Report on

ASSESSMENT OF PUBLIC HEALTH CORE CAPACITIES OF THE INTERNATIONAL HEALTH REGULATION (2005)

Bahrain
24-27 March 2014

Epidemiology Surveillance and International Health Regulations
Department of Communicable Diseases and Control

World Health Organization
Regional Office for the Eastern Mediterranean

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I. Background

The country has a total population of around 1.262 million. 89% of the population lives in urban areas. The growing rate in Bahrain was reported 7.2% during 2010-2011 and the total fertility rate is 2.5. The infant mortality rate was reported at 9 per 1,000 live births in 2011 and the under-five mortality rate was reported as 10 per 1,000 live births in the same year.[1]

The structure of the Bahraini Government is a constitutional monarchy with an elected legislative assembly; all political authority is vested in the Government in Manama. The country is administratively divided into five governorates.

The country is going through a demographic and epidemiological transition, from mainly communicable diseases control to facing the growing burden of non-communicable diseases and injuries, and the consequences of an ageing population. Communicable diseases are largely under control in Bahrain. The country has a very efficient immunization program. The immunization coverage for measles, DTP3, HepB3 and Hib3 was reported 99% in 2011.[2] Infectious diseases of childhood have been almost been eradicated in Bahrain; however, viral infections are slightly on the rise. These include: gonococcal infection, syphilis; and viral hepatitis. Available data indicate a low prevalence of HIV.

Non-communicable diseases such as cardiovascular diseases, diabetes, chronic respiratory diseases, cancer and injuries, are rising dramatically in Bahrain, and represent the leading causes of death in the country. Tobacco smoking among both men and women is a cause for concern. Obesity is an emerging major health problem. According to NCD survey the prevalence of obesity was 36.3% and was higher in females than males- 40.3%and 32.3% respectively.[3]

A comprehensive health services are provided to the citizens in Bahrain free of charge. The Ministry of Health offers most services through primary health care which is the cornerstone of the health system. The accessibility and coverage are almost 100%. Bahrain's national health strategy for the period 2002–2010 is the action framework for long term development of the health system. The government provides the major source of health service funding in Bahrain, and non-Bahrainis are also heavily subsidized by the government. A health insurance scheme with extensive deliberations by all stakeholders was introduced in 2006.

About 100% of the population of Bahrain is using improved drinking water resources and improved sanitation.

The total health expenditure is 4.3 of the GDP and around 9.6 % of the general government expenditure. Private expenditure on health makes around 29% of the total expenditure on health[4].

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[1] WHO World Health Statistics 2013
[2] Ibid
[3] WHO Country Cooperation Strategy, May 2013
[4] WHO World Health Statistics 2013

II. Objectives

Bahrain is one of the Member States in the Eastern Mediterranean Region that were not able implement the IHR by the first deadline of June 2012 and requested a two year extension supported by an action plan. Bahrain obtained the extension and has been working extensively on implementing the plan of action. The second deadline of meeting the IHR obligations is coming soon and State Parties have an additional opportunity to request a second but final extension of two years to implement the IHR by June 2016.
The main objectives of the mission are:

- Review the IHR public health core capacity requirements for surveillance and response including those at points of entry;
- Identify the main challenges affecting the implementation of IHR 2005 in Bahrain;
- Share with nationals the objectives and process for seeking further two- year extension, if required; and
- Support nationals to develop a plan of implementing to meet the IHR obligations.

The mission was carried out by the following team:

- Dr Ezzeddine Mohsni, Department of Communicable Diseases and control, WHO Eastern Mediterranean Regional Office
- Ms Dalia Samhouri, Epidemiology Surveillance and International Health Regulations, WHO Eastern Mediterranean Regional Office
- Dr Hala Esmat, Public Health Laboratory, WHO Eastern Mediterranean Regional Office
- Mr Mazen Malkawi, Centre for Environmental Health Activities, WHO Eastern Mediterranean Regional Office
- Dr Khalil Khalil, WHO Consultant
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III. Methodology

The team had reviewed existing documents related to the different IHR capacities to prepare for the mission. During the mission a briefing meeting with the Director General of Primary Health Care, director of communicable disease department and the IHR NFP took place to brief the officials on the objectives of the mission and the methodology to be followed in the assessment.

A meeting took place with the IHR multi-sector committee, including representatives from Ministry of Health (surveillance, outbreak preparedness and response, health education and promotion, environmental health, occupational health, food safety, laboratory and media), national committee for disaster management, supreme council for environment, Ministry of municipalities, urban planning and Environmental affairs, Ministry of Foreign Affairs, Points of entry, customs, civil defence, ministry of transportation.

Field visits to all relevant departments including laboratories and designate international airport and seas port were conducted to carry out the assessment.

A debriefing meeting was conducted at the end of the mission with the Undersecretary of Public Health, Director General of Public Health, the Director General of Primary Health Care and the IHR NFP. The purpose of the meeting was to debrief the officials on the main observations of the assessment and recommendations in meeting the IHR obligations.

IV. Observations

a. National legislation, policy and finance

A legislation governing the public health surveillance and response is addressed under the public health law of 1975. The public health law also addresses the points of entry, food safety and partially addresses zoonosis and animal health and contamination of hazardous objects.

The public health law is currently under review with proposed modifications to facilitate the implementation of the IHR related areas of work. The use of public health event instead of infectious disease and the notification of all public health events not only infectious diseases are considered the proposed notifications. The current provisions related to food safety are not comprehensive and focus on imported food products. The revision of the public health law is addressing this area and the proposed modification focus on locally produced food products in addition to the imported products. Furthermore, the modifications include the role of the municipality in the food safety area and the collaboration between the MoH and the ministry of municipalities, urban planning and agriculture affairs in this regard. The proposed modifications on the provisions related to food safety in Bahrain are intended to support having a unified food safety law across the GCC countries. No modifications were proposed on the provisions related to points of entry. This is a good opportunity to review other provisions in the public health law related to implementing the IHR in the related areas.

The designation and functions of the IHR NFP is not clearly defined in the public health law; however a ministerial decree was issued for the designation and functions of the IHR NFP. The proposed modifications will be discussed during the meeting of cabinet and most probably will be endorsed in June.

The review of the other related laws has not started yet. Reviewing the WHO constitution, the IHR and the laws of radiation safety, chemical safety, animal health including zoonosis, environmental health, occupational health and other related laws is necessary to ensure the full implementation of the IHR obligations. There are cross border agreements with neighboring countries need to be reviewed as well to enhance strengthening cross border surveillance and response to public health vents. Approaching the second deadline of IHR implementation can be used as an advantage to rapidly start such a review.

b. Coordination and IHR National Focal Point Communication

The IHR NFP is the international health Regulations unit under the public health directorate of the MoH. Dr Mona Al Mosawi, the responsible person of the IHR unit. The roles and responsibilities of the IHR NFP are not clearly identified.

A IHR multisectoral committee has been established by a ministerial decree (22/2010). The committee is headed by the responsible person of the IHR unit and include representatives

from the general agency for seaports, national civil aviation, gulf airline clinic, directorate of animal resources, ministry of interior, ministry of information and radio and television agency, legal affairs office of the MoH, directorate of environmental supervision, directorate of customs, consultant on protection from radiological and nuclear material, general directorate for civil defence and ministry of foreign affairs. The Terms of Reference for this committee are comprehensively identified in the decree. This committee is supposed to play a major role in the coordination and communication between the IHR NFP and their respective ministries/departments and thus in the implementation of the IHR. However, it seems that the members of the IHR committee are not fully implementing their role on the ground. The committee meets every three months and on ad hoc basis to discuss urgent public health issues and to decide on next steps.

Another IHR technical committee has been established. This committee is also headed by the responsible person of the IHR unit and includes members from the different departments of the MoH. This committee also meets regularly and on ad hoc basis to discuss and follow up on IHR implementation, particularly for the areas under the MoH.

Operational communication has been established between the IHR NFP and all relevant sectors as they are represented in the IHR committee and information and advocacy material have been developed and disseminated among the members of both committees. However, there seems to be lack of awareness about the IHR and their implementation and the roles and responsibilities of each sector among professionals in the different sectors. The IHR NFP Information regarding obligations of the IHR NFP under IHR has not been sufficiently communicated with the different stakeholders at the different administrative levels.

The IHR NFP does not have the capacity to directly receive and share information about public health events internally, however, through the undersecretary of public health due to her senior position and her involvement in many national high level committees.

Public health events, when detected, are assessed within 24 hours by the relevant units. Results of assessment related to infectious, zoonotic and foodborne diseases are communicated to the IHR NFP. This is not the cases for public health events related to chemical, radiological and nuclear hazards. The IHR NFP doesn't have direct communication with the IHR WHO contact point; however communications has to go through the international health relations department of the MoH.

c. Surveillance

The health system in Bahrain has a mix of public and private providers. Much of the inpatient care is provided by the four government (MoH and military), which also manages the national ambulance and homecare services. The governmental managed hospitals have their own laboratory facilities. There is also a fully private hospital sector supported by private laboratories.

There are 24 Primary health care facilities managed by the MoH. Other private PHC centres exit in the country and managed by the private sector. The national health regulatory agency (NHRA) is a governmental body that supervises the quality and effectiveness of

service delivered by public and private institutions, to ensure that standards are met and performance targets achieved. It regulates policies in areas as health insurance, information technology, licensure and credentialing and continuing medical education.

The MoH oversees public health programs related to the control of infectious diseases, and coordinates with the other ministries on other relevant programs. Surveillance functions are managed by the surveillance unit in the department of communicable diseases under the directorate of Public Health of the MoH with defined Terms of reference.

There is a list of notifiable diseases for surveillance that includes 68 diseases. Surveillance guidance for the 68 diseases is available and includes case definitions and thresholds for alert and action for each disease. The guidance is accessible to all health facilities. The notifiable diseases include:
Immediate notifications: includes List A of 34 diseases for immediate notification within 24 hours of diagnosis. This is considered as an early warning system.
Weekly reportable diseases: in addition to the above disease (List A), List B of 34 diseases are reported on weekly basis.

A technical committee will be meeting soon to review and update the list of notifiable disease based on the related risk in the country. Some of the notifiable diseases/syndromes that are included in the surveillance for response will be shifted to surveillance for control programs.

By virtue of the public health law on communicable diseases, physicians at public and private health facilities (primary, secondary and tertiary facilities) are required to report cases of notifiable diseases. However, private facilities are not fully integrated in the national surveillance.

The system relies in its diagnostic capabilities on the National public Health Laboratory in addition to the governmental hospitals' laboratories.

Other disease specific surveillance systems exist in the vertical programs for vaccine preventable diseases, HIV/AIDS, TB and Malaria. Disease specific surveillance for influenza and meningitis are also available. Food poisoning is part of the existing national communicable disease surveillance.

Standardized reporting forms are used to capture data on the list of priority disease. These are: aggregate data reporting form for the weekly and monthly notifiable diseases and case based reporting form. The reporting from facility level to locality level is done via mobile and by post for the facilities located close to the locality health office on each Sunday or beginning of Monday of each week. The reporting from facility level to governorate level to central level is done via fax and email. Also a hot line is available for the immediate reporting on cases. Completeness and timeliness are more than 85%.

The data, including the data coming from the vertical programs is systematically analyzed at central level to monitor the trend of disease and allow for early response. The analysis is done by a designated person at the department of communicable diseases. The analysis is

done by geographic distribution, demographic factors of sex and age (below and above 5 years) and nationality.

Excel is the used tool for data management. GIS software is not used to map disease pattern but not fully functioning. Advanced software for managing the data is needed.

Regular feedback is maintained at the different administrative levels. Visits for supervision to monitor the implementation of surveillance functions are carried out from the central level regularly and a feedback is given to concerned official through reports and meetings. Also, a system for active surveillance is in place. Collected data is compared with data coming from passive surveillance.

Due to the recent cases of MERS CoV, case definition of MERS was advised and circulated to all health care workers, particularly to those working in the quarantine units at the port with Saudi Arabia. Other case definitions for diseases that are circulated in neighboring countries are usually developed and distributed among the points of entry in the country. Data about cases detected at these points of entry are fed into the surveillance system.

Event based surveillance is not formally established in the country; however, many functions are available by practice. These functions are available at the central level to capture public health events from various sources. These sources are: media, schools through the school health unit, communities, quarantine units at points of entry, prisons, the military, veterinary services and health inspection agencies. These events are not registered but followed up for the response, when needed. The Communities are very active and are a good source of information about public health events occur in their communities through the national radio stations or the MoH webpage. Furthermore, communities are very active in using Whatsapp. mobile phone application to communicate information/ rumors related to events including public health events. Surveillance officers are active in using this application as well so they are informed through their network about rumors.

Urgent public health events-when detected- are internally reported within 24 hours and include time and place of the event, source and type of risk, if known, and the number of cases and deaths and control measures, if any. Reported events are always investigated and verified by the rapid response team and results are given immediately to concerned parties to implement response measures. A maintained mechanism for sharing information on public health events in the country with the IHR NFP is in place

Cross border surveillance is not established in the country. However, there is strong collaboration and information dissemination with the neighboring countries. The MoH has access to data and outbreak information from neighboring countries through media sites. The NFP regularly access the WHO Event Information Site (EIS) and disseminate relevant information to health authorities and facilities.

d. Response

Rapid Response Teams (RRTs) are available at the national level and can provide on-site assistance as needed for investigation within 24 hours of initial notification. These teams include epidemiologists, laboratory experts, clinicians and veterinarians. Infection control

specialist and risk communication specialists are available on call but not as part of the RRTs. Initial reports are submitted to concerned parties within 24 hours. These teams are managed by the surveillance and response units at the communicable diseases department. The RRT has a link with the senior health officials to approve and implement containment measures. An established mechanism for coordination with relevant ministries, particularly related to zoonotic events and food safety events is in place. Guidelines for investigating outbreaks of some events are available. Also, links with hospitals, health centers, points of entry and laboratories are there for the dissemination of information and recommendation received from WHO.

Other RRTs are available under the national committee for disaster management and can be rapidly deployed for the investigation and response to public health events related to chemical, radiology and nuclear events. Members of the RRT receive training on outbreak investigation and control and specimen collection and transportation, infection prevention and control and social mobilization but not regularly. Investigation and response of chemical and radiation emergencies are not part of the delivered trainings; however, limited to the civil defence workers, who are directly involved in investigating and managing such emergencies. Enhancing coordination between the different available teams, possibility in carrying out joint investigation and response missions is needed.

A budget is allocated at the national level to respond to public health emergencies and doesn't take time to be dispersed. PPE, disinfectants, drugs and supplies and sample collection and transport material are available for the initial response. These are stored at the Department of the Material Supply and Management (DMM). Strong coordination and communication with the DMM is in place. This allows the rapid release of the required martial.

Guidance on the management of cases with priority infectious diseases and poisoning is available and accessible to all relevant personnel. Training needs are submitted to the director of the communicable disease department on annual basis; however the plan is not fully implemented. Guidance on the management of cases contaminated with chemical events, radiological and nuclear events are not available. Developing SOPs and training health personnel on case management of such events including decontamination, clinical management and managing antidotes need more investment.

There is an organized patient referral and transportation system that is functioning very well.

The occupation health department with its occupational health offices at health facilities ensures the protection, monitoring and treatment of health care workers in health facilities.

There is strong collaboration with the neighboring GCC countries in the response to the different public health events. This includes having a Regional plan to respond to common threats.

A national policy for infection control is available. A functioning national infection control program with defined ToR, staff, budget and defined activities is in place. This program is

managed by the MoH, yet provides services to all health facilities, including those not managed by the MoH.

All hospitals are required to have designated staff or units with qualified professionals for infection control with responsibilities of surveillance of health care related infections. Surveillance for cluster of unexplained illness in health care workers is available. SOPs for infection control are available. These include hand hygiene, safe injection practices and sharps management, post-exposure procedures, personal protection equipment use, instrument and equipment reprocessing, medical waste management and disposal, contaminated wastes, laundry management, management of patients with undiagnosed respiratory illnesses and isolation ward standards. These SOPs are accessible to all health facilities including the non MoH facilities. Also, guidelines for protecting health care workers are available as well.

Surveillance for anti-microbial resistance doesn't exist. Health care workers are regularly trained on infection control measures. There is a system in place to monitor the compliance of infection control measures. Supervisory visits are conducted to private health facilities, as well. Isolation unit are available at all hospitals to deal with cases in need for isolations.

The infection prevention and control is a subject that is addressed by the GCC countries, efforts are being put in place to enhance the programs across these countries. The WHO Collaborating Centre for infection prevention and control located in Saudi Arabia is playing a big role in this regard.

Decontamination capacities including equipment, material, and products are available for infectious hazards in health care settings. However, mobile decontamination units are available for chemical hazards and radiological and nuclear hazards and managed by the civil defence.

e. Preparedness

Under the legal framework of the country, the National Committee for Disaster Management (NCD) is the body nominated by the King of Bahrain with the responsibility of preparedness and response to emergencies. The NCD is headed by the Ministry of Interior and have representatives from the different ministries as members. A national emergency management policy has been developed in 2006 and updated in 2013. The policy identifies the structure and roles and responsibilities for each sector in responding to emergencies. A command and control group has been established under the NCD with the undersecretary of each ministry representation. This group meets four times a year to discuss strategic issues and on ad hoc basis, when there is a need for such meetings.

Technical committees are established under the command and control group to provide the technical support to respond to emergencies. Based on the nature of the emergency, the concerned committee takes the lead in the response in coordination with the other technical committees. The technical committees meet regularly and also on ad hoc basis.

A national risk assessment is conducted by the NCD on annual basis and the risks are then prioritized according to their impact and probability and listed. Disease outbreaks, chemical

hazards, radiological and nuclear hazards and mass gatherings and the most likely sources of these hazards have been mapped out and prioritized this year. A vulnerability analysis is conducted and gaps are identified. Solutions are also identified to overcome these gaps. This process includes the use of both manpower and materials. Training and exercising is an integral part of this process.

The first national plan for emergency preparedness and response was developed in the early 1980's and was used for considerable time at the Salmanyia Medical Complex , which is the primary responder for all disasters and emergencies for the Bahrain. This plan is being reviewed and updated constantly. Currently, the national plan for emergency preparedness and response is being updated based on the identified hazards. Three groups are identified in the plan with defined roles and responsibilities to facilitate the activation and the implementation of the plan.

. The plan is activated based on certain triggers that have been also identified and agreed upon by the different sectors. The trigger or incident causes a call to be made to the Ministry of Interior Central command through the line "999". The line filters the call according to the service required e.g. Fire, Police, Health. If mass casualty incident then the ambulance dispatch personal is notified. This person assesses the risk and collects gathers basic information on the incident and calls group 1 of the disaster plan. The chairman of group 1 has the authority to activate/ deactivate the plan. On the decision of activation the plan, the other two groups are activated accordingly and the disaster command center located in Salmanyia hospital is activated as well. The communication between the three groups and the command center is addressed in the plan. The hospital surge capacity is assessed and other MoH and private health facilities are evacuated, if required. Also, cases are registered and consumption of material is tracked.

A system to reduce the alert level gradually to get back to normal is also in place and addressed in the plan. Business continuity is also addressed in the plan.

In the past there have been some significant disaster situations and the MoH was actively involved in the response activity. The response of the MoH was evaluated and the plan was improved accordingly.

A public health emergency preparedness and response plan also exist. This plan has been developed to address the pandemic H1N1. A committee from the MoH has been established to update this plan. This is a great opportunity to update the public health plan based on all hazards approach.

Assessment of national needs of medical and public health supplies to be used during public health emergencies is being carried out regularly. The national allocation for response and logistics are adequate. However, the public health sector preparedness to chemical and radiological and nuclear hazard s need further investment.

A system for the management and distribution of national stockpiles is available. The time of the mission did not allow assessing this system.

f. Risk communication

The risk communication is a joint responsibility between the health promotion department at the MoH and the public relations department with clear distinction between the roles and responsibilities. The public relation department is responsible of putting the policies and guidelines and report directly to the minister. The health promotion department is responsible of three main tasks: production of material, research and program related work and report directly to the undersecretary of public health.

An inventory of all communication partners and stakeholders has been developed and the health promotion department has an established mechanism for communicating with these partners. a health promotion council exists including members from the different governmental sectors and headed by the MoH. The council meets regularly and on ad hoc basis to discuss health promotion activities related different public health events. Although there is no SOPs defining the roles and responsibilities of the different stakeholders, the role is of each one is clearly defined during emergencies.

The health promotion department communicates directly with media on daily basis, follow social media queries and concerns and respond to communities, when needed. There is a webpage on the MoH website called “ask a doctor”. This page is accessible to media and public for sharing their concerns and for receiving information about certain topics.

The health promotion department has a plan of risk communication but focused on non-communicable disease. This plan has been developed in collaboration with the members of the national committee for the non-communicable disease.

Communicating the risk related to new events is a shared responsibility between the health promotion department and public relation department. The release of information related to new events has to be decided by the minister and the type of the information as well. A designated spokesperson is identified for communication during emergencies. The information related to emergencies is disseminated through the different means of media interviews, press briefings, press releases and press conferences depending on the type of the events. Despite the obvious lack of a formal institutionalized mechanism for expediting the release of information during emergencies, yet it seems that people, in their individual capacities do act and expedite the release of such information.

Established procedures for managing rumors during public health emergencies are not available; however it seems that relevant professionals are experienced in managing rumors by practice. Involving the community, particularly religious leaders in the health promotion and risk communication is an established strategy for the health promotion department.

A mechanism to ensure that the views and perception of individuals and communities affected by public health emergencies are considered is in place; however, not followed systematically. Community messages and information, education and communication material are developed addressing the different public health events. As part of the risk

communication plan for the non-communicable diseases, message have been developed and started to be broadcasted on TV screens installed in the primary health care facilities.

Findings of the mission are in line with the self-assessment submitted for risk communications capacity by the IHR NFP in Bahrain in 2013. The capacity to communicate health risks appeared strongest in the health sector for disease outbreaks and in natural disasters. There also appeared to be risk communications capacity in the animal health sector and food safety, but links for communicating risks jointly with human health could be further strengthened. The ability to communicate risks in chemical and radiology and nuclear areas requires much more attention. All these sectors expressed a keen interest in working together in the area of risk communications. Special considerations should be given to developing risk communications capacity related to the identified risks in the country, such as mass gatherings.

Integrating and centralizing the health communications and health promotion functions into two departments with clear distinction in the roles of responsibilities, provide a strong platform for risk communications. These teams have the required skills, capacities and resources to lead the process of operationalizing their support to all areas of public health in a predictable manner and developing an integrated risk communication plan with the involvement of all sectors.

Areas that could benefit from additional strengthening include: joint risk communications training for major stakeholders in order to be able reduce the time-lapse in moving into an emergency response mode as integrated teams for risk communications; developing strategies to involve civil society, private sector and international organizations to work together more effectively for risk communications.

g. Human resources

There are many health institutes offering diploma or degrees in the health field. These institutes are managed by the MoH, universities and the private sector. The curriculum and the teaching/training methodology are updated and unified. Bahrain has achieved success in human resources development; the College of Health Sciences has graduated nurses and allied health professionals and has helped in training of personnel from other countries.

Bahrain has 14.9 physicians per 10,000 population and 38.6 nurses and midwiferies per 10,000 population. The public sector and the governmental bodies are the main employers for the health workforce in Bahrain. The second update of the health improvement strategy has been developed for the period 2011-2014 and maximizing the human resource potential throughout the MoH is addressed in this strategy. This strategy is currently under update to address the period 2015-2018. In the updated strategy the priority areas of work for the MoH has been identified. An assessment of the required human resources and qualifications to fully implement the priority health areas has been conducted.

During the assessment, professionals in the different sectors complained about the shortage of human resources and the insufficient continuous professional education and on the- job training they receive. This has been raised to the attention of the senior management. The

senior management in Bahrain are aware of this issue and working on addressing it in a strategic way.

The public sector health workforce in Bahrain falls under the remit of civil service and abides by its rules and regulations. Based on that, hiring and recruiting of health personnel is a function that is administered by the civil service.. The selection of employees for the health and other sectors is done based on fulfilling the criteria; a process that is usually takes a long time. In the past continuous professional education and on the- job training opportunities were provided based on an annual assessment of needs. A plan is annually developed and submitted for approval. Currently, recruiting new personnel and approving continuous professional education and training activities is done in line of the assessment of the required human resources and qualifications to implement the priority health areas of work.

Priority areas of work have also been identified for the other sectors as part of the overall Bahrain agenda. The same exercise is being followed in terms of recruiting human resources or providing continuous professional education and training to meet the needs for implementing priority areas of work for all sectors.

There seems to be sufficient awareness of the importance of institution building and of the need for a multidisciplinary approach in assessing and managing public health emergencies. This needs to be further enhanced and implemented. This exercise is a great opportunity to identify the human resources and qualifications required to meet and maintain the IHR obligations across all the sectors.

A field epidemiology training program doesn't exist in the country; however, Bahrain has access to such programs in the other GCC countries.

h. Laboratory

The following laboratories were visited and assessed:

- Health laboratories: National public health laboratory in Manama; Al-Salmanya hospital; Bahrain defense force hospital (BDFH); King Hamad university hospital (KHUH); and the American missionary hospital
- Veterinary laboratories: Animal health laboratory; and Quarantine laboratory
- Food laboratories: Food microbiology laboratory; and chemical laboratories
- Environmental laboratory

Health laboratories:

Roles and responsibilities of laboratories in different levels are very well known and there is no duplication. Laboratories all over Bahrain "governmental and private" are not connected with any supervisory or monitoring system to evaluate their performance and results' quality. Yet most of them are joining external quality assurance programs and receive proficiency panels regularly which can be a replacement till establishing such system. Collaboration between laboratories of different sectors "health and veterinary" need to be framed. For the time being it is more personalized and in specific events.

There is a good national specimen's transportation system both internally and externally and certified shippers are available. Medical engineering is available and preventive

maintenance is practiced. Electronic system for inventory and ordering is available. The system is working perfectly for ordering. Yet it needs some modifications in the inventory part to avoid shortage of reagents and supplies.

There is a laboratory IHR focal point sharing in all IHR meetings and activities. Shortage of laboratory staff is a challenge in all laboratories. Turnover is not high and rapid recruiting new staff is not there because of the long procedure of hiring and financial constraints. Continuous training plan is prepared annually. Implementation depends on availability of fund and training opportunities.
A list of external reference laboratories and focal points is available. Biorisk program, officer in charge, team and manual are available. Establishment of laboratory quality management system is ongoing as a step towards accreditation. There is a designated quality officer. Assessment was conducted, gaps were identified and a corrective plan of action was created. More implementation tools were requested and will be shared by EMRO.

Data is managed electronically. A broader system "called I-SEHA" is currently being installed and partially used to include the whole medical systems. There is a good referral system and emergency plan that is included in the contingency plans and GCC system to face any unexpected event.

Communicable disease laboratory in national public health laboratory (NPHL): The laboratory has all needed sections to provide public health, surveillance and diagnostic services. The laboratory has 5 units: NIC: for influenza and other respiratory viruses surveillance; TB: for all TB different diagnostic techniques. It is considered the only MoH TB laboratory and serve as reference laboratory to military and private labs in Bahrain; Bacteriology: For Food poisoning investigations and food handlers checkup; Serology: for surveillance and diagnostic purposes. Blood Bank screening is one of its activities; Molecular biology: for respiratory, TB, HIV, HBV, HCV, fever and rash and food poisoning diagnosis. Yet as an open system it could be used for other areas such as food analysis. All needed techniques and equipment are available and most of the techniques are automated. All laboratories are sharing in external quality management systems, have reference laboratories and receiving PPTs for different programs and units except TB lab.

Governmental hospital laboratories "Al-Salmanya hospital, Bahrain defense force hospital (BDFH) and King Hamad university hospital (KHUH): The 3 hospitals are governmental tertiary hospitals. They have all the needed units to provide their diagnostic services. Specimens are collected from in patient, out-patient clinics and planned to receive from health centers. All equipment and techniques are updated. Laboratories are either semi or fully automated which help in keeping the work flow smoothly despite the huge number of received samples and shortage of staff. Medical engineering and preventive maintenance programs are available. Quality, bio-risk and infection control programs are in place in the 3 hospitals and all are joining QAP and receiving proficiency panels regularly. The laboratories in the 3 hospitals are on the way to be accredited. The 3 hospitals are actively communicating and coordinating together and considered as back up to each other in case of any interruption due to equipment problems or maintenance. Data is managed electronically and reported to physicians. Notifiable diseases are reported to MOH is through infection control units in the 3 hospitals.

Private hospital laboratory "American missionary hospital": It is a missionary and private hospital with 40 beds. Working hours are 7am-11 pm. Future plan is to work 24 hours /day. Source of samples is the inpatient, outpatient and satellite clinics. It has all units needed for diagnostic services "clinical chemistry, immunology, serology, hematology, parasitology, microbiology and histopathology. The laboratory has a "send-out" unit that send the specimens to reference laboratories inside and outside Bahrain for confirmation, further sophisticated techniques and for vertical programs testing e.g. measles. Hospital is accredited and the laboratory is monitored by continuous quality improvement unit and will be accredited when it is 24 h/day functioning. Equipment and techniques are updated. Data is managed electronically and shared with physicians and through infection control unit with MOH.

Animal health laboratory: Specimens are collected from sick animals in its clinic, private clinics and farms in the field. The laboratory is providing diagnostic services, evaluation of vaccination programs for animals and monitoring of immunity status of poultry in poultry farms**.** The laboratory is very old and spaces are limited which leads to equipment improperly located. It has microbiology, parasitology, serology and hematology units. Molecular biology unit is transferred to the quarantine laboratory**.** Shortage of man power "number and qualifications" is due to financial constraints. No budget is allocated for the laboratory which affects activities and plans e.g. continuous updating of techniques and equipment and training plans. There are no quality or biorisk management programs. A list of reference laboratories is provided by OIE for external networking and quality assurance.

Quarantine laboratory: The laboratory is under establishment. Specimens are collected from imported animals in all quarantines. Future plan is to collect specimens from imported food in all points of entry in collaboration with food laboratory in NPHL. It has microbiology, parasitology, serology, biochemistry and molecular biology units. Molecular biology unit is located in one room only which may lead to contamination and inaccurate results, Modifications in rooms' spaces and distribution are already planned. Hiring of new staff and acquisition of some equipment are ongoing. Currently testing depends on rapid techniques. It is planned to finalize all the needs and fully function by the end of this year.

Food and water laboratories in national public health laboratory (NPHL): The laboratory has 2 units the microbiology and the chemistry labs. Specimens are collected by and results are reported to food control department in MOH**.** Water specimens are collected from factories, bottled water or treated water**.** Food specimens are collected from ports and airports for imported food, factories for manufactured food and other sources e.g. schools, stores and restaurants either for surveillance or crisis e.g. food poisoning **.** Results are based on GCC and international standards**.** Techniques and equipment are old and updating is highly needed. Long list of new equipment was requested but not received yet. More delay may lead to interruption of some tests**.** Networking and external quality programs are available. Laboratory is receiving proficiency panels on a regular base. Safety and quality focal points are designated**.** Data is managed electronically and shared daily, monthly and quarterly with food control department

Environmental laboratory: Laboratory in under supreme committee of environment**.** It provides monitoring service for the quality and evaluation of water pollution. Specimens are collected from factories, wells and sea water based on annual schedule**.** It provides physical and chemical examination. For Microbiology testing the designated unit is not functioning "a space is available but needed equipment and staff is not available" and specimens are sent to water laboratory in NPHL. Budget is challenging the update of the equipment and techniques**.** Training programs for the staff is available but not on regular base. There is no quality management system but some quality activities are practiced. Laboratory is receiving proficiency panels twice a year.

i. Points of Entry

The sea port is among the list of ports authorized to issue ship sanitation certificates. This has been shared with WHO.

Bahrain international Airport is located in Muharraq city and it's the main hub for Gulf Airlines operated by Bahrain Airport Company and regulated by Bahrain Civil Aviation Authority .Gulf Airlines is the main Airline Company that runs the airport under the supervision of Bahrain Airport Company.
Bahrain has two sea ports, the Port of Mina Sulman and Port of Sitra the main sea Port for Bahrain is Port of Mina Sulman which is located in Manama city and its authorized for SSECC, all ports operated by private companies and regulated by Bahrain Maritime Authority.

Bahrain has designated 1 airport and 1 sea port for IHR Implementation. According to the 2012 IHR monitoring questionnaire, most of the requirements for surveillance and response capacities at the designated points of entry are available.

The MoH is the competent authority and is managing a clinic and providing other medical and public health services at the airport. The medical services which include primary care and emergency medical issues is provided by the Port operator while the public health services controlled by MoH in cooperation with the Port operator .The Ministry of the Agriculture is in charge of the control of the imported animals and imported agricultural products for ports and airports . The cleaning of the airport and Ports and the vector control are managed by the subcontractors. Waste management service is managed by the airport and port authorities.

Core capacity requirements for coordination, communication of event information
The airport and the port have international communication links with competent authorities at other airports and ports. Means of communication and procedures are available to inform about public health measures. This is being done as normal working procedure but not pursuant to the IHR.

The health part of the General Declaration of Aircraft is being used but not the latest updated form annexed in the IHR. The air traffic controllers are aware of the PANS-ATM (Doc 4444). Protocol and procedure concerning communication between pilot-in-command of air craft carrying suspected case on board, airport and competent authority at airport are established and functioning.

There is communication link between competent authorities at the airport, port and health authorities at national levels but not with the IHR NFP. Arrangements are in place with relevant government ministries, agencies, government authorities and other partners involved with the airport and port for routine and urgent communication and collaboration during emergencies including for rapid decision approval, risk assessment and implementation of containment and controls measures. Communications and procedures are available between the competent authority and the conveyance operators and with the service providers for advance notice of application of control measures.

Arrangements for communication and assessment within 24 hours all reports of urgent events related to airports and ports and including direct operational links among hospitals, laboratories and other key operational areas exist but not documented. Arrangements are in place to relay reports to the competent authority to ensure appropriate assessment, care and other public health measures but not documented. Arrangements with relevant authorities are not clear through the use of passenger locator card to trace contact, when required.

Core capacity requirements at all times

A clinic is available in the public area of the airport and the port that provides services for ill travelers and accompaniers. Arrangements are in place to grant access to other medical and diagnostic facilities not available in the clinic. Sufficient personnel are available to run the daily load of work at the clinic. Personnel rely on educational material/ instructions disseminated by the MoH. Adequate personnel and ambulances are available are in place for transporting ill travelers to nearby medical facilities.

The use of correct methods and understanding of techniques, such as: disinfection, decontamination, isolation, quarantine, contact tracing, entry and exit control are in place. The use of correct control methods of relevant vector borne diseases and for, hosts and vectors, including disinsecting and deratting are in place. The correct practices of safe food management, especially with regard to handling; supply, source, preparation, storage and distribution are in place. A plan for safe water management exists.

Personnel responsible for inspection are aware of standard operating procedures for Solid and liquid waste treatment, control methods and systems for detection, assessment and recommended control measures for present and potential risks from solid and liquid waste. Safe environment for travelers using the airport's and port facilities which include but not limited: water safety program, Public washroom premises, Flight catering facilities, Liquid waste processing station, equipment and supplies for use by inspection staff Facilities under supervision and control of the airport and port authorities. A Plan for vector and reservoir control is in place, including contract with a handler and a private company that covers all premises of the airport and the port.

Core capacity requirements for responding to events that may constitute PHEIC

The emergency operating center is the command, coordination and communication center that is tasked to respond to any emergency at the airport and the port which is controlled by high national committee. It includes representatives from all relevant stakeholders. A

contingency emergency plan is in place but doesn't include emergencies procedures to public health events.

Arrangements are in place with nearby hospitals, clinics, health services, to receive affected travelers from the airport and port for isolation, treatment and other support services for assessment and care of affected travelers. Written procedures with the MoAg is in place for assessment of animals. PPE and personnel are available to carry out the assessment, treatment and isolation of affected animals. Arrangements are in place for the referral and transport of animals to designated veterinary facility through appropriate safe transport. The current isolation area at the port is well equipped and easily reachable through either an external or internal emergency way while the airport has NO isolation area.

j. IHR related hazard

1. Zoonosis

Kingdom of Bahrain are Importing all different type of animals (Cattles , sheep, goats and poultry) from different countries in the Region and in other Regions including Australia, Pakistan, Sudan, Djibouti and other countries in the African horn through the different point of entry of Bahrain. Some of these imported animals can be exported to GCC countries. Therefore animal trade requires a fully functional and efficient coordination between all partners, effective surveillance, in addition to well performing quarantine and inspection service in all levels and especially at the point of entry; this also include pets that enter the country and screened in the quarantine.

Veterinary Services at national level are coordinated by the Ministry of Municipalities, Urban Planning and Agricultural Affairs. The animal resources directorate is the responsible directorate for all the veterinary services in the country through different departments:

a. Veterinary Clinics & Disease Control Section:
    i. Veterinary Disease Control Group
    ii. Veterinary Clinics Group
b. Veterinary Control & Quarantine Section :
    i. Veterinary Quarantine Group
    ii. Ports Veterinary Inspection Group
    iii. Slaughter house meat Inspection Group
c. Animal & Poultry Production Section
d. Veterinary Laboratory & Pharmacy Section:
    i. Veterinary Laboratory Group
    ii. Veterinary Pharmacy Group

Through these various departments, the main responsibilities are i) import and re-export control, ii) inspecting of animals and quarantine activities , iii) surveillance, prevention and control of emerging animal diseases and routine practice , vi) provided veterinary laboratory diagnosis.

There are a number of laws, ministerial resolutions and regulations covering animal health, veterinary public health, the veterinary profession, animal production and animal welfare as well as the control and eradication of diseases. Bahrain follows the Veterinary Quarantine Law in the cooperation Council for the Arab States of the Gulf 2003, which provides the

official veterinarians with the adequate authority for deploying all required actions for importing, surveillance and control of animal and zoonotic diseases.

The list of priority animal disease is identified however; case definitions for these diseases are not developed. A national Policy for the surveillance and response to animal disease including zoonotic diseases is not there. There is well defined contingency plan for animal diseases describing the coordination and collaboration between the department in animal resources directorate and illustrate the notification System between the animal sector, human sector and other national (Interior, Media, Custom,..) and international (OIE, EU) sectors. The list of priority zoonotic diseases with cases definitions are identified and included in the list of notifiable diseases for the MoH.

Reporting forms for the priority animal diseases are in place and used in different veterinary clinics (private and public) to collect information. This is compiled at the national level and shared on weekly/monthly basis with the different partners. Communication mechanism between the animal health and human health and with IHR NFP is in place.

Surveillance of Imported animals is ensured through inspection and sampling at the quarantine facilities at the point of entry and at the national level. The allowed space for inspection at the airport is not enough and used for the food inspection and animal inspection. Animals are transported to quarantine sections at the national level for further investigation. The hazard of zoonotic event might be spread across the country through movement, if SOPs for transporting animals are properly followed. SOPs and guidelines are available at quarantine sections and followed by professionals to ensure quality of work and safety for workers.

The Animal resources directorate is member of the national emergency response committee through the under-secretary of the concerned ministry. In the case of occurrence of a zoonotic event a multisectoral risk assessment will take place. Reporting and timely sharing of information with the MoH is in place and joint mission of outbreak investigation and response to zoonotic event are usually conducted. However there is no regular training/ CPD training for the working staff. SOPs for the case management for animal disease including zoonotic diseases are not in place.

Public awareness / information, education and communication materials on zoonotic events are in place, in addition to good laboratory capacity to confirm zoonotic events specially (T.B, Rabies & Brucellosis) as they are the most common in the country.

2. IHR related Food safety hazards

Food safety is a shared responsibility between the food control section at the public health directorate, ministry of health and other ministries of agriculture, animal resources, commerce, customs and the higher council of environmental health. The roles and responsibilities of each of them is identified but not documented.

There are still working with the public health law 1975 (last update) with number of ministerial resolutions and regulations covering some areas of the food safety; the food safety related part in the public health law is currently under review. Other food safety

related laws need to be reviewed and updated in order to facilitate the implementation of the IHR and to cope with international food safety regulations.

There is no national policy/strategy on food safety surveillance and response; however Bahrain is following all the policies and regulation for food safety issued by the GCC and FAO, in addition there is a set of SOPs for safe handling, transportation and sale of food items and other safety standers implemented at market places, restaurants and butchers.

The list of priority food safety risks and events has been identified with standard case definitions in the national surveillance; however, a food safety surveillance system doesn't exist and guidelines on the surveillance of food safety events are not available. Also, food safety-events based related surveillance is not established. Some surveillance functions are being implemented on ad hoc basis. Rumors about food safety events are investigated by relevant units when captured.

Inter-sectoral committee for food safety has been established some time ago and there seems to be strong coordination between all concerned parties and with the IHR NFP. There is no system for sharing of information related to food safety events among the different sector; however shared on ad hoc basis.

There is an INFOSAN focal point in Bahrain; he is located in the food safety section and in good communication with the IHRNFP. The focal person plays the role of sharing alerts and notification coming from INFOSAN with the concerned authorities in the country; however, doesn't share country related food safety events with the INFOSAN.

Food control section members are part of the multisectoral rapid response team when it comes to food safety events. Guidelines/ SOPs for the case management of food safety events are available. Regular training to professionals on response and control to food safety events is not maintained.

The capacity of the food inspection programs is insufficiently capable of detecting and controlling food safety events. No guidelines are available for food inspection and sampling. A mechanism and resources for tracing back and recalling contaminated products, when detected exist in the country. A contingency plan for preparedness and response to food safety events doesn't exist.

Public awareness / information, education and communication materials on food safety events do exist; in addition to risk communication plan for food safety events, moreover there is a hotline available 24/7 for any queries or complains from the community.

Laboratories responsible for food analysis have established capacity to analyze food samples and detect chemical and microbiological contaminants and agents. However, the existing laboratory capacity for monitoring and confirming other food contaminants is not sufficient and equipped human resources for performing related laboratory activities are inadequate.

3. IHR related chemical hazards

A detailed risk assessment was done by the National Committee for Disaster Management in 2012/13, and is being updated on regular basis. Chemical events were classified as high-risks. Accordingly strategies and response plans are being compiled, drilled and updated by different agencies with the involvement of other related sectors. The lead agency for chemicals is the Civil Defense Department. Other stakeholders were clearly identified in the national risk matrix.

Bahrain operates a fairly integrated program for sound management of chemicals under the umbrella of the Supreme Council of Environment with strong collaboration links with other stakeholders.

The council operates full-fledged directorate responsible for sound management of chemicals including: mapping of chemical hazards; management of industrial and hazardous wastes. A profile to assess the national infrastructure for chemical safety was prepared in late 2012 with full details about experts; stakeholders; legislations, coordination mechanisms, available resources etc. related to chemicals.

The response to chemical events is divided into two main parts. The first is through a comprehensive plan for response to oil and hazardous chemical spills in the Gulf. This is being done by the supreme council for the environment through a very advanced command center with state of the art technologies and information resources. A drill was made in 2010 with the participation of all stakeholders including the health sectors. The drill will be repeated in November 2014 preceded by a refreshing national workshop in May 2014. The second is through response to other chemical events. A comprehensive strategy and plan is being compiled and updated by the National Committee for Disaster management in collaboration with other related sectors. The plan was drilled three times during the last couple of years. Three different exposure scenarios were tested. The health sector was heavily involved in the drills. There is another GCC strategy plan that was tested in close coordination with other GCC countries.

Bahrain has direct access to the poison Centre located in Riyadh through an agreement between the two countries.

Bahrain is ready for surveillance, alert and response to chemical events. However, the following gaps exist and may affect the efficiency and sustainability of the current capacities:

- Lack of awareness of some of the related stakeholders about the linkages between chemical events and IHR. Accordingly communications are expected to be not as smooth as it should be.
- Access to toxicological and other chemical related information needs improvement
- Supplies, equipment and training needed for efficient clinical response to chemical events are not adequate.
- Poor chemical identification and inspection capacities at the points of entry including the main port and airport.

4. IHR related radio-nuclear hazards

A detailed risk assessment was done by the National Committee for Disaster Management in 2012/13, and is being updated on regular basis. Radiology and nuclear events were classified as high-risks. Accordingly strategies and response plans are being compiled, drilled and updated by different agencies with the involvement of other related sectors. The lead agency for nuclear and radiation is the Supreme Council for Environment. Other stakeholders were clearly identified in the national risk matrix.

Although Bahrain does not have a nuclear or atomic dedicated agency, the capacity to deal with radiation and nuclear events is good. A national strategy to respond to radiology and nuclear events was drafted in 2013 by the Supreme Council for the Environment upon the request of the National Committee for Disaster Management. The plan is awaiting the approval of the Government and availability of resources for starting implementation at all levels. Another Regional plan involving all GCC countries is being planned and will be implemented in the near future.

Radiation materials in Bahrain are mainly used by the health sector and some industries on a very limited scale. Both are properly controlled and managed by the supreme council for environment and the Ministry of Health. A sound and integrated system for export and disposal of radioactive materials exist and monitored. During the last 20 years only one occupational event involving one victim is recorded. There is basic capacity of response at the clinical level.

There is a lack of awareness of stakeholders about the linkages between radiation and nuclear events and IHR and accordingly communications between the IHR NFP and the sectors responsible for the nuclear and radiology issues is up to the required levels.

The capacity of the public health sector to respond to cases contaminated with radiology and nuclear events is not adequate. This includes the official designation of health facilities/departments for the clinical managements of cases, the development of the required guidance, the stockpiling of PPE and antidots and the training of health professionals.

V. Conclusion

A remarkable progress has been detected in implementing the IHR core capacities across the years in Bahrain. The majority of the requirements have been met, particularly those related to surveillance, preparedness, response, risk communication, laboratory, requirements at points of entry, and IHR related chemical and radiology and nuclear hazards. In these capacities, very few requirements are still to be implemented. Also, a progress has also been made in the capacities of legislation, coordination and IHR communication and IHR related zoonotic and food safety hazards. However, some requirements still need to be implemented in these capacities, particularly those related to coordination and information sharing.

The political commitment expressed by MoH plays a great role in implementing the Regulations. This commitment needs to be expanded to include the other governmental sectors. The current review of the IHR related legislations is a very good opportunity to address the designation and functions of the IHR NFP.

The strong coordination mechanism related to emergency preparedness and response is also a great opportunity to enhance coordination and sharing of information on routine basis. This will allow for early detection, investigation and response of any public health event of national and international concern. The IHR NFP also needs to be involved in such coordination mechanism to assist in assessing the risk, notifying WHO, when needed and coordinate the response with WHO and other international organization. Furthermore, the full implementation of the terms of reference of the IHR Intersectoral committee will greatly assist in strengthening coordination and collaboration between the different sectors.

The existing agreements with the other GCC countries have their role in meeting some of the requirements, particularly those related to cross border surveillance and response, enhancing the regional capacity in infection prevention and control and conducting regional risk assessment on potential hazards and updating the national preparedness and response plans accordingly. This also allow easy access to services in the other GCC countries that done exist in Bahrain.

Within the current context, Bahrain has great opportunities for meeting the IHR obligations by June 2014. A plan of action needs to be developed based on the following recommendations to ensure the sustainability of the IHR obligations beyond the deadline.

VI. Recommendations

a. National legislation, policy and finance

1. The Ministry of Health to follow up with the Cabinet to ensure the modification of and endorsement of the public health law.

2. Establish a legal committee from the different IHR related sectors and review the related laws to ensure their facilitation of the implementation of the IHR.

b. Coordination and IHR National Focal Point Communication

1. Develop Terms of Reference that describe the functions the IHR NFP, particularly in communicating with other national authorities and with WHO.

1. Widely disseminate the Terms of reference of the IHR NFP among the different sectors.

2. Ensure the full implementation of the Terms of Reference of the IHR Intersectoral committee including the high level representation of the different sectors in this committee to allow timely decision making with active involvement of each department in the development and implementation of IHR plan of action.

3. Carry out activities to increase the awareness of IHR among the different stakeholders including:
    - Access to all documents and guidelines
    - Dissemination of the plan of action for the IHR implementation
    - National workshop, meetings and trainings on IHR for the different sectors and at the different administrative levels.

4. Enhance the use of the decision instrument -- Annex 2 of the IHR--, particularly among sectors other than the health sector to identify events with potential international concern and communicate information to IHR NFP.

5. Strengthen the sharing of information on risk assessment of public health events of potential international concern with WHO using the IHR system.

c. Surveillance

1. Review historical data and the epidemiology of the disease for the last few years and update the list of notifiable disease accordingly with clear distinction between the diseases for response and diseases for program management.

2. Introduce advanced software for the data analysis and for forecasting including the GIS.

3. Systemize the establishment of event based surveillance.

d. Response

1. Enhance the availability of trained multidisciplinary rapid response teams to ensure the rapid investigation and response to public health evens.

2. Ensure the establishment at all hospitals, comprehensive surveillance for antimicrobial resistance.

e. Preparedness

1. Enhance mutlisectoral coordination, collaboration and establish a mechanism for information sharing.

2. Find a mechanism for the sharing of information between the IHR NFP and the existing coordination committees, i.e. the national disaster committee and the emergency preparedness and response subcommittees.

3. Review and update the public health plan for emergency preparedness and response based on the “all hazards approach” and ensure its integration with the national emergency preparedness and response plan.

f. Risk Communication

1. Develop a comprehensive, integrated national risk communications plan to create a sustainable platform for trusted, credible two-way communications with the public, and to integrate with the existing plans and partners for any emergency response, so as to operationalize and scale up quickly risk communications work in public health emergencies.

2. Training of key staff from the different sectors of human and animal health, chemical, radio-nuclear, and food safety sectors s on an integrated approach to communicate public health risks.

g. Human Resources

1. Consider the IHR among priority areas of national strategy for Bahrain for building the capacity of human resources in the different sectors including the MoH.

2. Use exiting opportunities in the countries and in the other countries to build the capacity of human resources such as the field epidemiology and laboratory training programs.

h. Laboratory

1. Support the public health laboratory and the veterinary laboratory with the required human resources.

2. Update the technics and equipment in the food laboratory and acquisition of new equipment to detect radiological contamination in food product.

3. Allocate budget for the animal health laboratories.

4. Expedite the process of recruiting human resources and purchasing equipment for the newly established quarantine laboratory under the Ministry of Municipalities affaire and urban planning, agriculture and Marin Resources Affaires, Animal wealth Directorate.

i. Point of Entry (PoE)

1. Strengthen coordination and communication between the IHR NFP with the competent authority at each designated point of entry.

2. Review the existing emergency plans at the designated points of entry to address the public health part including the development of standard operating procedures.

3. Establish isolation room at the airport.

4. Ensure the use of the general declaration of health as required under IHR and the use of the passenger locator form, when needed.

5. Aircrafts with suspected communicable disease case to park in the scheduled position and follow standard operating procedure for the management of the affected cases to avoid delay of passengers.

6. Consider WHO airport and port certification of IHR core capacities requirements in a voluntary basis.

j. IHR related hazards- Zoonosis

1. Establish surveillance for the animal diseases including the zoonotic diseases and develop the related guidelines and standard operating procedures.

2. Consider the expansion of the quarantine area at the ports and develop standard operating procedures for the transportation of animals to quarantine section in the Ministry of Municipality affaire and urban planning, agriculture and Marin Resources Affaires, Animal wealth Directorate to minimize the risk of spreading zoonotic disease.
3. Develop a plan for preparedness and response for animal diseases including zoonotic and ensure its integration in the public health plan for emergency preparedness and response.

k. IHR related hazard- Food safety

1. Establish surveillance for food safety events and develop related guidelines and develop the related guidelines and standard operating procedures.

2. Establish a mechanism for information sharing on food safety events and water safety among the different stakeholders.

3. Develop a plan for preparedness and response to food safety and ensure its integration in the public health plan for preparedness and response.

4. Ensure the two way sharing of information on food safety events with INFOSAN

l. Chemical events

1. Develop manuals and standard operation procedures for rapid assessment, case management and clinical management of chemical events.

2. Establish a national Poison (toxicological) Information Centre.

3. Official designation of health facilities for the management of cases contaminated with chemical hazards and ensure the equipping these facilities with the proper trained personnel, decontamination capacity, personal protective equipment, antidotes and guidelines and standard operating procedures. Sulaimania hospital can be a good example, particularly with the availability of command and control Centre that facilitates the coordination with the other hospitals.

4. Enhance the capacity of points of entry for chemical inspection.

5. Establish the link with the existing regional and international chemical support networks such as ROPME and CHEMINET

m. Nuclear and radiology hazards

1. Official designate of health facilities for the management of cases contaminated with radiology and nuclear hazards and ensure the equipping these facilities with the proper trained personnel, decontamination capacity, personal protective equipment, antidotes and guidelines and standard operating procedures.

2. Finalize the development of national plan for the preparedness and response to nuclear and radiology hazards. Meeting the IHR requirements by June 2014 can be used to expedite this process.

3. Strengthen link with exiting international network for sharing and gaining experience such as REMPAN.