus on the ten areas identified in recent stakeholder consultations (discussed in the following section)

### **Medium term needs (2004-2007) and beyond**

x. As this vision evolves, the political and technical dialogue on policy and programme issues will move forward. The Ministry of Health will continue to work with other stakeholders on a master plan for the development of Iraq's health sector based on the population's underlying present and future health needs as well as existing public and private sector capacity. Some of this work has already started and will continue during and beyond 2004.

xi. It is anticipated that the master plan will lead to the change from a highly centralised management structure in the Ministry of Health to a more decentralised and empowered system. Within a national framework, the system will be more responsive to epidemiological and institutional

realities in different communities. The Ministry of Health will also establish frameworks for local, governorate and national level partnerships to bring private and voluntary groups, civil society, etc. more into the design and implementation of health and health-related actions.

xii. The ongoing consultations between the Ministry of Health and the international community have already resulted in the identification of ten areas that will need to be addressed in the health sector master plan: Public Health; Health information systems, Information technology; Legislation and regulation; Human resources; Education and training of health professionals; Credentials and licensing of health professionals; Health care delivery system, Pharmaceuticals, medical supplies and equipment and Financing of health care.

### **Costs**

xiii. In the next few years, funds for health care are likely to be less than ideal. Hence the need for a carefully designed, affordable and sustainable health system that generates value-for-money in terms of equity, efficiency and health outcomes, and takes account of Iraq's future demographic, epidemiological and socioeconomic situation. At the same time, health expenditures are expected to increase well above current levels in the coming years, so the system's design must reflect the likelihood of longer-term growth in the range and coverage of services on offer.

xiv. Adequate funding for salaries and other priority recurrent expenditure will stabilize the system and restore functions to pre-war levels as a minimum objective. As basic services are restored, investment and recurrent spending must focus on a reconfigured system, which fits within the new vision for health. The most current estimate of the cost of physical reconstruction including equipment is in the order of \$1.6 billion spread over the next four years. Further investments in human capital will also be needed to develop and upgrade the current Iraqi health workforce. It is anticipated that private sector resources will complement efforts from the public sector.

xv. For the first time since decades, a health sector budget has been prepared and published (for fiscal year 2004). This remarkable achievement by the interim Administration was achieved with technical assistance from the CPA, international organizations and donor agencies. It has been impossible - thus far - to complete an inventory of current external financing, to assess implementation timeframes or to estimate what proportion of these funds will eventually go through future Iraqi Government channels. Some supplies are coming into Iraq as part of the OFFP; others as a result of investment by private entrepreneurs. Systems to track these inputs are not yet yielding reliable information. Thus it has not proved possible to indicate, in the sector assessment, the contribution of these additional resources to the sector's requirements, including provisions made within the Iraqi 2004 budget.

xvi. It is anticipated, however, that, in the long term, the planning, execution and reporting of external investments will be integrated with procedures, routines and systems of a future Iraqi Government, and will support its policies and programmes. There is consensus, however, that robust systems and capacity (for planning, budgeting, accounting, etc) must be in place for investors to agree that such external assistance can be handled within the context of national budgeting and spending mechanisms. It may therefore be months before the majority of external assistance for health moves "on-budget".

xvii. The total estimated financing requirements for health in 2004, from non-private sources, is around US\$1.5 billion: this will cover both the provision of basic services and investment in essential

infrastructure. It is expected that as much as two thirds of this amount will be forthcoming from the 2004 Iraqi budget.

## I. CURRENT STATUS AND ISSUES

### A. Overview

1.1 During the 1970s and early 80s, several critical indicators of the Iraqi people's health status improved substantially. Infant Mortality Rates decreased from 80 per 1000 live births in 1979 to 40 in 1989. In the same period, Under-5 Mortality Rates fell from 120 to 60<sup>3</sup>.

1.2 However, the regime which ruled Iraq between 1979 and 2003 established priorities for government programmes, and budgetary allocations, that did not reflect population needs and priorities. Health policy choices were inappropriate, especially in relation to health care financing. Patterns of resource distribution tended to favour specific political, ethnic and geographic groups. As a result, serious gaps developed in the provision of health services. The overall capacity and performance of the health system started to deteriorate during the 1980s: the decline was exacerbated as a result both of wars and of political and economic sanctions.

1.3 Within the last decade per capita spending on health fell dramatically – indeed, current analysis by the Ministry of Health suggests that during the 1990s the funds available for health were reduced by 90%. The health care system became increasingly politicized, centrally controlled, and poorly suited to respond to changing population health needs. At the same time, many health professionals left the country.

1.4 The result was that health indicators, at least in the Centre and South of Iraq<sup>4</sup>, fell to levels comparable to some of the least developed countries. From 1990 to 1996, infant, child, and maternal mortality rates more than doubled.

1.5 The supply of commodities for health improved gradually during the Oil for Food Program (OFFP) between 1997 – 2002, without returning, though, to pre-1990 levels. However, OFFP did not have allocations for training, skill development, and management in the Centre and South of the country. Thus, the OFFP did not compensate for the limited development of human resource capacity within the national health sector during the 1990s.

1.6 In 2003, post-war looting and instability severely impacted upon the health sector. There have been persistent disruptions of electric power, water supply and sewage, widespread insecurity and a partial paralysis of financial, managerial, logistic and administrative systems. These systems were weak prior to 2003 and need to undergo fundamental rebuilding. The rest of 2003 and 2004 are seen as transitional years in this process, where the basis for new health system development can follow in 2005. That system must become accessible to all Iraqis, and be equitable, effective, efficient and financially sustainable.

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<sup>3</sup> UNICEF and WHO: Iraq Watching Briefs, July 2003

<sup>4</sup> throughout the document, Centre and South include all the country, minus the three Northern Governorates

## **B. The Health System**

1.7 During the 1990s, infant and child deaths were highest in rural areas, among female-headed families, and among the poor. Historically, the Centre and South had better conditions than the North, but in the 1990s the situation reversed. The quality of public health services - and outcomes - deteriorated in the Centre and South, though they improved in the North. There is now an opportunity for policies that prioritise the development of public health services and the creation of a primary health care (PHC) system countrywide. The primary health care approach, when applied to pre and post natal care, immunization promotion, nutrition and integrated medical care for young children, should result in substantially reduced mortality among pregnant women and children during the transitional period.

1.8 Although data for the early 1990s are of limited reliability, immunisation programmes deteriorated rapidly during these months, but recovered in the late 1990s. The requirement, now is to achieve and confirm acceptable vaccination coverage, and a measurable impact on levels of childhood diseases. In 2000, only 61% of two-year olds had received all vaccine doses according to schedule (WHO/UNICEF review). A more effective program will need to be supported by a stronger disease surveillance system and outbreak preparedness capacity, and include greater outreach for health promotion, and further assessment and rehabilitation of the cold chain.

1.9 Among different groups of health professionals, physicians are generally well represented, though the physician to population ratio in Iraq is below the regional average. There were 5.3 doctors per 10,000 population in 2002. Although the geographic distribution of physicians is satisfactory, there is an overall excess of specialists and insufficient physicians focusing on primary health care. A speciality of medical primary care should be developed, with general practitioners having an equivalent status to hospital specialists. Problems within the nursing workforce are even greater. There is about one nursing staff per physician against the 3-6 nursing personnel per physician in most countries of the region. Less than a third of the nursing professionals have received further education – beyond high school. New allied health training programs in epidemiology, management, finance and planning are needed, as well as new models for health care delivery. Nursing specialities of community health, rehabilitation medicine, health education and promotion are in short supply and should be developed.

1.10 There are 17 medical schools, seven colleges for Pharmacy, six for Dentistry and three Nursing colleges. In addition, there are three colleges that offer a 4-years training program in Health Technology, and there are seven High Institutes for Laboratory. There are 92 secondary or primary nursing schools, but there is no licensure procedure. The quality of training for medical and other health science students needs to be upgraded and a national school of public health should be established. Major changes in curriculum and teaching methods that take advantage of new technologies for distance learning and self-directed learning are needed. Post-graduate education, study tours, and training for Iraqis in other countries should be encouraged. Professional associations of health workers should be strengthened.

1.11 There is an average of 17 health facility beds per 10,000 people. This is slightly below the regional average and that of comparable income countries. The distribution of beds and primary care visits is relatively equitable across the country, but the services provide a poor match to the country's epidemiological profile. There are 250 hospitals and at least 1,200 health clinics. Only about a third of these facilities,<sup>5</sup> are equipped to provide emergency obstetric care. Hospital occupancy rates are low and most of the health facility structures are old and poorly maintained. Poor support systems

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<sup>5</sup> UNICEF and WHO: Iraq Watching Briefs, July 2003

have resulted in shortages of (or substandard stocks of) medicines, equipment, and supplies. Management skills are limited, and quality is not assessed. Building management capacity, new technologies for management of service delivery, ongoing needs assessments for health institutions, continuing education to change practice and prescribing habits, the development of health screening activities, and the establishment of a national formulary are needed.

1.12 To move toward an evidence-based system of care, priority must be given to the development of a reliable health information system. The issues arising from recovery planning create opportunities to foster a culture of transparency, investment in studies and research, use of scientific evidence, intelligent health decision-making, involvement of local-level health workers and knowledge management.

1.13 Ensuring the quality of clinical services will be an integral part of the health system in Iraq. Clinical staff and managers should be trained in developing, implementing and monitoring clinical standards and guidelines.

1.14 Policies and regulations on planning, production, utilization, management, quality, and the distribution of human resources (especially newly graduated doctors, specialists, and personnel with special experience) are needed.

1.15 Reorienting the public sector towards Primary Health Care will require the development of models, evaluation of programs, and training. A large cadre of well-trained nurses, public health auxiliaries, and health administrators, will be needed to retool the health system to primary care, health education and promotion, and targeted disease prevention programs.

### **C. Disease Burden and Determinants of Health**

1.16 Prior to 1990, Iraq was advancing through the epidemiological transition from infectious to chronic and degenerative diseases. This transition has slowed, as the burden of non-communicable diseases remains heavy and the incidence of common communicable diseases, which are responsive to preventive measures and primary health services, has increased. Good quality information must be developed on the country's epidemiological profile through special studies and the development of a management-oriented health monitoring system.

1.17 With the exception of the north of the country, health outcomes in Iraq are among the poorest in the region and well below the levels found in comparable income countries. The most important communicable diseases now are upper respiratory infections and diarrhoeal diseases. The reported incidence of tuberculosis is markedly higher than in neighbouring countries. Cholera, visceral leishmaniasis (Kala Azar) and malaria (*P. vivax*) are endemic in parts of the country. The incidence of the most important vaccine- preventable disease, measles, has declined since vaccine coverage improved in the late 1990s, but the disease is still the third most common cause of death in under 5 children in the North. On the positive side, there have been no cases of poliomyelitis reported since January 2000. A health system re-oriented towards Primary Health Care could address these conditions.

1.18 Estimates of HIV infection rates have not as yet been calculated. The 230 cumulative reported HIV/AIDS cases are mainly due to infected blood products imported from Europe for treating individuals with haematological conditions. This transmission stopped when screening began in the mid-1990s and other appropriate policies were introduced. As a result of these changes in risk factors, and the opening of the country's borders, monitoring and treatment policies should be clearly established. Public health education needs to be expanded.

1.19 Iraq has a potentially effective system for treating common non-communicable diseases with the distribution of medicines to registered patients with cardiovascular diseases, cancer, chronic obstructive lung disease, hypertension, and diabetes. However, a shortage of basic medicines and medical equipment and absence of standard disease management guidelines result, at times, in poor quality services. If communicable diseases decline in the next few years, non-communicable diseases will become the leading contributors to ill health, death and disability. Monitoring of the country's disease profile, on-going needs assessments of the population's health status and health institutions, service model development for PHC and referral, and continuing education for physicians are needed.

1.20 In South and Central Iraq the rate of malnutrition increased steadily from 1991 to 1996. It then plateaued until 2000 and declined by about half by 2002. Malnutrition in the north was high in the early 1990s and declined continuously, reaching low levels by 2002. During 1990-2001 the proportion of low birth weight in the South and Central Iraq increased from 4.5% to about 25%. The ration provided by the OFFP, providing 2, 215 k.cals/person/day, is low in some vitamins and minerals: variety and supplementation of the ration by purchasing fruits, vegetables and meat is out of reach for many Iraqis. Although 40% of adult males are overweight, chronic malnutrition is common, as is anaemia in children, adolescents and pregnant women. Better and more accessible pre and postnatal care and health/nutrition education and promotion are needed.

1.21 Sixty five per cent of births occur outside of health institutions. The proportion of women delivering without trained assistance went up during the 1990s, to 30% in urban areas and 40% in rural areas. Some 15% -20% of deliveries are at high risk and need advanced medical support. There are referral institutions at district level to attend complicated births, but about half of these lack essential resources and trained staff to provide appropriate care. As a result, the maternal mortality ratio is extremely high at about 300/100,000. Ongoing needs assessments of health institutions, of the quality of traditional birth assistance practices<sup>6</sup> and the development of referral mechanisms and continuing education for physicians are needed.

1.22 There is a dearth of mental health services. New approaches to community mental health are needed. The health system needs to include proper attention to psychosocial issues, mental health promotion at individual and community level, integration of mental health into primary care (via training, guidelines, support, data collection, effective medicines) and in the general health sector reform plan, the package of essential health interventions, and the essential medicines list.

1.23 Already weak clinical laboratories and food inspection systems were paralysed after the 2003 war. Facilities for food safety need to be re-established, with new procedures and responsibilities put in place following dialogue and agreement between the different concerned sector ministries. Poor sanitation and shortage of safe water supply increase the risk of faeco-oral infections. Lack of proper and efficient system of disposal of chemical and toxic effluents from factories have resulted in contamination of air, soil, water and plants with all the hazards of respiratory tract infections, cancer and chronic and acute chemical intoxication. A major assessment of environmental health conditions, the re-equipping of laboratories and training of lab staff, and the identification of effective institutional and individual actions related to environmental health are needed.

1.24 Excessive focus on clinical medicine has led to limited government and public involvement in tackling the underlying risks to health experienced by much of the population. The factors that may lead to ill health such as very low purchasing power, poor sanitation and water supply, unsafe food storage, poor sanitation, smoking and lack of exercise need to be addressed. The health services

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<sup>6</sup> UNIFEM, 2003

have precise contributions to make, but mostly health professionals will need the skills to work through multidisciplinary groups. Health promotion and education, training of health professionals and the development of a PHC system can rapidly improve many health outcomes in Iraq.

### **Performance of health services**

1.25 Before 2003 the health care system was based on a hospital-oriented, capital-intensive model of care. It required large-scale imports of medicines, medical equipment and even health workers like nurses from abroad. Although the basic system ran fairly well, little health service data, crucial to effective decision-making, was collected or made available. Capacity development of MOH staff to develop, maintain and use key information systems is needed.

1.26 The structure of the MOH was hierarchical. The referral system among the different levels of health services was not effective. Services provided only partially matched population health needs; rather the system relied on outdated planning norms based on a hospital-based curative care model. New models for the health system, designed around the disease profile of the country, and management skills development are needed.

1.27 Recent analyses by the Ministry of Health indicate that the Kimadia medicine supply system was not designed for optimal performance. Specifically, procurement, inventory management and distribution systems were ineffective and inefficient. Efforts are now being made to completely reconstruct and improve the quality and distribution of pharmaceuticals, medical supplies and equipment. Transparent tendering and auditing procedures, and quality monitoring, are needed. Furthermore, physicians need to be re-trained in case management to reduce misuse, over-prescription and wastage of medicines.

1.28 There has been inadequate investment in the maintenance of infrastructure during the last 20 years. In the late 1990s, NGOs and UN agencies started rehabilitating some health facilities. In early 2003, many health facilities were still in a poor condition and even private hospitals, which were in a better state, frequently had inappropriate physical structures. Overall, the national electricity grid serves 51% of health facilities: the other 49% depend on generators; 24% of health facilities had no generators. CPA has provided new generators to most health units. Iraq has no proper standard procedures and systems for the collection and disposal of clinical wastes<sup>7</sup>. Ongoing infrastructure assessment, investment, and supervisory skills development are needed.

1.29 About 12% of hospitals were partially damaged and 7% were looted in 2003. More than 30% of the facilities that provided family planning services were destroyed. About 15% of the CCCUs (Community Child Care Units) were closed. The country's two major public health laboratories, in Baghdad and Basrah, were destroyed. The Institute of Vaccines and Sera was stripped of most of its equipment and furniture; the long power outages resulted in the loss of vaccines. Two of the three rehabilitation hospitals in Baghdad were looted to the extent that they had to close. Health departments, hospitals and primary health centres lost furniture, refrigerators and air conditioners. Four of seven central Kimadia warehouses were partially looted.

1.30 Because of continuing concerns about security among staff of – and patients attending – health facilities, the Ministry of Health has, since July 2003, trained 600 security personnel who are deployed to hospitals and clinics: funding is available to train a total of 2400 over the next 8 months for posting to facilities throughout the country.

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<sup>7</sup> UNEP, 2003

1.31 Figures are uncertain and to an extent contradictory, but it is estimated that Iraq currently has about 17,500 medically qualified personnel (11,000 MOH, 3,000 ex-military, 2,500 in Kurdistan, 500 MOHE, and 500 in the private sector). Estimates on the number of nurses vary: reportedly, there are 12,000 ex-military nurses, mostly males, many of them of retirement age, who have not yet been integrated into the MOH. If these are not counted, there are about the same number of nurses as physicians: 17,200, of which 12,000 with MOH, 5,000 in Kurdistan and 200 in the private hospitals; many are not practising at this time. The number of university-educated nurses is extremely small.

### **Strategic Assumptions - and Challenges**

1.32 The challenge for Iraqi policy makers and the donor community is to re-establish basic services in the short-term while transforming inefficient centrally planned/curative care-based services to a new system based on primary care, prevention, and evidence-based policy. The new system should reflect the health status and disease burden faced by Iraq's people as evidenced by the country's epidemiological and demographic profile, and should be affordable within the available envelope of public finance and private resources. This assessment identifies some of the priority goals for the health system, policy challenges to be faced in achieving these goals, and essential changes in the function and structure of health institutions if the challenges are to be tackled successfully. It also examines the likely levels of financial resources available in 2004.

1.33 Further work is needed to debate priorities, examine policy challenges, develop appropriate strategies, establish programmes to develop critical institutions and explore financing options. There is a need to better understand the overall revenue structure of the country in order to design health financing options, through small scale studies. This will include careful studies and the development of national health accounts (NHA) that show expenditures by source (public and private) of payment and type of services purchased. NHA can be used as the basis for predicting health financing needs and options in the future.

1.34 The mix of public and private services in Iraq is complex and poorly understood. The private and semi-public components are large. Unregulated growth of private health care and activities of NGOs pose a challenge of coordination to the health system.

1.35 Demands on available resources are likely to grow in the coming years, mainly due to higher public expectations. It is critical, therefore, to design a system that provides for a mix of public and private health services and good value in terms of equity, efficiency and health outcomes.

1.36 As vision for the provision of health – and other public services – for Iraq's population evolves, the political debates and technical dialogue on policy and programme issues will move forward. Officials in the Ministry of Health will work with other stakeholders on a master plan for the development of Iraq's health sector based on the population's underlying present and future health needs as well as existing public and private sector capacity. The plan will include strategies and plans for reforming health sector institutions, and the redevelopment of human resources and physical health infrastructure. This is particularly important given the likely involvement of many different stakeholders in the redevelopment of Iraq's health sector, and the inevitable difference in priorities between different governorates.

1.37 Other countries in the region have developed standard specifications for health facilities and programmes to reform health sector institutions, which have helped establish priorities for the investment of public funds that are based on different assumptions about private sector supply. The

same approach is possible in Iraq, though the proper involvement of different stakeholders in its evolution will take several months.

## **II. NEEDS AND PRIORITIES FOR THE HEALTH SECTOR**

### **A. Strategic vision**

2.1 The process of visioning and strategic planning for the health sector began with a three-day consultative meeting involving MOH senior staff, UN organizations, NGOs, bilateral donors and the CPA in August 2003. The workshop focused on identification of challenges, priorities and issues on which urgent action is needed. A steering group was established and entrusted with addressing key issues in health sector development over the next few months. The issues will be examined in detail by 10 working groups that will include a broad range of interested and qualified persons, supported with technical assistance from the World Bank, the UN system and contractors made available by donor agencies.

2.2 It seems likely that the re-organized Ministry of Health will continue to be the main provider of health care in the country for the foreseeable future. Working within the context of a future Iraqi government structure, national health priorities will be developed. There will be increased focus on the improvement of public health – especially child and maternal health – tackled through the work of different sectors, with the provision of services as close to the client as possible and the full involvement of community groups (Primary Health Care). However, the masterplan is likely to call for a change from a highly centralised management structure in the MOH with the development of a programme for decentralised implementation of health actions – within a national framework - but more responsive to epidemiological and institutional realities in different communities. The MOH will also establish frameworks for local, governorate and national level partnerships to bring private and voluntary groups more into the implementation of health actions. The MOH will agree, through a decentralized approach, on an annual delivery plan with each governorate, within a performance management framework. Key staff, at both MOH and governorates, need to develop expertise in these management tools.

2.3 The leadership role of the MOH in translating strategic directions into implementable programs is critical. This requires an elaborate program of capacity development of the staff in the different units and departments of the MOH. This program should cover health policy and planning, human resource development, information and communication, disease surveillance, and promotion, preventive, curative and rehabilitative services. Similar capacity development efforts need to be replicated at the level of health directorates in all the governorates.

2.4 Experience from other post-conflict situations have shown that the MOH would need to take up the lead role in effectively coordinating all health sector related activities involving different development organizations, donor agencies, NGOs as well as other ministerial departments, to ensure an efficient and optimal utilisation of resources.

### **B. Strategic planning for a health sector that focuses on both national and local health priorities**

2.5 The Health Sector steering group will focus on policy issues that cut across the concerns of the individual working groups, as well as means for coordinating health sector actions among different stakeholders at local and national level.

2.6 The first working group will focus on issues of PUBLIC HEALTH, with a remit to establish the principles and processes by which the peoples of Iraq can reach their optimal level of overall health, through development of benchmarks for health outcomes, building partnership with other ministries in charge of the relevant sectors ensuring meaningful health promotion to the community

and by defining those public health tasks and targets that can reduce inequalities and produce the greatest health gains in diverse communities. This working group will propose a model for public health functions at both national and local level, and processes to strengthen the public health infrastructures and capacity. The group will also work with Departments in Ministries other than health that have a stake in public health, and particularly in environmental health issues.

2.7 The second working group will develop recommendations for Iraq's Health Information System, with the objective to establish the principles, standards and processes which will provide for the effective data collection and analysis, and exchange of reliable health related information that will inform decisions at different levels of the health care system in ways that draw together all sub-sectors and, where appropriate, community groups. The information will include the surveillance of key conditions and diseases, confirmation and notification. In addition, this system shall be robust enough to double as a conduit for vital records data and other health indicator statistics. The working group will propose the variables that could be used as indicators for assessing the performance of the health sector in Iraq –including input (operational health facilities, capacity in place, etc), activity and outcome variables (morbidity and mortality). The establishment of a system of National Health Accounts as well as facility-based cost information are necessary concomitants.

2.8 A third working group will develop recommendations on information technology. Its remit is to consider the requirements for an integrated real time information system through which raw health related data, operational data and financial data, as well as information derived from these data, can flow. The Technology should permit optimal decision making within the Iraqi health care system.

2.9 A fourth working group will focus on legislation and regulation issues. Its task is to recommend the development of all necessary legislative, regulation and policy changes that will be needed to implement the Ministry of Health's proposals for protecting people' health and providing access to quality health care, among all the people of Iraq, as well as transparency and accountability within the health system.

2.10 A fifth working group will pay particular attention to the challenges of ensuring sufficient professionals with adequate skills, distributed throughout the country in ways that reflect people's health needs and desired levels of service provision. The goal of this human resources working group is to establish Iraq-wide parameters for the numbers, types and geographic distribution of licensed medical personnel, allied health professionals and administrative staff employed within and outside MOH using a 10-year time horizon. There will be a particular focus on building capacity for strategic analysis and forward planning for human resources development in Iraq's health sector, with particular attention to recruitment and retention of staff, especially nurses, and maintaining the quality of professionals, taking on board the changing needs for different kinds of specialist and generalist personnel, as well as the experiences of different governorates. The working group will be expected to propose priority actions that are required in this critical area, and to identify options for partnerships with groups concerned with human resources development inside and outside Iraq.

2.11 The sixth group will develop recommendations for the education and training of health professionals. The objective is to establish a health provider workforce that is optimally equipped to meet the vision, management and clinical objectives of the future Iraqi health care delivery system. The group's remit is to consider the curricula, programmes and investments needed for the basic and continuing education of all health care and allied personnel to international standards (including management skills development for health sector personnel). It will also consider the need for an accreditation system for health professions education programs to meet global challenges.

2.12 The seventh group will recommend systems for establishing credentials of - and licensing - health professionals. The group will examine options through which credentials can be established for different types of personnel with nursing, ancillary or medical skills, and for ensuring that concerned professionals are licensed and re-licensed to practice using agreed – ideally international – care-giving standards.

2.13 The eighth group will consider the core elements of the national health care delivery system. This will include the development of models for the evolution of a health care system, where the authority, decision-making, accountability and standard setting are shared from bottom to top. Ideally the system will be markedly responsive to the needs of all the peoples of Iraq, while remaining cognisant of economic realities. Given the agreements reached in the workshop, the system should aim to offer equitable services that are accessible, affordable and of adequate quality. It should include an affordable basic service package which immediately becomes available to all

2.14 The ninth group will focus on options for the financing of health care in Iraq. The challenge is to design an equitable and efficient health financing model, taking into account expected public revenue, per capita income and income distribution, which will also maximize the opportunities for the Iraq health care system to evolve over time, ensuring universal health coverage for all.

2.15 The tenth group will work on pharmaceuticals, medical supplies and equipment. The objective is to have systems performing to international standards. The working group should propose options for modernising supply systems – specifically for storage and distribution processes of pharmaceuticals and medical supplies, which will include policies to ensure the appropriate use of pharmaceuticals and medical technology by the Iraqi people. The financial viability of promoting local production of drugs and medical supplies should also be assessed.

2.16 Donor interests: The Ministry of Health has already identified several areas in which donor contribution for health development will be particularly valued. These include: (1) Specific elements of capacity building within the Ministry of Health – such as Leadership development, information systems and information technology; (2) Priority public health programmes: specifically building public health capacity, improving child, maternal and reproductive health, mental health services and communication about health issues to the general public, (3) Development of health systems within governorates: essential hospital services (with a preference for hospital twinning, but with clear specifications of expected performance standards for different categories of hospitals), laboratory services, ancillary services – such as diagnostic equipment , (4) Improving human resources for health – basic training and continuing medical education.

2.17 Discussions with some donors revealed interest in specific areas – such as child health, and in providing direct support for essential public health functions within governorates.

### **C. Medium and long-term financial needs (2004-2007)**

2.18 In the next few years, funds for health care are likely to be less than ideal. Hence the need for a carefully designed, affordable and sustainable health system that generates value-for-money in terms of equity, efficiency and health outcomes, and takes account of Iraq's future demographic, epidemiological and socioeconomic situation.

2.19 At the same time, health expenditures are expected to increase well above current levels in the coming years, so the system's design must reflect the likelihood of longer-term growth in the range and coverage of services on offer. Adequate funding for salaries and other priority recurrent expenditure will stabilize the system and restore functions to pre-war levels as a minimum objective. As basic services are restored, investment and recurrent spending must focus on a reconfigured system, which fits within the new vision for health.

2.20 Establishing a functioning health system requires funds for salaries and other priority recurrent expenditure a six months' budget of \$211 million was released in July 2003 by the Coalition Provisional Authority (CPA) to the Ministry of Health (to cover operating expenditures but excluding salaries and pharmaceuticals).

2.21 For the first time since decades, a health sector budget has been prepared and published (for fiscal year 2004). This remarkable achievement by the interim Administration was achieved with technical assistance from the CPA, international organizations and donor agencies.

2.22 It has been impossible - thus far - to complete an inventory of current external financing, to assess implementation timeframes or to estimate what proportion of these funds will eventually go through future Iraqi Government channels. Some supplies are coming into Iraq as part of the OFFP; others as a result of investment by private entrepreneurs. Systems to track these inputs are not yet yielding reliable information. Thus it has not proved possible to indicate, in the sector assessment, the contribution of these additional resources to the sector's requirements, including provisions made within the Iraqi 2004 budget. It is anticipated however, that in the long term, the planning, execution and reporting of external investments will be integrated with procedures, routines and systems of a future Iraqi Government, and will support its policies and programmes. There is consensus, however, that robust systems and capacity (for planning, budgeting, accounting, etc) must be in place for investors to agree that such external assistance can be handled within the context of national budgeting and spending mechanisms. It may therefore be months before the majority of external assistance for health moves "on-budget".

2.23 The 2004 budget will permit the MOH to plan services that are accessible to all Iraqis, equitable, efficient, effective, financially affordable, sustainable, and quality-based. The development of accurate estimates for the resources needed by this evolving system is difficult. The 'right' level of health spending for Iraq cannot be determined at this time. Health spending depends on Iraq's needs/demands, institutional structures, the efficiency and effectiveness of spending and medical practice, individuals' behaviour and affordability considerations, none of which is clear at this time. However, based on the expenditure patterns of other comparable income countries, both in the region and globally, one can predict ways in which health spending in Iraq might well evolve (see Annex 3).

2.24 For all countries, there is an empirical relationship between per capita total health spending and per capita GDP. If spending patterns in Iraq were the same as those found in other comparable per capita income countries in the Middle East region and worldwide, Iraq would, based on the high range of the estimated 2001 Iraqi GDP figures (about US\$1000), spend in total (public and private) around \$40 to \$60 per person on health. However, the estimated additional financial requirements to meet short-term reconstruction needs are in the order of \$20 per capita in 2004.

2.25 Preliminary estimates of likely funds available for 2004 – from public finance sources – are \$37 per capita. An additional \$20 per capita is needed from other sources – either earmarked for specific health outcomes (e.g. improvements in child survival or maternal health) or for system development, re-equipment and re-construction projects. This represents a good funding base for the revitalisation of the health sector.

2.26 The estimated cumulative public financial requirements for Iraq’s health sector over the period 2004-2007 should be in the order of \$5.6 billion (see annex 2 and below). Of these, it is estimated that around \$4 billion will be financed through the state budget, leaving a financial gap of around \$1.6 billion for the same period. Table 1 shows the projections of health financial requirements for 2004-2007 by source of funding<sup>8</sup>.

<b>Table 1. Projections of Health financial requirements for 2004-2007, by source of funding</b>		
year	total	public
2004	1,897,000,000	1,517,600,000
2005	1,938,734,000	1,454,050,500
2006	1,981,386,148	1,386,970,304
2007	2,024,976,643	1,214,985,986
total	7,842,096,791	5,573,606,790

NB: total (public and private) expenditure over the period of \$70 per capita per year; public to private ratio ranging from 80:20 to 60:40

2.27 Recurrent per capita health expenditure will increase over time as capital expenditure component decreases.

2.28 Perhaps of more importance for future planning is what Iraq would be spending as the economy improves. If per capita GDP doubles over the next several years, then the projected total (i.e. public and private) per capita health spending, based on spending patterns in the Middle East and around the world, would be in the range of \$110 to \$200 per capita.

2.29 The most current estimate of the cost of physical reconstruction including equipment is in the order of \$1.6 billion spread over the next four years (see annex 1). There will be the need for procuring essential hospital equipment in 2004, which explains the comparatively higher initial capital costs. Reconstruction costs are incremental to service provision costs. Further investments in human capital will also be needed to develop and upgrade the current Iraqi health workforce. It is anticipated that private sector resources will complement efforts from the public sector

<sup>8</sup> Non-public sources include out-of-pocket spending, contributions from charitable organizations, employer-based insurance systems, etc.

2.30 Given the constraints on further capital investments in the public sector, it is inevitable that there will be increasing attention paid to developing effective public-private partnerships to expand health service financing, delivery and access throughout the country.

### **Financial needs over the 2004 period**

2.31 As previously discussed, the total estimated financing requirements for health in 2004, from non-private sources, is around US\$1.5 billion, or \$56 per capita, of which \$37 for recurrent expenditure and \$19 for capital investment. This will cover both the provision of basic services and investment in essential infrastructure. It is expected that as much as two thirds of this amount will be forthcoming from the 2004 Iraqi budget. The table below shows the estimated financial envelope disaggregated into recurrent and capital spending.

2.32 Table 2. Health financial requirements in Iraq in 2004 (public sources) in \$ million

<b>Recurrent</b>	
staff (salaries)	200
service requirements	80
goods requirements	
drugs	580
other	90
asset maintenance	50
<b>sub-total recurrent</b>	<b>1,000</b>
<b>Capital</b>	
rehab./reconstruction	120
investment	
construction	218
other capital	179
<b>sub-total capital</b>	<b>517</b>
<b>GRAND-TOTAL</b>	<b>1,517</b>

### III. CROSS CUTTING ISSUES

#### A. GENDER

3.1 Employment opportunities for women in the health sector are greater than in most other areas of the economy, and may well contribute to women's social advancement. However, women have lower educational achievement overall, so special attention to their needs as students and health workers is called for. There are some reports that the admission requirements for women seeking to train as health personnel are more exacting than those for men. Most aspects of primary care and health promotion called for in this assessment, such as prenatal care, infant feeding, and treatment for infectious diseases, are tasks frequently led by the women in the family. It is thus important to ensure that women have a voice to participate in the coming months and years in developing a holistic vision for health and health care in Iraq. It is particularly important that women are able to access care and advice in a safe, secure and sensitive manner, and to be able to consult with suitably skilled female staff in the majority of circumstances.

#### B. ENVIRONMENT

3.2 Improving the quality of environment is fundamental to better health outcomes in Iraq. Environment not only affects health in the short, medium and long term but also productivity, agriculture, industry and long term self sufficiency of households, communities and the nation. There is a need for a multidisciplinary body to examine and react in appropriate and timely manner to all environmental risks, even sensitive ones such as biological, chemical, and nuclear contaminants.

3.3 Now, Iraq's interim Governing Council has created a new Ministry of Environment and the experience and resources of Environmental Protection and Improvement Directorate can provide a good starting point. EPID is a sizeable national institution, equivalent to some existing ministries and relatively well endowed in terms of human resources, equally partitioned between Baghdad and the Governorates. Its program of work includes water, air and radiation monitoring, planning, occupational health, management of protected areas, public information and international collaboration. The needs assessment for 2003-2004 must consider the requirements associated with the fixed, operating and programme costs of the possible transition of EPID from a Directorate to a Ministry or independent agency.

3.4 Nonetheless, it is important that the Ministry of Health maintains the capacity to deal with environmental health issues and contribute to cross-sectoral activities: occupational health, radiation assessment, studies and epidemiological surveys around environmental hotspots and sites likely to pose immediate risk to public health<sup>9</sup>

3.5 In the context of the Environment, also Food Safety deserves a mention. Food safety programmes are dispersed among different ministries including MOH and other agencies and there are plans for them to be soon organised as a national agency, provisionally under Ministry of Agriculture.

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<sup>9</sup> UNEP, 2003

### *C. HUMAN RIGHTS and HEALTH CARE*

3.6 Health (physical, mental and social) depends on many factors (determinants), which go far beyond the provision of health care. These include household food security, the ability to prepare and preserve food (power and gas supplies), the provision of adequate potable water, security of person, family and property, education and literacy, healthy living and working environment, communication and information, etc. These determinants are embodied in various legal systems such as Human Rights Law and the Humanitarian Charter of the Sphere standards (both state minimum rights/standards).

3.7 Under the concept of ‘the Right to Health’ (as opposed to the right to be healthy), all *women, men and children* must have access to affordable and adequate preventive and curative services, with the right to privacy, confidentiality and other concepts of medical ethics.

3.8 While the sustainability of health care delivery demands that the sector has a system for cost recovery, a minimum health care package will have to be guaranteed to all Iraqis, irrespectively of their capacity to pay for it. Special safety nets will be needed to assure access and health care for those least able to pay, especially during the current transition.

3.9 The health information system should tap into all reliable sources (including Human Rights groups) and provide data on vulnerable population groups: those known to exist and new ones as they emerge.

3.10 Groups exposed to environmental hazards must enjoy their right to protection and the appropriate investigation and treatment of their health. National public health experts should explore these issues further and provide reliable information on the magnitude of these problems and their underlying causes.

3.11 When security improves and life improves for the population many psychosocial issues will arise, including posttraumatic stress disorders and in some case reaction to torture, violence, imprisonment and other violations of human rights. These issues as well as the treatment of long term chronic psychiatric conditions, post-partum depression, mentally challenged persons needs to be reviewed and dealt with in an culturally appropriate manner.

### *INSTITUTIONAL CAPACITY GAPS AND REQUIREMENTS*

3.12 Little legislation exists on health and much of what does exist is vague. Existing legislation should be reviewed and projects to strengthen legislation in key areas – including the marketing of infant formula and promotion of tobacco use – should be established.

3.13 There needs to be an effective regulatory structure developed for accrediting private sector providers and an effective regulatory structure put in place for private health insurance. New provider payment mechanisms must be designed for both public and private sector providers as well as treatment guidelines and other quality assurance measures. Information systems need to be put in place to monitor progress and evaluate the reforms.

### *OTHER INTER-SECTORAL ISSUES*

3.14 **Nutrition** is an important cross-cutting issue, influenced by a variety of factors befalling under different sectors: from food security (ration, employment, purchasing power), to food intake

(quantity and quality), safe food preparation (regulations, power, fuel, etc), health status (health care, water, sanitation, etc ), agriculture, trade, economy at large.

3.15 Likewise, for any meaningful policy and programme for **Mental Health**, public health professionals will need to work in synergy with partners from other sectors on wide a range of psychosocial factors, from Education and Human Rights, to Labour laws and Law enforcement.

## **Annex 1**

### **Iraq Ministry of Health Infrastructure Capital Investment Program**

#### **Executive Summary:**

The Capital investment program is designed to provide and direct the capital investments necessary to accomplish three objectives:

- 1) Make the repairs and facility modifications necessary to reestablish the facilities' infrastructure capability to safely and effectively support the healthcare missions.
- 2) To expand and align the facilities inventory with the healthcare system's requirements.
- 3) To establish a systematic facility replacement program based on a 50- year life cycle for facilities.

To meet the three objectives, three programs have been established.

#### **Four- year rehabilitation program: *FY04-FY07*.**

This program focuses resources on repairing or installing critical systems in healthcare facilities to correct serious problems regarding electrical power, sanitary conditions and mechanical systems. As part of this program, the Ministry of Health will also provide a sustainable solution to the medical oxygen shortage, and purchase and install medical equipment that was stolen during the post war looting, and replace equipment that is no longer economically repairable.

The rehabilitation efforts are prioritized to correct the oxygen manufacturing and distribution problem and the replacement of medical equipment in FY04 and FY05, while also making corrections to facilities that obviously have a continued mission as the health care system redesigns itself. Facilities that need repairs, but are located in areas that may be over-served or facilities that may be better replaced than repaired, will be programmed for completion in the FY06 or FY07 timeframe so proper study will be able to be considered prior to construction to minimize poor investment decisions.

The rehabilitation or modifications to the healthcare facilities during these three years will be based on key systems that impact sanitation, electricity generation and distribution, and mechanical systems. The work will solve the problems identified below, but the three categories of work must be designed and constructed simultaneously in each facility to solve all the problems at one facility at one time.

**Sanitary systems:** Correct unsanitary conditions and establish physical infection control measures by repairing sewage systems, install septic systems, enlarging bathrooms, installing toilets, installing sinks, installing clean/ dirty areas, installing or repairing incinerators, installing trash rooms, and installing exhaust systems in specific areas.

**Electrical systems:** Correct deficiencies in the primary, secondary and back-up power sources and in the power distribution systems by installing or repairing generators and associated components, repairing, upgrading or improving internal distribution systems within healthcare facilities to ensure safe and reliable electrical power distribution throughout healthcare facilities.

**Mechanical systems:** Correct deficient or non-functional mechanical systems by installing, repairing, upgrading or improving the mechanical systems within healthcare facilities.

**Other systems:** Other critical repairs that are needed to allow the facility to function will be made in conjunction with these repairs. However, the vast majority of the work will be to the systems described above.

#### **Ten- year expansion realignment program: *FY04-FY13*.**

This program is designed to increase the capacity and/or to redistribute the healthcare facilities infrastructure to align with the population and healthcare requirements in Iraq. It remains unclear at this time how many facilities and how many beds the Iraqi healthcare system will need to construct, but there is no question that some areas are underserved. This program will expand existing facilities and build new facilities in accordance to the changing demands of the healthcare system.

**50- year Facility replacement program: FY 04-Indefinite.**

This program acknowledges that a steady stream of construction to replace obsolete and economically non- repairable facilities is the most efficient and effective manner to maintain a functional facility infrastructure. This program is based on a 50 facility year life cycle, whereas 2% of the facilities are replaced each year. Although each facility is unique and costs will vary, because the estimates are based on an aggregate of a large country, this program allows a consistent amount of investment each year.

Problem	Initiative	11 year Total Requirement	FY 03 Requirement	FY 04 Requirement	FY05 Requirement	FY06 Requirement	FY07 Requirement
Facility Rehabilitation: Correct urgent building deficiencies and repair or replace critical medical equipment	4 year rebuild fy04-07program	\$941,925,607	\$55,120,000	\$354,420,202	\$214,029,677	\$230,453,101	\$61,635,930
Healthcare facility alignment and expansion program	Annual projects	\$1,884,795,000	\$0	\$188,610,000	\$188,610,000	\$188,610,000	\$188,610,000
Healthcare facility replacement program	Annual program	\$99,884,400	\$0	\$9,988,440	\$9,988,440	\$9,988,440	\$9,988,440
Facility Maintenance and Operations	Facility Maintenance	\$1,378,868,717	\$0	\$91,124,550	\$92,947,041	\$124,805,982	\$126,702,101
	Total Facilities Requirement:	\$4,305,473,724	\$55,120,000	\$644,143,192	\$505,575,158	\$553,857,522	\$386,936,472
	Total Capital Expense	\$2,926,605,007	\$55,120,000	\$553,018,642	\$412,628,117	\$429,051,541	\$260,234,370
	Total Maintenance Operations	\$1,378,868,717	\$0	\$91,124,550	\$92,947,041	\$124,805,982	\$126,702,101
	<b>Total Request at International Donors Conference</b>	<b>\$1,614,978,910</b>	<b>\$55,120,000</b>	<b>\$543,030,202</b>	<b>\$402,639,677</b>	<b>\$419,063,101</b>	<b>\$250,245,930</b>

**The estimate methodology and assumptions:****Four- year rehabilitation program: FY04-FY07.**

To determine requirements and their costs, each system was analyzed based on likely repairs or replacements required to resolve the specific problems. This generic scope of work was estimated as a percentage of total construction costs in new construction. Then, estimates were made against the inventory as an aggregate to determine an estimated percentage of facilities that may need each type of work and to what magnitude each system may need repairing. These estimates were made based on a survey of assessments performed by many different organizations such as World Health Organization, CARE and Civil Affairs Units, extrapolated across the entire inventory. These results were then verified by discussing the findings with Ministry of Health Engineers. The aggregate costs assumed a gross percentage of construction costs per system multiplied by a factor to account for magnitude of construction required.

Sanitary: Examples of the work required include repairing sewage systems, installing septic systems, enlarging bathrooms, installing toilets, installing sinks, installing clean and dirty areas, repairing or installing incinerators, creating trash rooms, and installing exhaust systems in specific areas.

Process and Assumptions made:

To identify plant replacement value we calculated the average costs to build each of the main types of buildings: hospital, health center (clinic), specialty facility and research facility. Built new, the work identified to improve sanitation conditions represents about 20% of the total costs of new construction (multiply plant replacement value by .2).

Not accounting for transition costs, renovations typically cost about 50% of new construction (multiply figure by .5).

To estimate how many facilities will require work, we reviewed assessments and extrapolated the following assumptions against entire inventory: 25% of the facilities require total rehabilitation of these systems (multiply number of facilities of each category by .25 and multiply this total by 1.0 to indicate total rehabilitation of these systems); 25% of the facilities require significant rehabilitation of these systems (multiply number of facilities of each category by .25 and multiply this total by .5 to indicate a significant, but not total renovation of these systems); and 40% of the facilities require minor rehabilitation of these systems (multiply number of facilities of each category by .4 and multiply this total by .2).

Electrical: Examples of the work required include repairing, upgrading or improving internal distribution systems within healthcare facilities.

To identify plant replacement value we calculated the average costs to build each of the main types of buildings: hospital, health center (clinic), specialty facility and research facility. Built new, the work we identified to improve electrical distribution represents about 35% of the total costs of new construction (multiply plant replacement value by .35).

Assuming our estimate will be able to also account for transition costs, renovations typically cost 50% of new construction (multiply figure by .5).

To estimate how many facilities will require work, we reviewed assessments and extrapolated against the following assumptions across the entire inventory: 25% of the facilities require total rehabilitation of these systems (multiply number of facilities of each category by .25 and multiply this total by 1.0 to indicate total rehabilitation of these systems); 25% of the facilities require significant rehabilitation of these systems (multiply number of facilities of each category by .25 and multiply this total by .5 to indicate a significant, but not total renovation of these systems).

Mechanical: Examples of the work required include repairing, upgrading or improving the mechanical systems within healthcare facilities.

To identify plant replacement value we calculated the average costs to build each of the main types of buildings: hospital, health center (clinic), specialty facility and research facility. Built new, the work identified to improve the heating, ventilation and air conditioning situations represent about 20% of the total costs of new construction (multiply plant replacement value by .2).

Not accounting for transition costs, renovations typically cost 50% of new construction (multiply figure by .5).

To estimate how many facilities will require work, we reviewed assessments and extrapolated the following assumptions against entire inventory: 30% of the facilities require total rehabilitation of these systems (multiply number of facilities of each category by .3 and multiply this total by 1.0 to indicate total rehabilitation of these systems); 30% of the facilities require significant rehabilitation of these systems (multiply number of facilities of each category by .3 and multiply this total by .5 to indicate a significant, but not total renovation of these systems).

Although these three problem areas are separated for defining requirements, the work in each building should be performed simultaneously to maximize coordination between the design and the construction and to minimize the traumatic experience that construction brings to healthcare environments. The money is proportionally programmed for each year to ensure that the problems can be solved simultaneously within the individual buildings. Specific buildings will be prioritized on the needs of the healthcare system as well as the needs of the buildings. We believe that in most cases, transition costs and repairs outside of these three systems can be absorbed within these estimates. These costs vary greatly and are therefore very difficult to predict at the aggregate level but can be forecasted quite accurately when planning the work at individual facilities.

#### **Ten- year expansion realignment program: *FY04-FY13.***

To estimate the number of new facilities requiring construction to align facilities with the demand and to increase the healthcare system's capacity in underserved areas, without closing down a facility elsewhere, the following assumptions and calculations were used:

We assumed that the changes in the healthcare system will require fewer beds per 1000 population than the previous system required.

We assumed that calculating a 1.5 bed per 1000 in public hospitals will be enough once a very rigorous primary care system is established.

We assumed that the new facilities can be located in the areas that are currently underserved and therefore, the majority of the projects in this program will realign the inventory to coincide with demand while increasing the inventory to the appropriate capacity.

We calculated the bed requirement by dividing the population by 1000 and then multiplying by 1.5. We then subtracted the current bed inventory from this figure.

We accounted for 2.2% population growth per year and calculated the number of beds required to be constructed each year to right size and align by 2013. For new construction we multiplied each bed by 170 square meters to account for the gross amount of space required for modern healthcare. We then estimated the construction cost of \$1,000 per square meter as in the replacement program. For beds that would be added on to an existing healthcare facility we estimated a construction cost of \$500 for each bed because of a lesser need to construct expensive ancillary care space. Then at the advice of the Iraqi MOH Director of Facilities, we estimated a percentage of the beds (only 10%) that would be addition to an existing facility and calculated construction costs for the new construction and the additions and ran these numbers across the ten-year program duration.

**50- year Facility replacement program: *FY 04-Indefinite.***

To estimate the long-term capital investment program we estimated a 50- year life cycle for facilities to be an appropriate planning figure. This would require that 2% of the inventory of facilities be replaced every year. We calculated the plant replacement value for the inventory by calculating the average costs to build each of the main types of buildings then multiplied by the number of each type of building and multiplied by .2.

This program requires a series of periodic investments, such as major utilities upgrades and renovations at about 15 and 30 years. These investments are programmed into the Facilities Maintenance programs, not included in the capital investment program.

**Annex 2. Financial estimates calculations**

Recent GDP per capita (approx)*	\$1,000
Popul. 2004	27,100,000
total GDP	\$27,100,000,000
Health expenditure as a % of GDP	7%
public expenditure as % of total	80%

Health expenditure in Iraq in 2004 in \$		
	total	per capita
<b>public</b>	<b>1,517,600,000</b>	<b>56.0</b>
private	379,400,000	14.0
total	1,897,000,000	70.0

Budget 2004 & shortfall		
	total	per capita
Budget	1,000,000,000	36.9
<b>shortfall \$</b>	<b>517,600,000</b>	

Reconstruction	
2004	515,000,000
2005	435,000,000
2006	400,000,000
2007	250,000,000
total	1,600,000,000

year	population	total expenditure	total per capita	public share	total public	public per capita
2004	27,100,000	1,897,000,000	70.0	80	1,517,600,000	56.0
2005	27,696,200	1,938,734,000	70.0	75	1,454,050,500	52.5
2006	28,305,516	1,981,386,148	70.0	70	1,386,970,304	49.0
2007	28,928,238	2,024,976,643	70.0	60	1,214,985,986	42.0
<b>total</b>		<b>7,842,096,791</b>			<b>5,573,606,790</b>	

\* This table indicates the analysis used to calculate "desirable" public financing levels on the basis of the experience of other countries. Therefore, in its calculations, the assessment team has worked from the premise of a "desirable" GDP figure of US\$1,000 for 2004 (somewhat greater than the current forecast). An efficient spend of about 7% of this figure will be necessary if the health sector is to be set on the road to recovery. Hence the desirable 2004 health spend – covering recurrent and capital costs – comes to about \$70 per person per year.

## Annex 3 GDP and health expenditure in the region

COUNTRIES	GDP per capita (current \$US)	Total health expenditures (% GDP)	Public health expenditures (%of total health expenditures)	Health expenditures per capita (current \$US)
	Year	2002	ca 2002	ca 2002
Algeria	1777	3.8	74	62
Bahrain	12189 **	5.2	71	430
Djibouti	909	7.0	60	56
Egypt, Arab Rep.	1354	3.8	47	38
Iran, Islamic Rep.	1641	5.8	41	96
Iraq	1,000 *	..	..	..
Jordan	1798	9.4	59	134
Kuwait	16040 **	4.3	84	630
Lebanon	3894	12.4	18	499
Morocco	1257	4.4	34	56
Oman	7905	3.5	83	222
Qatar	28132 ***	4.5	76	1138
Saudi Arabia	8711	5.7	81	352
Syrian Arab Republic	1286	4.2	50	42
Tunisia	2163	5.5	51	118
United Arab Emirates	17063 ****	4.4	80	752
West Bank and Gaza	939	8.6	57	122
Yemen, Rep.	559	4.9	73	20
<b>REGIONAL AVERAGES</b>		5.7	61	113*****

Sources:

All figures unless otherwise indicated are from WDI Data, with most recent year available

\* estimate based on the Economist Intelligence Unit

\*\* Year 2001

\*\*\* Year 2000

\*\*\*\* Year 1998