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COMMUNITY-RELATED ISSUES

Successful Coupling of Community Attachment of Health Science Students with Relief Work for Drought Victims

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ABSTRACT **Context:** *Recurrent drought is a major disaster affecting many countries. As a result of poor rain fall a major drought was forecast for Ethiopia in 2003. The country appealed for support to avert drought-related health problems. University of Gondar decided to respond to the appeal by sending students and staff to selected drought-affected areas.*

Objectives: *To illustrate how an institution has turned the response to a natural disaster into a service-learning educational opportunity while maintaining equilibrium between the two.*

Methods: *The drought relief response of the institute was twined with the regular team-training programme and academic schedule of senior health science students and 190 of them were transferred to deployment sites.*

Findings: *Students provided support for the national effort of reducing drought-related morbidity and mortality by participating in multifaceted public health and relief activities, and fulfilled their regular learning objectives at the same time.*

Discussion: *This project demonstrated the use of a natural disaster as a learning method to expose students to a more realistic array of health problems and human conditions. It also demonstrated the feasibility of addressing social responsibility, while fulfilling academic responsibility through community-based approach.*

Conclusion: *Service-learning is a valuable learning method. Balancing the service and teaching objectives and maintaining the quality of both can be attained through careful twining of the objectives of both components.*

KEYWORDS *Drought relief, service-learning, community-based education, team training, medical education, problem-based teaching.*

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Introduction

With both disasters and the number of their victims increasing, disasters are a major public health problem. Training in schools hardly prepares healthcare professionals for such challenges in which their role is not limited to the usual diagnostic and therapeutic approach (Kevin & Kahill, 2003). Reports of service-learning in human disasters are very rare, and the existing few publications focus only on medical education in natural disasters (Steiner & Sands, 2000) or in war conditions (Cheah & Tay, 1997; Gluncic et al., 2001). There are no similar reports regarding drought or famine, the dreadful human disasters of our era. The essential qualities required to serve effectively in such situations can be developed within the existing tradition of teaching-learning. This article describes a service learning experience of health science students at the University of Gondar which used the natural disaster to support education. It presents an example of responding to a drought by providing needed aid to the affected community while fulfilling learning objectives.

The 2002 appeal of the Ministry of Health for healthcare support of drought-affected communities

Ethiopia is a country recurrently affected by drought, with major food crises appearing every 7 – 10 years (Milas & Latif, 2000; Hammond & Maxwell, 2002; Kalvski et al., 2002). In 2002 there was poor rainfall resulting in substantial crop failure with fragility of agriculture-dependent livelihoods. Compared to the previous year, the failure in crop yield was estimated to be 28% nationwide and 18% in Amhara State[1]. As a result, a 2003 major reduction in agricultural output, that could affect 15 million people, was forecast. Nutritional surveys[2,3,4] indicated a high level of acute malnutrition in affected areas, particularly among children under-five, reproductive women and older people.[2] An increase in disease prevalence was also reported.

[1]Disaster Prevention Preparedness Commission of the Amhara Regional State. (2003). Report on the assessment and evaluation of crop yield of the two farming seasons of 2002 (in Amharic), Bahir Dar, Ethiopia.
[2]Ministry of Health (2002). Drought related health problems in Ethiopia, second appeal document. Addis Ababa, Ethiopia.
[3]Kahara, T., Kiflu, M. (2002). Nutritional survey Dessie Zuria Wereda and Kalu Wereda of South Wollo zone, Amhara Region. Bahir Dar CONCERN, Ethiopia.
[4]World Vision Ethiopia (2002). Rapid nutritional survey in Wegera and Jille Xumuga Districts, North Gondar and Oromia zones.
[2]Ministry of Health (2002). Drought related health problems in Ethiopia, second appeal document. Addis Ababa, Ethiopia.

Ministry of Health of Ethiopia (MOH) appealed for urgent support to avert drought-related health problems.[2] The capacity of health institutions was described as inadequate to handle the situation. As a response, the College of Medicine and Health Sciences (CMHS), University of Gondar decided to send health science students and their instructors to selected drought-affected areas for relief work by modifying its community attachment programme.

Educational principles of community attachment programme

The mission of the college is to produce competent, compassionate and community oriented healthcare professionals. CMHS uses distinct educational principles in its training, i.e.:

- Training of health professionals in **rural** and **urban settings,** so that students acquire knowledge and skills relevant to the needs of the community and practice settings.
- Providing **community oriented teaching** that enable graduates to identify the health problems of the community and to plan interventions.
- Training of different health professionals together as a **team** to establish and enhance the ethos of teamwork and early professional socialization.

Training of different healthcare professionals in a team (Team training Programme, TTP) in rural setting (Community Health Field Training Programme, CHFTP) is the hallmark of the college. CMHS was the first institute in Ethiopia to introduce TTP in its curricula in 1954 (Wondmikun, 2003). Table 1 summarizes the basic features of TTP and its final phase, CHFTP. The regular CHFTP is conducted in four field training centres, located within 100 km radius of the college. The challenge in 2003 was how to combine the drought response with TTP and CHFTP.

Method

Designing the educational project

The Dean established a taskforce to merge the school's TTP objectives with the drought relief efforts. Initial consensus was reached to modify objectives of TTP to provide aid to the affected communities and also to fulfil the regular learning objectives.

With this agreement, objectives of the deployment were:

[2]Ministry of Health (2002). Drought related health problems in Ethiopia, second appeal document. Addis Ababa, Ethiopia.

- To give healthcare services to the drought-affected community and support the health care institutions of the area.
- To combine the drought response with the regular learning objectives of TTP.
- To provide students and staff the unique learning experience of humanitarian intervention during disasters.
- To evaluate the practicality of conducting TTP outside the traditional training sites.

***Situational analysis and rapid needs assessment**:*
The next undertaking was a rapid assessment of the healthcare needs in the Amhara region. In January 2003, members of the taskforce visited all severely affected zones of the region to identify needs and select intervention areas.

Table 1. Basic characteristics of team training programme

Traits	**Descriptions**
Objectives	Early professional socialization, and respect and appreciation for the profession and contribution of other members of healthcare team (McNair et al., 2001; Banks et al., 1998). Learn to maximize their potential and the benefit to clients of primary healthcare by working together. To bring cognitive and normative transformation, as well as recognition of the advantage of interdependence, in dealing with multifaceted health problems (Horne, 2001).
Team size	7–10
Team members	Trainee for the health centre (health centre team: health officers, community nurses, environmental health technicians, and laboratory technicians), health officer is team leader.
Phases	Designed to help students with the various stages of group development (Walton, 1997).
Phase I	Core course (Forming phase of group dynamics, Didactic interdisciplinary, class-room based, 10 days)
Phase II	Pre-internship (Norming/storming dynamics, once weekly, outreach, 12 weeks)
Phase III	Internship (Reforming/disbanding, community based, 4–6 months)
Main components of teamwork in Phase II & III	Community diagnosis, Policlinic service, Environmental health activities, School health, Intervention project work, Family mentoring, research (survey) work
Evaluation of students	Progressive and interdisciplinary Team based, not focused on individual student Oriented to shared/common knowledge, skills and values (not specific to a particular profession)

Figure 1. Drought affected districts.

Preparation and deployment:
Three drought affected districts, Ebinat, Belesa and Sekota, and one resettlement area, Metema, (Figure 1), were selected as intervention sites based on the needs assessment (magnitude and impact of the drought on health and nutrition) and institutional logistical capability. The taskforce developed a list of tasks that teams should accomplish (Appendix 1) including assessment modalities for learning outcomes. Intensive block training was conducted for students and faculty on ‘‘health in emergencies’’. In February 2003, 190 senior health science students (46 trainee health officers, 50 trainee nurses, 51 trainee environmental health technicians and 43 trainee laboratory technicians) were transferred to deployment sites after receiving polyvalent meningitis vaccination and malaria prophylaxis. At the end of the experience, discussions were held with students and faculty to reflect on the programme. Further, simple content evaluation was done of acknowledgment letters written to the college by partners and the community.

Results

Situational analysis
Nearly all zones of the Amhara Regional State were affected to various extents. Most people residing in affected areas were subsisting with relief food supplies. Springs, rivers and ponds were drying out, forcing people to travel long distances to fetch water. The health institutions in the worst-hit areas (Sekota, Dehana,

Zikuala, Ebinat and Belesa) (Figure 1) had expressed their need for additional manpower and healthcare supplies. Officials of the Disaster Prevention and Preparedness Commission (DPPC) indicated increased distress-induced migration. Relocation of farmers was also underway from districts of recurrent drought to the uninhabited low lands (Metema). However, the newly established healthcare facilities in the resettlement areas lacked the necessary manpower and facilities. Hence, supporting health institutions in the resettlement areas was strongly recommended. Apart to their poor health status, re-settlers moving from the Abyssinian highlands were additionally subjected to endemic diseases of the low-lands, such as malaria and leishmania, to which they lack immunity.

Community diagnosis

Rapid assessments of the health and demographic status of the selected communities were conducted in Ebinat, Belesa, Sekota and Metema districts. The community diagnosis exercise differed from the usual TTP; it was designed to gather information on drought-related damage to the community and the consequent healthcare needs (Table 2).

Polyclinic activities

These are related to routine primary health care (PHC) services rendered to clients visiting rural healthcare facilities. Teams, composed of all categories of students plus a supervisor, were assigned to provide healthcare to polyclinic clients. Students worked in all units of the district healthcare establishments (Table 2). The five most common disease entities for patients visiting the health centers were malaria, other acute febrile illnesses, respiratory tract infections, diarrheal diseases and eye infections.

Epidemic control

Drought and famine are usually accompanied by epidemic outbreaks. Students conducted surveillance (disease mapping, neighborhood visits, active case detection, etc.) for disease outbreaks and participated effectively in control measures. Malaria, meningitis and measles outbreaks were detected. House-to-house survey for malaria cases detection and treatment were conducted for 2238 villagers. Anti-mosquito agents were sprayed in the worst affected villages. Re-settlers had been provided with insecticide-impregnated bed-nets, but they had no instruction in the proper use of the nets. Home-based training in appropriate use of the nets was given to 510 households. Furthermore, students vaccinated 14,451 villagers to control a meningitis outbreak in one village. In Sekota, 2,764 children were vaccinated and provided with vitamin A capsules to control the measles outbreak detected at an early stage.

Nutrition linked relief work

The activities in this category included strengthening a newly established therapeutic feeding centre in Sekota hospital, setting up a nutritional

Table 2. Selected health services rendered to the drought victims during TTP and CHFTP

Tasks	**Description**	**Numbers**
Community diagnosis	Health and disease status survey	12,660 households
	Nutritional status survey	14,850 persons
	HIV/AIDS behavioral survey	13,350 persons
	Trachoma prevalence survey	6,845 persons
	Family Planning coverage survey	6,384 households
Polyclinic	Out patient service	23,118 cases
	In patient service	811 "
	Under five child care	2513 "
	Growth monitoring	678 "
	Antenatal care	1019 "
	Post natal care	57 "
	Delivery services	102 "
	Family planning	1783 "
	Extended Programme on Immunization	1213 "
	Tetanus Toxoid for reproductive women	2303 "
Environmental health monitoring and supervision (visit, advice, technical and logistical support, etc.)	Food and drinking establishment	68 sites
	Slaughter house	3 "
	Slaughter shop	32 "
	Small scale industry	56 "
	Refuse disposal pits	17 "
	Drug shops	7 "
	Water sources	48 "
	Prisons	25 "
	Private clinics	4 "
	Incinerators	7 "
	Traditional healers	11 "
Training and refreshing	Health center staff	43 participants
	Anti AIDS club members	53 "
	Food handlers	30 "

rehabilitation unit in Ebinat health centre, mentoring vulnerable families in balanced food preparation, monitoring growth of at-risk children and distributing vitamins for mothers and children under-five.

School health

Students spent considerable time in schools. The spectrum of activities included surveys for trachoma and treatment of active cases (2465), administering

tetanus toxoid for female high school students (1270), helping to establish clubs (HIV/AIDS, reproductive health, etc.), classroom-based health education in nutrition, and distributing vitamins in schools.

Regular TTP related activities

These included programs such as environmental health, prison health service and health education to the community (Table 2). Students conducted investigations and surveys as part of their final qualifying requirements. Thirty-eight public health oriented mini-projects were undertaken. The level of participation by the community and other stakeholders is indicated in Table 3. The college intentionally did not provide full-scale financial support for mini-projects. As part of the learning exercise, students mobilized the community and solicited funds from other sources.

Evaluation

Students, faculty, community and partners commented positively about the programme, stressing that the programme was advantageous and well received. Comments reflected a sense of appreciation of the experience gained, a feeling of doing good for fellow citizens and increased confidence in working together with various stakeholders. It is difficult to give structured information, but sample comments are listed below so that the spectrum of response can be gauged.

Students

- Effective transitional programme from school based teaching to the real working environment.
- I am happy to assist fellow citizens rather than just helplessly following media broadcasts about the situation.
- I realized that we are capable of working under different circumstances and can manage a societal problem of substantial complexity with the seemingly little health science knowledge we have.

Faculty

- Very satisfying to see the immediate impact of transfer of our know-how and process skill on students' performance and community benefit.
- The twinning of TTP with drought relief illustrates the ability of the institute to be responsive to the health need of the public.
- Realized citizenship initiative and local partners' coalition have far greater impact than simple relief work would.

Community

- Students were just like family members, sharing our problems and concerns. I wonder if it is part of their education.

- It gave me strength that someone is there who is willing to address my worries and concerns.

Discussion and conclusion

There has been a global thrust to review education of healthcare professionals to ensure that the training is appropriate to the healthcare needs of contemporary societies (Kevin & Kahill, 2003). Approaches to teaching and learning must include community-based experience and problem-based learning. This paper demonstrates an innovative form of community-based education. Its foundation lies in the balanced community-campus partnership, turning the response to a national disaster into a service-learning educational opportunity while maintaining an equilibrium between serving the community and meeting defined learning objectives. Even though the setting and the approach were different, the lessons learned about how service-learning may benefits students, faculty, community and higher education institutions are similar to those described elsewhere (Seifer, 1998; Steiner & Sands 2000; Gluncic et al., 2001).

The challenge lies in balancing the double responsibility and accountability. The social responsibility demands an emphasis on providing relief services for the drought-affected community as a committed partner responding to the appeal of the MOH. The institute also has an academic responsibility to students to ensure that their learning objectives are met. The outcome indicated that it is attainable and that service-learning is a valuable learning method. Further, students learned from working not just in a real situation, but also in a serious emergency that required flexibility and immediate decision-making. Even though it is difficult to quantify the impact of such an innovative programme on quality (Tarlov et al., 1989; Stewart et al., 1992), the double responsibilities certainly reinforced each other in many ways to strengthen the quality of both education and service. This approach makes the relevance of education for real situations explicit to students. It generates interest and enhances motivation for learning. On the whole, the qualitative responses were in agreement with this assertion. Additionally, the taskforce contributed to the success by setting clear objectives and goals. The setting of objectives and list of activities (Table 1, Appendix 1) reassured students that the programme contributed to their professional advancement.

As the programme was different from the regular well defined set of objectives and activities, it required improvisation and on-the-spot problem solving, because communication with the college was difficult. Telephone lines were not available. Roads were rough, and some localities were not accessible by vehicle. In some districts, health kits were not available as promised. Communication and coordination of activities with the health institutions and district officials were not up to expectations. Students had to

Table 3. Mini-projects performed by students and percentage of funds and resources students solicited to conduct them

Activities category	No. of projects (Total = 38)	Types of mini-projects	Funding sources and contributions made in percentage			
			CMHS	DHO	Community	Local NGO
Communicable disease control	7	House-to-house malaria case finding and treatment Stool exam for school children and treatment Trachoma survey in school and case treatment Health mapping of rural town	79.9	12.6	4.9	2.6
Water supply	6	Spring development Spring protection Hand pump maintenance Well maintenance Well construction	52.4	4.3	12.9	30.4
Prison health	3	Urine disposal system construction Steaming and delousing demonstration and developing standard operating procedures	57	0	18.4	24.6
Food handling	4	Food handlers training and health checkups Slaughter house upgrading Hygiene procedure improvement in rural small hotels	65	1.8	22.8	10.4
Family health	5	Tetanus toxoid for reproductive women	59	32	7	2

(*continued overleaf*)

Table 3. (*continued*)

Activities category	No. of projects (Total = 38)	Types of mini-projects	Funding sources and contributions made in percentage			
			CMHS	DHO	Community	Local NGO
		Tetanus toxoid for high school girls Tracing of Family Planning defaulters and advice Training mothers in weaning food preparation Training in HIV/AIDS in schools				
Waste disposal construction	13	Communal ventilated improved pit latrines Private ventilated improved pit latrines Garbage disposal pit Seepage pit Sewerage line maintenance	49	2.6	27.8	19.6

DHO: District Health Office.
NGO: Non-governmental Organization.

live in tents and make-shift camps. Unavailability of electric power in some areas affected both teaching and service. Long stays of faculty on remote sites stretched out the teaching-learning in the campus. Additional costs were incurred by the institute in providing logistical support to deployment areas which lack basic facilities. However, to integrate such a real-life learning opportunity into the curricula of health science students is a valuable exercise.

Training institutions have a major role in the development of an ethical culture and are expected to incorporate ethics in their interactions to stimulate and encourage ethical behaviour among students and faculty. To uphold its ethical standard and to catalyze the development of the culture among the learners, the institute has adopted the public health code of ethics of Ethiopia (EPHA, 2003) as a working document for its public health practice and research. Likewise, study protocols of students (in the regular TTP and also in this drought relief operation) contain key elements of ethics of health research including individual consent, community agreement, communication of study results to initiate public health measures, health care for the community under study and etc.

This project demonstrates institutional flexibility in using different settings for learning. Various environments, both medical and non-medical (schools, villages, and households), expose students to a more realistic array of health problems and human conditions to enlarge and enrich their experience (WFME, 1993). The use of wider settings produces healthcare professionals who are better equipped to provide primary care and more aware of the necessity of multi-professional teamwork. Universities are recommended to commit themselves to population based education (WHO, 1995), which calls attention to those most in need. This drought response has demonstrated the feasibility of addressing social responsibility, while at the same time fulfilling academic responsibility to students through a community-based approach.

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Appendix 1: Truncated activities list set by the taskforce for the deployment

- Conduct survey on health profile and effect of drought (damage and need), and prioritize the identified needs.
- Provide technical and logistical support to health institutions in the area to improve their services to drought victims.
- Provide emergency health care (vitamins, contraceptives, nutritional supplements, therapeutic feeding and growth monitoring).
- Provide refresher training for health workers posted to drought affected and re-settlement areas.
- Brief staff and students in disaster preparedness, mobilization and managing relief work.
- Conduct surveillance to detect early outbreaks of epidemic diseases and to take immediate action.
- Design and implement exemplary small scale public health intervention projects (students' mini projects) that could assist in improving the health status of affected communities.
- Conduct home and community visits as a springboard for designing appropriate interventions.
- Provide health education for villagers in personal and environmental hygiene, communicable disease control, nutrition, reproductive health, maternal and child health services, HIV/AIDS, etc. at home, in the health institutions and other places.
- Set up a system for the distribution of relief and household supplies to be provided by CMHS.
- Mobilize the community and advocate the formation of community groups for self-support, resources distribution, proper use of common resources and scaling-up health care service utilization.
- Design and conduct relevant action-oriented research and studies on prevalent health and health related problems of the community.
- Prepare reports on need assessments, students survey and research results and distribute to partners and stakeholders to make future interventions focused and effective.

Appendix 2: Topics of some research/surveys conducted by students at drought affected TTP sites

- Prevalence of malnutrition and its correlates among drought victims in Ebinat district.

- Prevalence of malnutrition among children under-five at Sekota town.
- Xerophthalmia status in children and associated risk factors.
- Knowledge, attitude and practice (KAP) of Shehedi adults on HIV and Voluntary Counseling and Testing (resettlement area and traffic route to the Sudan).
- KAP of Metema people towards malaria (a highly malarious resettlement district).
- Prevalence of protein-energy malnutrition among children aged 6–59 months in Ebinat town and its surroundings.
- Unmet needs for contraceptive in Ebinat town (drought affected district).
- Prevalence of Onchocerciasis skin lesion in Shinfa (resettlement area bordering the Sudan).
- KAP of adults on HIV/AIDS in a rural town in the middle of a new resettlement area.
- Nutritional status of children under-five in the resettlement area and the impact of nutritional supplements.
- Contraceptive prevalence and factors associated with usage in Sekota Town.
- Perception of rural women about HIV/AIDS and socio cultural beliefs and practices.