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COMMUNITY EDUCATION AND DISASTER PREPAREDNESS PROGRAM

Final Report

July 28, 2000 to September 30, 2002

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Summary of Program Achievements:

Prior to the 1998 United States (US) Embassy bombing in Nairobi, Emergency Medical Services (EMS) were virtually non-existent in Kenya. The EMS network was unable to cope with the mass casualty mainly due to lack of an adequate and systematic emergency response by civil authorities and the community. Main challenges centered on the lack of limited expertise and resources to implement a formal pre-hospital evacuation, stabilization and transport mechanism, and proper medical care. The US embassy bombing however, helped to highlight the fragility of the local emergency response and national disaster preparedness in Kenya. In response, International Medical Corps (IMC) sought out interventions to address presented gaps and deficiencies.

In 1998, USAID/OFDA funded the Emergency Medical Service Upgrade program and subsequently in 2000, USAID/REDSO funded the Community Education and Disaster Preparedness (CEDP) program to improve emergency response at various levels. The goal of the 18-month CEDP program was to mitigate the impact of rapid onset man-made or natural disasters upon Kenyan populations at risk. IMC collaborated with St. John's ambulance and Resuscitation Council of Kenya to strengthen pre-hospital and hospital care respectively. IMC trained 150 emergency medical technicians, including 30 instructors necessary to ensure sustainability of the training after the program ended. Nine national and district hospitals participated in a hospital-based emergency response training, with over 500 of its key health staff acquiring the knowledge and skills to effectively respond in a systematic and professional manner. A total of 2,285 persons from the community were trained on basic first-aid and by-stander care, including school and street children, bomb blast survivors and community group members. IMC focused on communities in low-income neighborhoods and high population densities such as the Kibera and Mathare slums of Nairobi. Furthermore, IMC conducted community emergency response training for 20 instructors from St. John and Nairobi City Council Fire. Despite significant procurement delays, emergency response equipment were supplied to Kenyatta National hospital (KNH), St. Johns Ambulance, AMREF, Nairobi Hospital, Coast General Hospital, Nairobi City Council, Mombasa City Council, Knight Support, and Resuscitation Council of Kenya among others.

During the program period, an estimated 10.2 million Kenyans were exposed to materials related to disaster/emergency awareness, prevention, and preparedness through weekly TV programming, radio spots, and various articles in the daily Nation newspaper. In December 2001, IMC assisted in launching a road safety program covering the main holiday season targeting the highways. The first conference on Emergency Management in Africa was held in November 2001, with over 275 participants from 12 countries in attendance. This conference brought together various people from over 175 organizations, agencies, ministries, corporations, businesses, and governments to work toward a strategic partnership aimed at an overall comprehensive Emergency/Disaster Management plan for the people of Kenya. IMC learned that the CEDP program was only the tip of the iceberg and that a significant amount of resources and time is needed to work toward achieving the proposed goal, however the CEDP program definitely strengthened commitment by civil authorities and built a foundation with which additional interventions can be pursued.

I. PROGRAM BACKGROUND

The Community Education and Disaster Preparedness (CEDP) program emerged from the challenges presented by the August 1998 terrorist bombings in Kenya and Tanzania. The bombing of the US Embassy in Nairobi highlighted significant weaknesses in the local emergency response and national disaster preparedness in Kenya. While there was a prompt response to the bomb disaster, significant gaps and deficiencies in disaster management were revealed. Civil authorities demonstrated limited expertise and capacity to fully responding to a major mass casualty incident or disaster. The capacity of the medical community was also unable to fully meet the emergency medical needs of the public in a concise, systematic and professional manner. The quality of pre-hospital care provided by first responders (general public and police) and ambulance services was wanting and inappropriate.

The terrorist bombing did not constitute the only mass casualty incident that Kenyans have had to experience. The country has one of the worst injury-induced premature mortality rates in the world and technological emergencies including road traffic, rail and industrial accidents that are commonplace. The response to the bombing exposed the serious negative impact on the outcomes of accident victims in Kenya. In the aftermath of the bombing, health care practitioners, emergency service organizations and hospital authorities were made acutely aware of the need for training in first response protocols, emergency medical services, resuscitation techniques, trauma care and disaster management. First responders had limited training, if any, in basic first aid, cardio-pulmonary resuscitation (CPR), extrication and stabilization techniques, and incident command system and handling mass casualty. Nursing and medical schools in Kenya do not formally address emergency medical technician training and emergency medical services (EMS) were virtually non-existent in Kenya at the time of the tragic bomb blast disaster. The civil and medical authorities in Kenya lacked disaster preparedness programs or contingency plans for response to mass casualty incidents.

Consequently with funding from the Office of United States Foreign Disaster Assistance (OFDA), IMC initiated an ***Emergency Medical Services Upgrade (EMSU) Program*** in October 1998. In partnership with St. Johns Ambulance (SJA), IMC commenced a three-month emergency medical technician (EMT) pilot training program in December 1998 for 40 pre-hospital medical care providers from SJA, Kenyatta National Hospital (KNH), the Kenya Police Department, Nairobi City Council (NCC) ambulance service and fire brigade, and the Armed Forces Memorial Hospital. Having reviewed the string of events, response and rehabilitative activities following the terrorist bombing, IMC realized that enhancing disaster preparedness and management in Kenya cannot be conducted in three-month trainings but rather through a system-wide approach.

In July 2000 IMC-East Africa and the Bomb Response Unit of United States Agency for International Development (USAID) signed a cooperative agreement for the implementation of an 18-month “Community Education and Disaster Preparedness” (CEDP) program in Kenya. The goal of the program was ***to mitigate the impact of rapid onset man-made or natural disasters upon Kenyan populations at risk***. The program was designed to directly benefit more than 3,500 persons, from members of the general public, including survivors of the 1998 bomb disaster in Nairobi, to Emergency Medical Technicians, ambulance attendants, medical personnel in hospitals, key professionals, school children, and staff of the local partner NGOs contributing in the scheduled activities.

The strategic focus of the program was on populations at maximum risk in Mombasa and Nairobi selected in accordance to specified criteria including urban centers, areas of high residential concentration, points of high population transit and industrial areas. IMC focused on interventions to reinforce local capacity and raise public awareness in disaster preparedness and response under the following two main objectives:

1. Reduce the morbidity and mortality of emergent medical trauma patients by strengthening the response capacity of key components of Kenyan society.
2. Support and facilitate a continuing indigenous process of training and awareness raising in disaster preparedness and response.

The program design highly emphasized on capacity building of the local health infrastructures and community empowerment for effective preparedness and response to disasters. In this respect, IMC partnered with two local non-governmental organizations (NGOs), the St. John Ambulance (SJA) and Resuscitation Council of Kenya (RCK). The choice of the NGOs was strategic since IMC had successfully cooperated with both NGOs during its 1998-1999 Emergency Medical Services Upgrade Program.

With complementary mandates of SJA and RCK, IMC collaborated with them to strengthen pre-hospital and hospital care respectively. IMC also focused on supporting the organizations to consistently undertake a mandate of education in disaster response and management, and to strategically develop long-term sustainable initiatives.

II. PROGRAM ACHIEVEMENTS

IMC instigated CEDP program interventions in July 2000. By May 2002, IMC extended the program up to September 2002 to ensure full achievements of proposed objectives. The following report documents program achievements spanning a period of 22 months from July 2000 to September 2002.

OBJECTIVE 1: Reduce the morbidity and mortality of emergent medical trauma patients by strengthening the response capacity of key components of Kenyan society.

To fully strengthen local capacity for an emergency response, IMC implemented several key strategies including training key health staff, provision of essential equipments for an effective casualty response, establishment of a national inventory list of available resources, along with public education and mobilization of strategic partners for a systematic disaster preparedness and response.

1.1 Training

During the program period, IMC trained several levels of the health care system in a medical response to an emergency, including emergency medical technicians, key hospital staff and community professionals and members in high-risk areas and potential to respond.

1.1a. Emergency Medical Technician (EMT) Training:

In response to an expressed need by the voluntary emergency services sector for EMT training, IMC planned for two EMT trainings in Nairobi and Mombasa. IMC facilitated a thorough revision of the EMT training curriculum, which was based on the American Academy of Orthopedic Surgeons (AAOS) “Emergency Care and Transport of the Sick and Injured”. The objective was to adapt the curriculum to suit the local situation as established from the first EMT training organized by IMC and dissemination for future trainings. Thus, the curriculum was distributed to 10 previously trained EMTs and to the Principal Surgeon of SJA for review and recommendations. Overall, all reviewers highly acknowledged the curriculum. The only modifications occurred within Kenyan law and the use of invasive procedures by non-medical personnel. The adapted curriculum covers a training session of 180 hours consisting of theory (100hrs) and practicals (80hrs).

With the adapted curriculum, IMC conducted several training sessions as follows:

i) EMT Refresher Course:

Out of the 40 EMTs trained under the EMSU program, 24 returned to complete and pass the EMT refresher course held between November 13 and December 22 2000. Of this core group were members from St. Johns, Nairobi City Council, the Military, Fire, Kenyatta hospital nurses and Kenyan Police.

ii) Instructor’s Course:

Specific graduates from the refresher course above and a few more candidates chosen by SJA were included in the Instructor’s Course. A total of 30 EMTs graduated as instructors and were subsequently divided in to three basic groups as continued EMT Assistant Instructors, Community Emergency Response Team (CERT) instructors and First Aid instructors.

iii) EMT Basic Course:

- Nairobi EMT Training:

A large number of people expressed interest for this course. Over 175 applications were received from Nairobi's St. John, Kenyatta Hospital, Fire Brigade, Police, Military, and City Council. Candidates were given a pre-test and only 42 succeeded in joining the new class. All the 42 students completed the course and graduated.

Due to the tremendous interest shown by the private sector players, a pilot EMT basic pay course was organized. The course attracted participants from the African Air Rescue (AAR), MediPlus, 911, African Medical Research Foundation (AMREF), Nairobi Hospital, Knight Support, Gertrude's Gardens Children Hospital, and a few public sector agencies that missed the first round of training including the Jomo Kenyatta International airport (JKIA) Port Health and Fire Brigade. The fee per student for the private sector provider was Ksh. 50,000 (Kenya shillings fifty thousand only). A total of 18 applicants qualified for the course, 17 completed and graduated as EMTs.

- Mombasa EMT Training:

The course attracted participants from the Coast General Hospital, St. John/Mombasa, Mombasa Municipal Council Fire Brigade, Police, the Military, Airport Fire and Medical Authority, Kenya Ports Authority (Fire and Medical), Kenya Navy Divers, and the Kenya Wildlife Service. A total of 61 students completed the training and graduated.

Summary of EMT Training Achievements:

While in 1999 there were only 30 EMTs located in five public institutions, to date, a total of 150 EMTs can be found in over 12 institutions in Kenya as shown in table 1.

Table 1. EMT training Achievements

Type of Training	No. of proposed targets	No. of reached targets	% Achievement
EMT Refresher Course	30	24*	80%
EMT Instructor Course	30	30	100%
EMT Basic Course	30	120	400%

**Six graduates of the 1998-99 pilot course could not be located and had since changed jobs.*

Due to great interest from participants and success of the training, momentum is already provided for the introduction of EMT training in the country. While these developments are still under discussion at institutional levels, the following have shown the greatest interest:

- **Kenya Medical Training College (KMTC):** Interested in establishing a four-month certificate program for EMT and a one-year diploma course for Paramedics.
- **Kenya Ports Authority (KPA)/Bandari College:** Interested in establishing a four-month certificate program for EMT and a six-week certificate program for First Responders.
- **Kenya Police College/Kiganjo:** Interested in establishing a six-week certificate course for First Responders within their on-going police officer training.

1.1b. Hospital-based Response Training:

IMC closely collaborated with its partner, the Resuscitation Council of Kenya (RCK) to establish the appropriate types of training needed and select hospitals where there were unmet training needs for both continuing education and instigation of emergency response trainings. The proposed plan was to conduct a tailored course for a minimum of 80 key hospital personnel in Nairobi and Mombasa strategic acute care units and furnish participants' hospital with basic "disaster kits" and supplies. IMC with its partner RCK, were able

to train over 500 professionals in Advance Cardiac Life Support (ACLS), Advanced Life Support (ALS) and trauma.

A great addition to the trainings was the incorporation of an Instructors Course performed initially by the Israeli government and subsequently by the Harvard University Institute for Emergency Medicine and Health. In April 2001, the Israeli government sent three certified ACLS/ATLS trainers to assist in capacity building within RCK. Instructor's courses in ACLS and Trauma were conducted for health staff from Kenyatta and Coast General Hospitals. Subsequently, Harvard University (in collaboration with RCK) conducted instructor's courses for a pool of 45 certified instructors in BLS/ALS/ACLS and Trauma from both hospitals. These instructors formed the core groups for establishment of in-house training programs and for other professional staff from district level hospitals in their respective catchment areas. By December 2001, in-house trainings had already started. Kenyatta hospital was the first to independently conduct a BLS/ALS course, followed by the Coast General.

With these programs in place, the role of RCK shifted to that of a more supervisory body (as the Resuscitation Council of the UK) to ensure proper standards are maintained. It was decided that hospitals will independently conduct the trainings and RCK will conduct examinations and certifications to ensure appropriate standards in both practical and didactic instruction are met.

Whereas original plans were to target hospital personnel in Nairobi and Mombasa only, the program expanded to include hospitals located in emergency prone areas especially along countries major highways. Health personnel from Machakos, Kericho and Kakamega district hospitals, along with those from the Moi University Teaching and Referral Hospital were included in the training. Additional trainings were conducted for other professionals, such as nurses operating rural hospitals with lack of doctors.

Summary of Hospital-based Training Achievements:

Table 2: Hospital-based Emergency Response Training Matrix

Name of Hospital	Location	No. of Certified Trainees	ACLS	ALS	BLS	ATLS	Trauma Care
Provider Courses							
Mbagathi District Hospital	Nairobi	44	X	X			
Naivasha District Hospital	Naivasha	44		X	X		X
Kenyatta National Hospital	Nairobi	25				X	
Machakos District Hospital	Machakos	49		X	X		X
Kericho District Hospital	Kericho	56		X	X		X
Kakamega District Hospital	Kakamega	52		X	X		X
Moi University Hospital	Eldoret	104	X	X	X		X
Instructors Courses*							
Kenyatta National Hospital	Nairobi	20	X	X			X
Coastal Provincial Hospital	Mombasa	129	X	X	X	X	X
Nyanza Provincial Hospital	Kisumu	68	X	X	X	X	

**Trainings conducted in collaboration with the Israel Government and Harvard University*

1.1c. First Aid Training:

The first aid training was designed to benefit a total of 3,000 persons including survivors of the bomb disaster and school children from around low-income residential neighborhoods of Nairobi. School-based trainings were conducted for four hours per class of 20 students with two instructors from SJA. Both IMC EMT Trainers and SJA doctors supervised and monitored the delivery of the courses. Both the students and teachers received the courses very well. The teachers requested for additional special sessions to improve their ability to train students on an on-going basis.

Overall, a total 2,285 persons were trained on basic first-aid and by-stander care. The underachievement was largely attributable to the tight school program in Kenya and the difficulty of mobilizing the general public including the bomb-blast survivors. In retrospect as will be seen from the performance of the CERT component of the program the project was perhaps over-ambitious in targeting 3,000 in 18 months.

Summary of First-Aid Training Achievements:

Students from more than 10 schools in Nairobi and Mombasa participated in the training, including Majengo, Mukuru, Kibera and Mathare slums in Nairobi. Community group members and bomb survivors were mobilized from Kibera, Kariobangi, Buruburu, Mukuru, Kabete, Mathare, Kangemi and Pumwani. The first aid curriculum was further revised to make it more universal for both schools and community groups.

Table 3. Profile of First Aid trainees

Target Population	Number
School Children	1,083
Street Children	419
Bomb Blast Survivors.	145
Community Group Members	638
Total	2,285

1.1d. Community Emergency Response Team (CERT) Training:

The CERT training for instructors was conducted at the IMC Training Center with 20 candidates from St. John and Nairobi City Council (NCC) Fire. Those who attended the instructors’ course were qualified EMTs working in the two institutions. All 20 instructors completed the course. Immediately after the training, a pilot course was held for a community group from Kibera to assess both the appropriateness and effectiveness of course adaptations, and the community perceptions regarding the importance of the course. All of the 20 community members who attended the five-day course were quite impressed by its quality and content, in particular the combination of first aid, fire fighting, light search/rescue, and community organization for incident command structures. During the instructors training, the CERT training materials were reviewed and adapted to suit the local Kenyan community situation.

The public and certain businesses expressed great interest to receive CERT trainings. The delivery of further trainings however became problematic due to the inability of finding an institution to continue providing CERT training on an on-going basis. Since this issue could not be resolved in the 18-month period no further trainings beyond the first instructors’ was conducted. SJA were determined to undertake the training but they were never able to get the first aid program running appropriately, hence it was illogical to add a new component at that time. The Safety and Emergency Management Council (SEMAC), a newly formed local NGO formed by trained EMTs, initiated BLS courses for both schools and other businesses. SEMAC was also keen to take up CERT training as part of their intervention areas. They were therefore tasked to attempt marketing CERT programs to communities that might pay in order to prove that they will be able to sustain their organization after the CEDP program ends. At the end of the program, the issue of SEMAC sustainability including a connection to crisis responders was not resolved.

1.2 Equipment Provision

Essential emergency response equipment were supplied to Kenyatta National hospital (KNH), St. Johns Ambulance, AMREF, Nairobi Hospital, Coast General Hospital, Nairobi City Council, Mombasa City Council, Knight Support, and Resuscitation Council of Kenya among others. The exact list of ambulance and training equipment and its final disposition is attached to this report as Annex 1.

There were significant delays in the procurement of equipment, partly due to the fact that the supplier of the main bulk of hospital and ambulance equipment “LifeAssist” spent nearly five months before accepting an order involving international shipment. In addition, IMC spent almost a year attempting to acquire necessary

exemptions to import the equipment duty free. When this did not materialize, IMC had to use one St. John's ambulance to procure the equipment duty free furthering additional delays since additional paperwork had to be taken through the Kenyan bureaucracy machinery.

1.3 Resource Inventory

IMC proposed to act as a catalyst to form and disseminate an inventory of resources available in different structures to aid an effective disaster preparedness, mitigation and response. To accomplish this task, IMC established a very positive and productive relationship with the National (Disaster) Operations Center (NOC) in the Office of the President. On June 19, 2001, IMC signed a Memorandum of Understanding (MOU) with the Minister, Honorary Major Madoka and donated two computers to the NOC. The MoU specified the implementation plan to accomplish the task and the computers facilitated the development of the database for the resource inventory. To further facilitate inventory development, IMC sponsored four staff members from the NOC for a computer and database application course, to ensure adequately trained staff are available to continually update and maintain the database.

IMC also worked closely with the NOC to develop questionnaires for data collection. The questionnaires were subsequently sent to both Provincial and District Commissioners, and relevant data per District and Province nation-wide was collected. This process was initiated after the attendance of the IMC's Inventory Manager to a Provincial Commissioners' (PCs) meeting to explain and demonstrate the database so the PCs could be ready for the questionnaire.

At the end of the program period, an inventory of national resources has been established and institutionalized at NOC. For national security reasons and as part of the MOU with the government authorities IMC is not allowed to furnish third parties details of the database and its set-up.

1.4 Public Awareness and Education

During the program period, IMC worked to increase public awareness of disaster preparedness and mitigation through implementation of two main activities:

1.4a. Public Education Media Campaign

Based on the projected audience figures from the Kenya Television Network (KTN), Kenya Broadcasting Corporation (KBC) and Nation television, given the prime-time time slots for the programs, IMC estimates that a cumulative total *in excess of 10.2 million Kenyans have been exposed to materials relating to disaster/emergency awareness, prevention, and preparedness* through weekly TV programming, radio spots, and various articles in the daily Nation newspaper. A total of 14 TV programs and 14 radio spots have been produced and aired with 10 half-page articles in the Nation newspaper. These numbers are exclusive of the awareness activities that the "Emergency Management in Africa" conference may have generated. During the conference, IMC received generous coverage in both the electronic and print media with articles both on prevention and preparedness messages (Activity 1.4b).

IMC worked through several types of media to disseminate messages to the general public as follows:

i) Television Campaign:

IMC successfully produced and aired 14 fifteen-minute TV series on awareness, preparedness and prevention dealing with four main areas of 'disasters' in Kenya. These include Fire, Road Accidents, Floods, and Mass-Casualty Incidents (Plane Crash/Building Collapse/ Explosions/etc). These were on air once a week, in prime time, on KBC, KTN, Family, and Nation TV for a period of six months. All 14 shows have also been videotaped for distribution to hospital waiting rooms, schools, church groups, project partners and other interested groups.

ii) Radio Campaign:

As in the TV campaign outlined above, IMC produced 14, three-minute radio features for airing on Nation and KBC Radio programs both in English and Swahili. These were aired once a week in prime time with repeats when necessary for the appropriate radio station. The features had the same theme as on TV.

iii) Print Media Campaign:

- Newspapers:

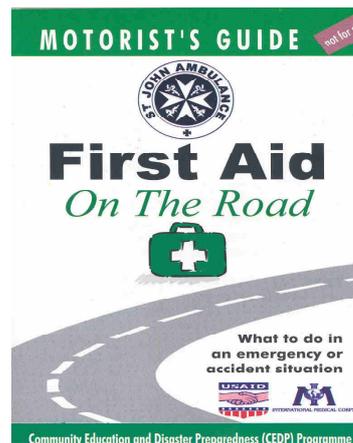
Along side the radio and TV campaigns, disaster/emergency articles were placed in the three local papers/magazines. The articles were presented along the same lines as the concurrent TV and radio spots dealing with aspects of awareness, preparedness, and prevention of disaster-related scenarios dealing with fire, road accidents, floods, and mass-casualty incidents.

- Pamphlets and Brochures:

IMC also produced topical brochures, posters, and/or pamphlets for distribution to various points with potential public recognition and interest.

IMC delivered a Targeted Media Campaign to improve road safety

In December 2001, IMC in partnership with the Kenya Traffic Police and the Kenyan Medical Association (KMA) launched a road safety program covering the main holiday season targeting the highways from Nairobi to Eldoret and Nairobi to Mombasa in order to both raise to awareness of road accidents and corridors in attempts to make the Traffic Police set up special and enforced laws pertaining to buses), defective vehicles, over handing out brochures on road pamphlets and stickers inside practices. In all, over 15,000 materials with millions of media with wide campaign print media. Over 30,000 pieces stickers, etc.) were distributed



worst accident season of the year. The traffic Police and KMA were both extremely pleased with the campaign and IMC/USAID's role in helping to raise awareness through the media and through heightened enforcement. The short and inexpensive campaign seemed to have some very positive results as the number of road traffic accidents were unusually nominal during the December 2001 holiday season.

Mombasa in order to both raise to awareness of road accidents and corridors in attempts to make the Traffic Police set up special and enforced laws pertaining to buses), defective vehicles, over handing out brochures on road pamphlets and stickers inside practices. In all, over 15,000 materials with millions of media with wide campaign print media. Over 30,000 pieces stickers, etc.) were distributed

1.4b. Regional Disaster Preparedness Training Conference

The first conference on Emergency Management in Africa (EMIA) was held from November 2001 19 to 22 at the Kenyatta International Conference Center (KICC) with over 275 participants from 12 countries in attendance. This conference brought together various people from over 175 organizations, agencies, ministries, corporations, businesses, and governments to work toward a strategic partnership aimed at an overall comprehensive Emergency/Disaster Management plan for the people of Kenya. The basis of the strategic partnership between the public and private sectors was the establishment of five Working Groups that developed the main scope and direction of both the conference and the comprehensive plan for Kenya. Each working group took one particular aspect of the Disaster Cycle (Prevention, Preparedness, Response, Recovery/Rehabilitation, and Legislation/Advocacy), identified problem areas and suggested specific interventions to take Kenya from its current state of activities toward their comprehensive vision for a functional and effective Emergency/Disaster Management structure for Kenya.

The conference was unique in that participants were not paid to attend, join or participate in the various working groups. This work and effort was completely voluntary, based on the local motivation for effective and appropriate Emergency/Disaster mitigation strategies. The participants came from a wide variety of stakeholders, including; Hospitals (public and private), Ambulance Service providers, Insurance companies, Banks, Petroleum companies and associations, Donor Agencies, Embassy staff, Kenyan Governmental Ministries of Health, Finance, Internal Security, and Tourism, UN agencies, NGOs (local and international), Universities, Military personnel, Fire Services, Kenya Wildlife Service, Traffic Police, Lawyers, HMOs, Communications companies (radio, telephone, and cellular), Rescue Services, Youth Organizations, Community Groups, Church Leaders, and Newly trained EMTs, just to name a few.

The conference provided a unique forum for a wide variety of stakeholders from different backgrounds and occupations to sit together and discuss current programs, current problem areas, and to make specific recommendations on how to proceed towards a unified vision for Disaster/Emergency Management in Kenya.

OBJECTIVE 2: Support and facilitate a continuing indigenous process of training and awareness raising in disaster preparedness and response

2.1 Institutional Support

To further facilitate capacity building of local partners, IMC established weekly partner review meetings to discuss various issues relevant to each partner, as well as setting the stage for more strategic planning. Partners were involved in every aspect of program planning and the integration of its component parts including, staffing, needs assessment, prioritizing program components, available and sustainable resources, and monitoring/reporting plans.

It was initially planned to hold more formal sessions in the various components related to programming and finance but it worked out much better to hold individual sessions about specific topics as the quarterly finance and reporting issues arose, as well as delineating operational and training plans. Since the capacity of our main local partners are basically in place, individual meetings and sessions seem to be the better alternative to more formal and ‘theoretical’ sessions on programmatic issues. However, IMC has assisted to establish a standard framework for financial records and reporting structures. These meetings were conducted through the IMC Regional Finance team.

2.2 Emergency Communications Network

The original plan was to utilize funds available for radio equipment to upgrade St. John’s ability to communicate with area hospitals more effectively. After a review of the equipment and funds available, it was determined that the goal could be met for both St. John and Knight Support, but also allow incorporation of the NOC into a National Emergency Communications Network countrywide.

The plan was also to have appropriate frequencies vested with the NOC and to utilize both the Kenya Power and Light Trunking system as well as Kenya Railways repeater system between Nairobi, Mombasa, and Kisumu for emergency communication. However, it became impossible to get the necessary authorization for the national trunking system in the duration of the program and the proposal was shelved.

Implementation Constraints

The following factors acted as constraints to program implementation:

1) Logistic Constraints: International procurement proved difficult because of government bureaucracy, creating unnecessary delays in ordering and receiving necessary equipment. This necessitated extension of program period to 22 months. To-date, all planned procurements have been conducted.

2) CERT Training: During the 18 months of the project, IMC was unable to find a sustainable partner to undertake CERT Training. St. John had too many problems with the first aid training to handle a new course.

Nairobi City Council Fire did not have the backing of the City authorities to undertake individual training programs. A partnership between St. John and the Fire Brigade was not seen to be feasible according to the Fire Chief. Hence, CERT training did not extend beyond the instructors' course.

III. LESSONS LEARNED AND RECOMMENDATIONS

The CEDP program only 'scratched' the surface of dealing with disaster/emergency management in Kenya. The CEDP program was very critical in creating the dialogue necessary to continue the establishment of an adequate disaster management strategy for Kenya. With more time and funding, the system can effectively be realized since a high level enthusiasm and commitment is present. Proper advocacy on the part of both public and private stakeholders is crucial to the process of soliciting the necessary political will to institutionalize the system and make it truly effective and realistic.

The following is a list of few of the more critical elements that need to be addressed in order to move the process forward:

1. National (Disaster) Operations Center

- Expand Provincial and District-level training in disaster management and utilization of the resource inventory and Incident Command System and reinforce "table top" drills to test the system.
- Strengthen the development of a National Emergency Communications Network.
- Advocate to relevant Permanent Secretaries/MPs/Civic Leaders on emergencies and disasters, and for appropriate legislation and a national safety policy.
- Institutionalize annual Disaster Drills in alternating locations around Kenya.
- Institutionalize District-wide Hazard Mapping and risk assessment to identify potential disaster scenarios.
- Establish In-house Training center at the NOC for Provincial and District-level officers.
- Establish permanent links between the NOC and FEMA for possible exchange and/or FEMA consultants to assist the NOC.
- Incorporate the Resource Inventory into a website where stakeholders can update information regularly and so that Provincial Disaster management Committees can have the required access.
- Provision of computers to Provincial Disaster Management Committees.

2. EMT/First Responder Training

- Institutionalize EMT/Paramedic training at either (or both) University of Nairobi KMTC and/or Moi University through collaboration with the Kenya Association of EMTs (KAEMT).
- Conduct EMT Training courses in Eldoret, Kisumu, Mombasa, and Nyeri.
- Conduct EMSI Instructor's course in Mombasa, Nairobi, and Eldoret.
- Establish First Responder curriculum with the Police College at Kiganjo.
- Establish First Responder curriculum at Utalii Hotel training college.
- Establish advanced and/or specialized training curriculums (HazMat, confined area search and rescue, water rescue, collapsed buildings, etc.) for EMTs including Instructor's courses for each.
- Build capacity for continued training within KAEMT.

3. Hospital-based Training

- Strengthen in-house training centers at Kenyatta and Coast General.
- Establish in-house training center at Moi University Teaching and Referral Hospital in Eldoret.
- Continue to follow up with the Institute for International Emergency Medicine and Health (IEMH/Harvard) to facilitate the establishment of a faculty of Emergency Medicine at the Medical school.
- Support emergency training (ALS/ACLS/Trauma) at District-level Hospitals through RCK.
- Assist with the supply of basic casualty equipment to District Hospitals (oxygen, defib, suction, etc.).
- Establishment of Major Incident Management Systems (MIMS) at large (Provincial) Hospitals with annual drills.
- Assist RCK to become a true "council" overseeing advanced training programs at in-house training centers and develop connections with the Resuscitation Council of the UK.
- Continue the development of Kenyan Standard Curriculums for advanced/emergency medical care.

4. Community-Based Training and Awareness

- Standardize and institutionalize First Aid and Cardio-pulmonary resuscitation (CPR) training in all Kenyan Schools.
- Work with NCC and MMC Fire Brigades to establish linkages with local NGOs (St. John, SEMAC, Red Cross, RCK, etc.) to implement CERT training at both the community-level and within businesses to create certified assistance teams for communities and for buildings/compounds.
- Work with the NCBDA community groups on First Aid and CERT Training.
- Work with local partners, choose random communities and plan “Disaster Days” where some basic training is undertaken, and they can have the chance to assess their community for potential disaster situations and make specific plans for their community based on their findings. The recent floods and landslides are a good example as well as black spot areas.
- Develop materials and programs to introduce community groups to risk assessment and other general ideas pertaining to disaster management.
- Continued production of Emergency/Disaster information on television and radio including the possibility of a radio-based soap opera based on issues in disaster management, response and prevention. This approach was tried in South America with PAHO about hurricanes and landslides and was very well received.

5. Advocacy Issues

- Continue working with stakeholder working groups to finalize and formalize stakeholder input into a realistic Emergency/Disaster Management strategy for Kenya involving all partners both public and private sector.
- Work toward either implementation and/or enhanced enforcement of Traffic laws and Safety policies nationwide.
- Continue the open forum “Emergency Management in Africa” with a view towards these advocacy issues and towards a regional perspective (i.e. mutual-aid agreements).
- Advocate with the MOH on standardizing ALL ambulances, equipment, and personnel in Kenya.
- Advocate for the professional certification and registration of the medical cadre EMT.

6. Coordination Issues

- Institute more formal measures to ensure both public and private sector involvement. Many private stakeholders want to be more involved but need a mechanism (MOU, etc.) to ensure what they can and cannot do to assist and what may be the recovery costs. Agreements need to be entered into that will, at the same time, protect public and private stakeholders while ensuring their continued support and cooperation.
- Facilitate private sector involvement or even a private-sector coordination body of some type, a point person or agency that could be the sole connection between governmental resources and private sector resources. This would help to streamline any communications concerning cooperation and greatly facilitate appropriate response activities.

7. Equipment Provision:

- Supply basic resuscitation/casualty department equipment to District-level hospitals to facilitate de-centralized trauma care and patient stabilization prior to transport when required.
- Supply more appropriately equipped ambulances to public service providers.
- Furnish Fire brigades with appropriate Rescue Vehicles, not necessarily ambulances but fast response vehicles ahead of the fire trucks to assist with patients until ambulances arrive.
- Improve the equipment for marine/lake search and rescue.
- Provide specialized units to deal with collapsed building search and rescue with specialized equipment at least on a regional level.
- Provide more vehicle extrication equipment, fire engines, ladder vehicles, and equipment.
- Develop a centralized, modern, emergency dispatch center to handle all forms of electromagnetic communications (VHF, HF, Cell, Phone, Microwave link, etc.) and respond accordingly.
- Supply each Provincial Disaster Committee office with computers need to fully utilize the resource inventory via the website.

LIST OF ACRONYMS

AAOS	American Academy of Orthopedic Surgeons
AAR	African Air Rescue
ACLS	Advance Cardiac Life Support
ALS	Advanced Life Support
AMREF	African Medical Research Foundation
BLS	Basic Life Support
CEDP	Community Education and Disaster Preparedness
CERT	Community Emergency Response Team
CPR	Cardio-pulmonary resuscitation
EMIA	Emergency Management in Africa
EMT	Emergency Medical Technician
FEMA	Federal Emergency Management agency (US)
HazMat	Hazard Materials
HF	High Frequency
HMOs	Health Management Organizations
IEMH	Institute for International Emergency Medicine and health
IMC	International Medical Corps
JKIA	Jomo Kenyatta International airport
KAEMT	Kenya Association of Emergency Medical Technicians
KBC	Kenya broadcasting corporation
KICC	Kenyatta International Conference center
KMA	Kenya Medical association
KMTC	Kenya Medical Training College
KNH	Kenyatta National Hospital
KPA	Kenya Ports Authority
KTN	Kenya Television network
MIMS	Major incident management systems
MMC	Mombasa municipal council
MoH	Ministry of Health
MOU	Memorandum of Understanding
MPs	Members of Parliament
NCBDA	Nairobi central business district association
NCC	Nairobi City Council
NGOs	Non-governmental organizations
NOC	National (Disaster) Operations center
OFDA	Office of Foreign Disaster Assistance
RCK	Resuscitation Council of Kenya
SEMAC	Safety and emergency management center
SJA	St. Johns Ambulance
TV	Television
UK	United Kingdom
UN	United Nations
USAID	United States Agency for International development
VHF	Very high frequency

