SOCIAL ENTREPRENEURSHIP
Lehigh University

an initiative to create lasting social and economic change in communities around the world.

Mission Cambodia

A Proposal for an International Social Entrepreneurship and Development Hub in Siem Reap

Project Report 2

5 March 2010

This proposal builds on Project Status Report 1, which documents activities undertaken during the fall of 2009, including the first exploratory site visit, October 30 – November 7, 2009.

LEHIGH UNIVERSITY

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EXECUTIVE SUMMARY

In the fall of 2009, a multidisciplinary team of Lehigh students and faculty began exploring opportunities to help foster sustainable economic and social change in a poor district of Siem Reap province in northern Cambodia. Guided by a commitment to best practices in development methods combined with the philosophy of innovative social entrepreneurship, we sought to demonstrate the potential for a long-term partnership between Lehigh University and other agents of global change, including Caring for Cambodia, an educational NGO in the region with ties to Lehigh.

In Bethlehem, our background work combined scholarly research, consultations with experts, and meeting with ex-patriots. During our field research in Siem Reap, we interviewed fifteen NGOs, more than a dozen government officials, and surveyed scores of local citizens.

Section Three reports the principal findings of our research teams and the lessons we derive from them. Among those lessons:

- Social capital and community engagement are poorly developed in Siem Reap, and improving them are an important interlocking goals together with fostering education and development and alleviating poverty. These are main components of our programs proposed below.

- The density of NGOs is remarkably high in Siem Reap and represents an opportunity for building, as described below, a financially self-sustainable Lehigh program hub and for collaborative partnerships with CFC in developing curriculum and training programs, particularly in agriculture.

- Agriculture represents more than 80% of employment in the Siem Reap region but is extremely inefficient compared to neighboring countries. It is susceptible to substantial improvement with minimal financial and knowledge resources. We believe the greatest near-term contribution we can make to enhanced standards of living lie in student and community education to improve agricultural productivity; hence the recommended agricultural demonstration farm.

- Well less than 5% of employment is in the formal private sector in Siem Reap. In the absence of either effective government or a vibrant private sector, village-level micro-entrepreneurship is fundamental to diversified and sustainable economic growth.

- The microfinance sector in Siem Reap is relatively well-established but the market is far from saturated and lacks innovation compared to many other countries. It offers the prospect for us to help foster innovation while leveraging the existing structure.

- Problems of water quality are severe, but the presence of numerous NGOs in the sector means that Lehigh's greatest contribution can be in researching the relative success rates of different techniques of intervention and fine-tuning the performance of existing projects through networking, education and innovation.

Based on these findings, Section Four presents our Specific Recommendations, including:

- Deepening the Social Entrepreneurship Program at Lehigh by the expansion of curricula and staff with a focus on Cambodia.

- Developing a Lehigh hub in Siem Reap, which can support numerous activities, including:

    - A Lehigh student internship program along the lines of the successful Prague, Belgium and Shanghai programs, except with local NGOs. These three Lehigh international internship programs focus on placing students in business and engineering-related fields. Lehigh lacks a well-established pathway for non-profit internships for students interested in international issues of development, health, education, and the like. Because such international internships are highly desired but difficult for students to find independently, we believe sufficient demand exists so that tuition and fees can readily make this program self-sustainable.

    - A collaborative CFC-Lehigh effort partnering with local the NGOs DED, READA, and/or HRND to implement an agricultural demonstration and training farm at the Bakong high school, integrated with a curriculum for both students and the community.

    - A credit-bearing seminar in Siem Reap for the Lehigh interns, who will make up a network that connects NGOs with one another and finds synergies in service provision; the intern program should also leverage the network of student interns and host regular networking opportunities for the staff of participating host organizations, aimed it improving collaborative social capital among NGOs in the region.

    - Links between Bakong high school students and opportunities for work experience and future education, while fostering entrepreneurial attitudes

    - Working with local people and local microfinance organizations to build micro-enterprises that improve quality of life, in part through entrepreneurial education at Bakong high school.

- CFC hiring a guidance counselor to advise students of future opportunities, further educational, training and scholarship programs, and entrepreneurial possibilities.

Requested startup expenses for a pilot program for summer 2010 are $38,500. Beyond the startup phase, the summer NGO interns program should be self-supporting via tuition and fees.

In addition, the annual requested budget of $104,200 will provide a full-time Professor of Practice in Social Entrepreneurship, with expertise on Cambodia and on NGOs, and scholarships for lower-income Lehigh students to participate in the NGO internship program and for Cambodian students from the CFC Bakong high school to attend Lehigh's summer immersion high school program, the PA School for Global Entrepeneurship.

I. BACKGROUND AND RATIONALE

In the fall of 2009, a multidisciplinary team of Lehigh students and faculty began exploring opportunities to bring sustainable economic and social change to a poor district of Siem Reap province in northern Cambodia. Guided by a commitment to best practices in development methods combined with the philosophy of innovative social entrepreneurship, we sought to demonstrate the potential for a long-term partnership between Lehigh University and other agents of global change, including Caring for Cambodia, an educational NGO in the region with ties to Lehigh.

Our exploratory effort was constructed as proof of the concept that in-depth field work in international social entrepreneurship could provide unmatched educational experiences for our students while also contributing to the solution of global problems. We hope to attract additional resources in order to build a sustainable organization devoted to alleviating global poverty and fostering development through creative innovation.

The project was organized through two courses:

- ENTP 398: International Social Entrepreneurship Practicum, led by Bruce Moon (International Relations) and Todd A. Watkins (Economics, Entrepreneurship).
- CIE 404: Issues and Institutions in International Education Development, led by Iveta Silova (College of Education).

This report covers the activities and recommendations from the ENTP 398 course; CIE 404 has produced a separate report.

Tackling a social problem like poverty first requires a deep, multi-faceted understanding of it. Our multidisciplinary effort brought together a team with diverse backgrounds, including students and faculty from all four of Lehigh's colleges: the College of Education, the College of Business and Economics, the College of Arts and Sciences, and the P.C. Rossin College of Engineering and Applied Science.

The research team for the Social Entrepreneurship initiative's ENTP 398 included ten undergraduate and graduate students with majors (or double majors) in Economics, Global Studies, International Relations, Asian Studies, Industrial Engineering, Integrated Business and Engineering, Theatre, Psychology, Civil Engineering, Architecture and Spanish. Appendix A includes brief bios of the participants. Some are steeped in the social scientific study of poverty and development, prepared to recognize common problems by their knowledge of the scholarly literature and their experience in other poor countries. Others have field experience with the technical issues that arise in coping with the manifestations of poverty in particular sectors – the engineering of water and sanitation, the technology of agriculture, the science of health and nutrition. Still others come to social entrepreneurship from the business perspective, with training in how to construct and operate successful organizations as well as specialized knowledge of areas like microfinance. Several have studied the administration of non-profits or worked with NGOs.

We have received generous financial and logistical support from the NGO Caring for Cambodia and its founders Bill and Jamie Amelio, as well as the Lehigh Office of International Affairs and the Lehigh Advancement Office. We gratefully acknowledge their indispensable assistance.

WHAT IS SOCIAL ENTREPRENEURSHIP?

Social entrepreneurship is a bundle of activities, attitudes, and skill sets that are more easily recognized than defined. Daniel Boorstein's influential 2005 book, *How to Change the World: Social Entrepreneurs and the Power of New Ideas,* presents its motivation. Muhammad Yunus's path-breaking work in bringing microfinance to the poor of the Third World, or Wendy Kopp's building Teach for America, exemplify its operation.

Social entrepreneurship is fundamentally about fostering innovative change in the public interest. It rests on a solid foundation of the theoretical understandings of social problems found in the social sciences, guided by normative commitments rooted in the humanities, utilizing the organizational skills of business, and technical expertise from science, engineering, and education.

- Social entrepreneurs are "catalysts for social transformation"[1]
- Social entrepreneurship is "the innovative use of resources to explore and exploit opportunities that meet a social need in a sustainable manner"[2]
- Social entrepreneurs seek "sustainable, large-scale change through pattern-breaking ideas in how to address significant social problems."[3]
- Social entrepreneurs "see opportunity where others see problems."[4] They "recognize when a part of society is stuck and provide new ways to get it unstuck."[5]

Social entrepreneurship lies at the nexus of problem recognition, the invention of solution, and the art of doing. It is inherently interdisciplinary, blurring the boundaries between theory and application, between social action and organizational management, and between the public sector, the for-profit enterprise of the market, and the non-governmental organizations of civil society.

ORIGINS OF THE PROJECT

Social entrepreneurship is a just-emerging program at Lehigh, though its constituent elements have deep roots. Thus far, its most visible dimensions center around the Social Value Creation student entrepreneurial competition begun in Fall 2008 and an experimental course (ENTP 398) introduced to foster student social entrepreneurs and their ideas.

The first competition winners, who won with a plan developed in ENTP398, were a pair of International Relations students who while enrolled in Moon's development courses the previous spring had come up with the idea for an NGO that would improve water access to rural communities in Tanzania. With their $5000 grant award, they began a pilot project in the Dodoma province of Tanzania. The runner-up—also from ENTP398—was Lehigh's Engineers Without Borders, which has been constructing a water treatment project in Honduras for several years, aided

in the last year by development students acting as political and economic advisors. EWB was also steered to the national Davis Projects for Peace competition. They won $10,000. Other participants in that initial ENTP 398 seminar included students who developed the TS Foundation (focused on arsenic remediation in Asia and Africa with Prof. Arup SenGupta) and students who created a pilot program for Lehigh's Global Citizenship program, working in squatters slums on the outskirts of Lima, Peru.

Meanwhile, for several years Lehigh's microfinance program has been gaining momentum under the directorship of Watkins and the financial support of the Martindale Center, with a series of conferences, faculty research projects, publications, internships, and an active student club. At the same time, efforts to globalize Lehigh had sprouted multiple programs designed to engage the university in various aspects of the international community. Thus, although social entrepreneurship, especially in its global form, had been practiced in various piecemeal ways throughout the university it lacked an institutional home, organizational support, and consistent guiding philosophy.

The latter was supplied by the Entrepreneurship Initiative at Lehigh, spearheaded by Dean Paul Brown of the College of Business and Economics and Watkins, recently named the Director of Lehigh's new Institute for Entrepreneurship, Creativity and Innovation. Committed to an all-university effort, they insisted that social entrepreneurship – forming organizations to meet social needs – be accorded a status comparable to traditional entrepreneurship, the formation of businesses to earn profits. They saw that "social value creation" and wealth creation rely on similar attitudes and skill sets and can even be pursued simultaneously without compromise of either mission.

Of course, entrepreneurship, especially in technical areas, has a long history at Lehigh.[6] One of its flagships, the national-award-winning Integrated Product Development program co-founded by Watkins, became the template for the social entrepreneurship endeavor.

With the help and interest of Bill and Jamie Amelio, a set of activities were developed that would tie Lehigh efforts in social entrepreneurship, international development, and international education to the Amelios' special interest in the Caring for Cambodia schools they created in Siem Reap province. As part of those activities, a pilot project for Fall 2009 was funded by the Amelios with the explicit understanding that two courses would be offered and centered around an exploratory field research visit. One course in Comparative International Education (CIE 404) would focus on curriculum development, educational programming and organizational capacity building for the CFC schools. The second course (ENTP 398) would research Cambodia's rural development problems with focus on social entrepreneurship, micro-enterprises, and expanding opportunities for the graduates of the CFC schools. Both would make recommendations for potential next steps by Lehigh and Caring for Cambodia. This report contains the results from ENTP 398.

VISION AND GOALS

Vison:

- A sustainable Social Entrepreneurship program that deeply engages Lehigh students and faculty in developing and implementing innovative solutions to global poverty.

We seek to provide an unmatched educational experience in actually changing the world, a unique program in international social entrepreneurship that positions Lehigh as a leader among universities and a model for others to follow.

More specifically, our principal goals in developing recommendations for a Lehigh in Cambodia program include the following.

Goals:

- Improve economic development, social capital, job creation, and poverty alleviation in the Siem Reap region;
- Lay the foundation for a long-term collaborative partnership between Lehigh University and Caring for Cambodia;
- Expand curriculum and study abroad opportunities in Social Entrepreneurship and International Development, providing enriched international field experiences and meaningful internships for students;
- Establish an on-the-ground infrastructure and network of contacts—a hub of innovation in Siem Reap—which could incubate creative ideas, courses, research and other activities that would be cost-prohibitive if pursued independently.

We seek to identify projects through which Lehigh can directly reinforce and extend the admirable endeavors of the CFC schools. Education cannot occur in a vacuum. Sick and hungry children do not learn. Lack of employment opportunities discourages enrollment. Poverty erodes all the foundations of education as surely as it diminishes the quality and meaning of daily life. We seek to work both inside the classroom and outside of it to help build a better future with the citizens of Siem Reap, while simultaneously stimulating innovation and emerging leaders for change more globally.

OUR PHILOSOPHY

The tenets that drive our approach are that:

- Students learn best by doing, under guidance. We spend most of our time in classrooms, but we must tear down the wall between theoretical knowledge and practical application if we

are to reach our potential. The point of education is to create the world that we imagine, and the special contribution of a program in social entrepreneurship is to allow students to experience the joy of translating their understanding into immediate action.

- Students learn best when they see clearly and value highly what they can achieve through the skills they are acquiring. Doing good captures the earnest and idealistic spirit of this generation of students: aware of global problems and motivated to direct their talents towards social causes. To train students either only to understand social problems theoretically or only how to acquire skills for personal wealth is an affront to Asa Packer's goal of "the intellectual and moral improvement" of its students. One can do well by doing good.

- Communities change mostly by their own effort, but they often need outside help to focus their energies. Development work requires community ownership of solutions, including full and equal participation in design and implementation.

- Diagnosis must come before treatment. The first step in creating new ideas is to master the old. Many individuals and organizations know more about problems of Cambodian development than we do. So, we seek to work with established NGOs, government officials, community leaders, and ordinary citizens.

- Multidimensional problems like poverty are best attacked by interdisciplinary teams, with wide-ranging skills in social and economic development, in business and non-profit enterprises, in engineering and education, as well as in sectoral problems like water, health, and agriculture. Indeed, real world interdisciplinary study is a differentiating hallmark of the Lehigh experience.

- Nothing we do today matters much without sustainability locally, which in the long term implies operation by capable community-based Cambodian entities with good prospects for reliable revenue streams. We also seek to build a sustainable structure at Lehigh that can maintain student interest, faculty involvement, organizational support, and adequate funding. Effective social entrepreneurs do not tilt at windmills, but concentrate resources where they will deliver returns.

II. PROCESS AND METHODOLOGY

Professors Moon and Watkins created a course, ENTP 398: International Social Entrepreneurship and Development Practice: The Case of Siem Reap, Cambodia, and invited ten students (see Appendix A) to participate. The handpicked students had demonstrated interest and talent for international development and social entrepreneurship, had substantive field experience in developing nations, and possessed useful expertise in microfinance, agriculture, water, engineering,

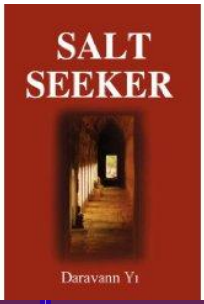
and architecture. The course was devoted to research and analysis aimed at developing the recommendations in this report. The main activities involved

- Research on poverty and development in rural Cambodia;
- Reading on techniques of social entrepreneurship and development field methods;
- Interviews with local Cambodian experts and ex-patriots;
- Developing relationships and meeting with 15 NGOs active in Siem Reap;
- Preparing several field survey instruments to assess poverty, employment, and social institutions in Siem Reap, as well as needs in the water, health, nutrition and agricultural sectors;
- Formulating potential projects through a sequence of background research, brainstorming, and idea assessment;
- Field research in Siem Reap October 31-November 7, 2009.

The class organized into four overlapping research teams to bridge from Lehigh's capabilities (especially the expertise and experience of team members) to Siem Reap's needs (with an emphasis on those most connected to the priorities of Caring for Cambodia). The principal findings of these teams are elaborated in Section III below.

- **Cambodian culture, society, and politics**, which informed the other research teams and prepared the travel team;
- **Water and sanitation issues**, which are vital for enhancing the educational performance of CFC students and the productivity of Siem Reap workers through health and nutrition;
- **Agriculture**, by far the largest sector in the economy, where low productivity offers very significant opportunity to make immediate gains;
- **Employment and microfinance**, which paired the highest priority need with the best developed Lehigh capacity.

As a supplement to our understanding of Cambodia, we interviewed a number of local Cambodian expatriates, mostly through visits to the Cambodian Association of Greater Philadelphia (CAGP), which provides social, health and educational benefits to Cambodian refugees.[7] There are currently no Cambodian students or faculty at Lehigh, but a Cambodian-American and former Lehigh student, Chanda Choun, spoke with our class about social norms in Cambodia and the effect of the Khmer Rouge on contemporary Cambodian society. A list of our local Cambodian contacts is in Appendix B.



Through CAGP we met, in particular, Daravann Yi, author of the book *Salt Seeker: When there is life, there is a will to survive*. The book recounts Daravann's growing up during the Khmer Rouge and his escape from the country as a boy. Mr. Yi is a counselor at the Community College of Philadelphia, and the

founder of Salt Seeker Foundation, an NGO dedicated to helping orphans in Cambodia. He enthusiastically accepted our invitation to visit Lehigh, and led a discussion on his flight from genocide, and more broadly on the damage the Khmer Rouge wrought on Cambodian civil society and collaborative social capital.

In Cambodia, the field work by the travel team (with the help of Khmer translators arranged for by CFC) involved the following main elements:

- Following standard field research methods, the team conducted transect walks or drives of four villages of special interest: near the CFC Bakong high school (Don Treav and Ta Prak villages) and near the CFC Amelio School (Spien Chreav and Aranh villages).
    - Subsets of the team surveyed several dozen vendors, farmers, and shoppers in village markets and along main village roads, using social, structural and poverty assessment surveys prepared previously.
    - This led to additional in-depth interviews with prominent locals, including, among others, a dentist, a Kruu Khmer traditional herbal medicine woman, and numerous government officials and community leaders.

- The team met with the following twelve village chiefs and commune leaders in various settings (Village—Village chief)
    - Don Treav—Mr. Lay So
    - Ta Prak—Mr. Rom
    - Spien Chreav—Mr. Chhon
    - Pabanteay—Mr. Seoun
    - Proleiy Chey—Mr. Bento
    - Cokrain—Mr. Sai Sopheap
    - Aranh —Mr. Mean
    - Krosang Roleung —Mr. Et Eus
    - Triek—Mr. Pau Chorn
    - Phnom Knom —Mr. Tang Som;
    - Prom Kat—[village chief's name unrecorded]
    - Siem Reap commune chief, who lives in Prom Kat village.

- We met with the following 15 NGOs and other organizations. Most would be potential hosts of Lehigh student interns and capstone projects (see recommendations in Section IV) and several are potential partners in developing a demonstration and training farm at CFC's Bakong High School. Contact information for each appears in Appendix C.

    - ACLEADA Bank, Svaydangkum commune branch
      Begun as a microfinance institution, it is now a fully licensed, profitable and self-sustaining commercial bank, Cambodian run and majority owned (49% foreign shareholding). It has 7000 staff nationwide, with two offices and about 5000 microfinance clients in the Siem Reap region, including near Bakong.

    - Amret Microfinance, Siem Reap branch
      Among Cambodia's leading and oldest microfinance institutions, Amret is entirely Cambodian run. It is profitable and self-sustaining, providing savings services as well as

group and some individual lending to 200,000 borrowers nationwide, including about 3000 clients with loans averaging $175 through the Siem Reap branch. We also traveled with two loan officers during their field operations meeting with and interviewing rural villagers.

- Angkor Hospital for Children
  Impressive hospital providing a wide range of free prenatal and children's medical and dental services for 400-500 children daily from across the region. It relies on volunteer visiting foreign doctors extensively, but has a robust medical teaching and training program, explicitly aimed at improving the quality and quantity of local expertise. They have expressed interest in working with Lehigh's premed students.

- Buy Cambodia Trade Fair
  This series of booths promoting various local products, manufacturers and suppliers was organized in conjunction with the Water Festival by the Chamber of Commerce. We interviewed business sales representatives at their booths along the river in Siem Reap town to gain a better understanding of the development potential of existing businesses.

- Caring for Cambodia
  This education NGO, which supports primary and secondary schools in Siem Reap, was our principal host and main source of logistical support. We visited five CFC-supported schools, and one government school.

- Deutscher Entwicklungsdienst (DED)
  The German development service, partnered with the Cambodian ministry of agriculture and other international agencies, run several projects ranging from the regional economy to local governance service delivery through different offices. We focused on the well-run and well-funded ($millions) project concerning agricultural value chain improvements and market information, including supporting self-formed producer-collector cooperatives, educational outreach and demonstration farms to introduce improved seeds and techniques. Having expressed interest in a school-based demonstration farm and agricultural curriculum, they are a promising potential partner for the project we propose in Section IV.

- Ecole d'Hôtellerie et de Tourisme Paul Dubrule
  The only hospitality training school in the tourist mecca of Siem Reap, it has foreign management and donors, with Cambodian staff and students, who learn skills for working in high-end hotels and restaurants. Costs are heavily subsidized by donors, yet the 250 students still pay $600-$800 tuition annually to attend, with some scholarships available. Admission is very select, with English or other language skills a must, but it is a potential next step in vocational training for Bakong high school students.

- Engineers Without Borders, NY Professional Chapter, Siem Reap
  They are designing the restoration of an Angkor-era dam and irrigation system, in partnership with the Cambodian-run NGO Human Translation, to benefit 9,000 villagers after all the secondary and tertiary canals are dug (work in progress currently). Our meetings included interviews and a visit to the dam site and canal system. Bolstered by a Lehigh connection, current and former members will be a useful source of

information on the local NGO community.

- Human Resource and Natural Development Organization of Cambodia (HRND)
  This NGO was founded by a dynamic local monk and has a large and all-Cambodian staff, many with university training. Their primary focus is on agriculture and community development in the Balang commune, about 5 km from the Bakong high school. Their diverse set of projects and energetic staff makes them a potentially valuable partner in our proposed agricultural demonstration farm.

- Human Translation
  This NGO, founded and run by Cambodians, maintains various projects in the Balang Commune. They target improved irrigation and drinking water, by building community collaborative capacity, providing bio-sand filters, and partnering with EWB on its irrigation system project. They also teach adults how to read Khmer and have an English literacy project in the schools.

- Journeys Within Our Community (JWOC)
  This small NGO has foreign management and donors, with Cambodian staff. They run a free primary school but also have several other projects including construction and repair of wells, distributing ceramic water filters and mosquito nets, providing hygiene education and microfinance in squatter villages, and emergency relief assistance. They give 72 college tuition scholarships annually, in exchange for recipients participating for 5-10 hours per week in their various projects, a model to be emulated. This program could provide scholarship opportunities for Bakong high school students, since JWOC are actively seeking better applicants.

- Lo-Yuyu Khmer ceramics and textiles
  This non-profit craft workshop, started by the Khmer NGO Learning Without Borders and its Japanese founder, provides training and employment in weaving and ceramics to about two dozen of the poorest women in Siem Reap.

- MaD for Good
  All employees but the director of this NGO are locals. They operate a demonstration organic farm, drill wells, distribute efficient seed varieties, and run a small orphanage.

- Rural Economic and Agriculture Development Agency (READA)
  This all-Cambodian managed and staffed NGO targets the poorest communities and focuses on community rights, agricultural and technical training, improved distribution of agricultural market price information, water user groups and rice banks in Bakong/Chambot. They are a potential CFC partner in the demo farm project, since they currently run agricultural demonstration centers and fund village micro-lending groups.

- Trailblazer Foundation
  This Cambodian-run NGO produces and distributes (at subsidized prices) bio-sand water filters and runs a demonstration farm that promotes bio-fertilizers and conducts tests of drip-irrigation. It is a potential CFC partner for our demo farm project.

III. PRINCIPAL FINDINGS

This section reports the principal findings in our four main research areas--social and cultural issues; agriculture; water; and microfinance/employment--and the lessons that inform our future plans in each area.

FINDING 1: LIMITED PERCEPTIONS OF "FELT NEEDS"

Our interviews and surveys with government officials, citizens, and community leaders about local perceptions of needs suggest that identification of discreet problems in Cambodia is a substantial challenge. A first principle of poverty reduction is that the targets of intervention must be defined by the "felt needs" of the poor, not the judgments of outside experts. However, open-ended questions about greatest needs, which are universally recommended by field methods texts to identify priorities, were of only limited utility. When pressed, villagers and their leaders sometimes cited inadequate rice production, but it appeared to be used as a synonym for general poverty rather than specifically for hunger.

In replies to our inquiries, community members' perception of their situation was as neither dire nor requiring immediate improvement, despite the problems apparent to outsiders. For example, when asked about health problems, villagers typically expressed satisfaction that there was a clinic located nearby. Asked about water cleanliness, they often respond that they boil their water so there is no problem, though health statistics strongly suggest otherwise. This complacency may be an adaptive coping mechanism, but it is an obstacle to social change.

An obstable too is that it is not completely clear what lies beneath this outlook. Some scholars see its roots in Cambodia in perceived lack of power to change personal situations. This may stem partially from failed past attempts and partially from prevailing Buddhist attitudes that emphasize acceptance of all things, and, especially, the inevitability of suffering. Other suggestions include the impact of poverty on blocking innovative energies. Perhaps the most obvious source is the near obliteration of the most educated and creative classes during the Khmer Rouge period.

Principal Lessons for Our Future Work:

- Instruments for subsequent needs assessments must be creative in posing realistic concrete trade-offs in order to identify community priorities where individuals lack coherent well-ordered rankings of discreet needs.
- Improving agricultural productivity would most certainly improve the general economy, targeting its largest single sector. It would also impact people directly in a way consistent with both their "felt needs" and our judgments about the ultimate sources of significant and sustainable change.

FINDING 2: LIMITED PUBLIC ENGAGEMENT AND SOCIAL CAPITAL

The lack of social capital – with its implications for weak leadership and ineffective collective action – is a major factor in reproducing poverty in Siem Reap, and thus an important target for development plans. Background research suggested being especially attentive for signs of the social capital that can sometimes partially offset the lack of physical, financial, and even human capital among the poor. Our social-structural survey findings were striking: compared to other developing nations were we have worked (including neighboring Thailand), rural Cambodians have a remarkable lack of participation in formal or informal cooperative groups—a principal element of productive social capital.

We only sporadically heard about things like women's groups or farmers' cooperatives and the like. Some people reported that their village chief would meet with villagers in the commune hall monthly to discuss problems, or that an NGO had organized a co-op for irrigation or for a rice bank. Pagodas organize some groups, sports teams, and sometimes participate in development projects as well. While these top-down efforts provide some community interaction, they appear to be quite sparse. Ideally far richer networks of social collaboration would arise organically and with less-hierarchical structures.

Not only are institutions of civil society notably absent, citizen participation in community affairs is irregular and passive, especially in governance. Disconnects exist between villagers and their leaders. During our interviews, some leaders did not seem to know all they should about their villages; sometimes giving quite contradictory answers to villagers asked the same questions. It seemed overall that few people know the big picture at the village or commune level.

Principal Lesson:

- The creation of networks, institutions, patterns of behavior, and attitudes conducive to a vibrant public sphere must be important goals. Their absence will impede any development project that requires local ownership and initiative, in turn requiring unusual dedication on our part to engage Cambodians meaningfully in bettering their lives through their own means and efforts, not through handouts. In fact, improving social capital would be a noteworthy accomplishment on its own terms. Achieving it as a side benefit of successful, community-engaging development projects is our ultimate intention. It is thus a central aim of both the proposals outlined below, the NGO interns-network program and the agricultural demo farm.

FINDING 3: NGO OVERLOAD AND DEPENDENCY

Siem Reap is home to one of the densest concentrations of NGOs in the world, which represents both a threat and an opportunity. We saw ample evidence that NGOs are improving the lives of people in Siem Reap, not least through the exceptional efforts of Caring for Cambodia. In the absence of national-scale government efforts to supply needed social services, and the inability of

either local government or the weak institutions of civil society to fill the void, it is only NGOs that command the financial, organizational, and knowledge resources to author significant social and economic change. They are playing a lead problem-solving role in all of the sectors we examined: education, health care, water and sanitation, agriculture, and finance. Clearly, any efforts we undertake in the foreseeable future should work through NGOs and take advantage of their capacities.

Fortunately, the relative openness of NGOs makes it easy to arrange contacts, and the number and diversity of NGOs means that we are likely to find support in whatever sectors we target. Both foreign and Cambodian NGOs were open and well prepared to meet with us, as the list of interviewees in the previous section attests. Much of their eagerness was born of hope for collaborative action and, especially, resources. Many of the NGOs we talked with maintained noteworthy programs and appeared to offer attractive opportunities for partnerships.

But NGOs also have inherent weaknesses, some endemic to non-profits everywhere, and others especially apparent in Siem Reap. Like any outside agency, NGOs can foster a culture of dependency that weakens the initiative of individuals and undermines local institutions that can offer people fewer resources. That seems to be the case in Siem Reap, though there is clearly a chicken-and-egg quality to the relationship between the expansive role played by NGOs, on the one hand, and the limited reach of indigenous organizations and the inadequacy of individual initiative on the other. The Siem Reap economy is propped up by the constant stream of money from the West, a point well recognized and often lamented by locals. Several people even commented on how deeply affected Siem Reap was by the American economic crisis. Many said something along the lines of, "you should have seen Siem Reap two years ago, the city was really growing," growth which has since ceased.

While many NGOs seek to draw local people into their operations, participation remains weak in most projects, and it is apparent that the interaction that has developed between NGOs and the community is far from ideal. The disconnect between them was revealed by our surveys, in which very few people could name any of the NGOs working in their area, although all had seen their projects (mostly pump wells). Many people were familiar with the idea of an NGO, but they were clearly unaware of how they worked, and it sometimes appeared that they did not understand that "NGOs" was not a single entity, but rather a large number of entirely different organizations. Villagers' lack of interest could be because they assume that NGOs make only brief appearances to give money or goods before leaving, but it certainly implies the need to be far more transparent in operations and much more inclusive of citizen participation. A key test of the sustainability of an NGO project is whether local people think of it as something that "they" (the NGOs) do as opposed to something that "we" (the people) do, with some NGO help.

NGOs vary greatly in the scope of their reach. Those that were founded and run by Cambodians seemed to be spreading themselves the thinnest, with limited resources used for a large range of projects. HRND, for example, was engaged in agricultural training, microfinance, field leveling, drainage systems, irrigation, rice banks, share-rearing of livestock, home gardens, cow banks, and pig

and chicken-raising, among other projects, though at least their efforts were concentrated geographically in the Balang Commune. The NGOs run by foreigners varied greatly in this respect, as did success rates. For example, the organization MaD for Good consisted only of the founder, his family, and sporadic volunteers doing seemingly random favors in the community without much sustainability or impact. Perhaps not coincidentally, we found a surprising pessimism about the prospects for transformative change among these types of NGOs, which looked to us very much like volunteer burnout.

On the other hand, the DED office we engaged was tightly focused on the value-chain of vegetable farming for local markets—not fruit, not rice, not animals, not even vegetables for commercial markets. Angkor Children's Hospital is similarly focused and incredibly successful in servicing a large population of Cambodians in a critical way. Yet such a piecemeal approach runs the risk of missing the comprehensive solutions and integrated projects that may be necessary to cope with interconnected problems that cut across sectors.

The best-run NGOs seem to have self-consciously adopted the middle ground policy of *considering* many ideas and yet *implementing* only a few. For example, CFC has an especially impressive command of educational problems and their links to broader development issues. For many of the ideas we raised, CFC seemed to either have tried them already, or declined to do so because they were too unrelated to their central mission. CFC is interested in complimentary programs—potable water and sanitation facilities on school grounds and bicycles to permit students to attend, for example—but they are appropriately committed to focus on their core competencies and not dilute their efforts, while directing their expansion more to scale than breadth. This enables them to provide quality education to their students, but also to cultivate a lasting, positive relationship with the communities in which they work. They take great care to encourage the participation of the parents, to teach basic life skills such as hygiene and health, to train their staff continuously, and constantly to evaluate and improve their organization. But they remain acutely aware of the limitations of their organization and they are careful not to risk its integrity through overreach. In this, they share the weaknesses endemic to NGOs—their generally small scale and isolation from other service providers—which is an impediment to transformational change.

In between the options of over-stretching the resources of a single NGO or foregoing good ideas because they don't fit organizational constraints lies the networking approach, which seems underutilized in Siem Reap. As we note below, CFC may have discarded as outside their focus some innovative ideas that could be pursued successfully by other individuals and organizations, but there is no existing structure to pass them along. Despite the amazing number of NGOs working in the region, there is little evident community among them: few we met with appeared aware of the complimentary projects of other NGOs even just blocks away, and cooperation to benefit from comparative advantages or scale opportunities is very limited. Ironically, this isolation of individual organizations from one another mirrors the lack of social capital found in the community itself.

Principal Lesson:

- The internal operations of NGOs and their relations with one another offer an attractive target for social entrepreneurial energies. Constructive innovation should be directed toward improving the service delivery of existing organizations in part by improving the social networking, information sharing and cooperation among them. For example, among our leading recommendations below is to initiate agricultural training in the Bakong high school in cooperation with several NGOs already running effective demonstration farms. We also propose to use the lever of a network of Lehigh student interns to foster regular interaction and cooperative program development among the host NGOs.

FINDING 4: HIGH GROWTH POTENTIAL IN AGRICULTURE & INFORMAL MICROENTERPRISES

Rural incomes are very low throughout Cambodia, and Siem Reap province is among the poorest in the kingdom. Currently, over 75% of the Cambodian population makes a living through agriculture, mostly in paddy cultivation. By occupation/principal activity, the largest concentration of workers in Siem Reap province is in agriculture (80.0%), public administration and defense (5.2%), wholesale and retail trade (5.0%), and fishing (2.2%). Since most Cambodians live in subsistence conditions, they usually engage in more than one income-generating activity, with secondary activities including casual labor, salaried employment, petty trade, exploiting common property resources, and food processing. Most jobs are not in formal-sector firms with established wage rates, because the vast majority of businesses are family-owned and employ no one outside the family. Formal-sector employment comprised only about 5% of the total workforce in Cambodia, though survey estimates vary.[8] Furthermore, most of the 280,000 formal sector jobs were found in Phnom Penh, and another sizable share in other urban areas such as Sihanoukville.[9]

Since most of the rural Cambodian labor force engages in rice production largely for family consumption, cash incomes are especially low. Due to the low-quality rice and the inefficient methods villagers use to extract rice grains from their fields, rice paddy cultivators make around a dollar a day on average. Our surveying found earnings by market vendors ranging from about $1.50-$3.00 a day. Due to highly fluctuating weather patterns in the region, the highest inflows of income occur between December and March, since most of the rice is sold at this time, while the lowest inflows occur during August through September, just before the main harvest season, as stocks from the previous year's harvest are near exhaustion. Savings accounts seem relatively unheard of; many people replied that they have no money to save. Those who were able to save for something often just kept money at their home.

Viewed from a developed country perspective, the absence of cash incomes is often interpreted to mean that the greatest need is for employment generation, and the image of formal sector jobs motivates many growth efforts. Indeed, Bill Amelio has emphasized employment generation as a goal, in part because CFC schools will find it easier to minimize dropouts if attainable employment is seen as the end-product of high school graduation.

On the other hand, opportunities for formal sector, full-time, year-round employment are so few that the more effective and practical strategy may be a focus on sustainable household livelihood strategies, which involve "different members in diverse activities and sources of support at different times of the year" rather than formal-sector jobs. "Employment, in the sense of having an employer, a job, a workplace and a wage is more widespread as an aspiration than as a reality." [10] The reasons arise from both demand-side and supply-side considerations. Low incomes mean that local aggregate demand for most products is very small, limiting the role for formal sector enterprises whose chief source of competitive advantage lies in the efficiency of scale operations. Beyond the local market, businesses would have to compete with large, often foreign, firms with insurmountable competitive advantages in management, finance, technology, and marketing.

Furthermore, without the capacity to mobilize large quantities of capital and create large-scale ventures, our comparative advantage will instead be in encouraging small scale entrepreneurial activity, improving agricultural efficiency, boosting labor productivity through health-related interventions, and increasing educational opportunities, all of which will improve living standards now and lay foundations for larger-scale employment growth in the future. The literature on rural income generation and the successes achieved elsewhere points to the same lessons. Relative to similar countries, rural Cambodians earn a substantially lower proportion of their incomes from agriculture proper and a far higher percentage from common property resources, especially fishing and gathering vegetables from flooded paddy fields.[11]

Principal Lessons:

- First, the greatest increase in income is likely to come from enhancing productivity in agriculture, where the output gap between actual production and potential yields are very large, and the greatest number of people will directly benefit.
- Second, we should focus on interventions that improve quality of life directly—such as water, health, and sanitation—in turn improving formal macro-economic conditions indirectly through increased labor productivity. This involves targeting the coping capabilities of the rural poor, starting with the "felt needs" of poor households and local communities. Our field surveys suggest the most widespread perceived need is agricultural productivity.
- Third, livelihoods can be enhanced through the creation of micro-enterprises that create value by augmenting primary occupations like rice farming, increasing incomes by leveraging rather than trying to transform rural employment patterns. This suggests attention to microfinance services.

FINDING 5: LARGE UNMET DEMAND FOR MICROFINANCE

We examined the status of microfinance in Siem Reap because Lehigh has expertise and because it has proved effective in improving the lives of the poor in many nations. It is especially clear that

proving financial services to those who would otherwise not have access has made a key contribution to the creation and growth of micro-enterprises elsewhere.

Even though over 90 NGOs and microfinance banks currently provide credit to around 420,000 poor households throughout Cambodia, mostly in Phnom Penh, our surveys reveal a large unmet demand for microfinance in the Siem Reap area. When asked about microfinance, some people would reply that it is "around," but they weren't borrowers themselves, nor could they name an MFI. The microfinance institutions that we met with confirmed that the market is far from saturated and that there is substantial room for microfinance to grow. Though several long-established and profitable microfinance banks operate branches in Siem Reap, including Cambodia's largest, ACLEDA, we estimate there are fewer than 15,000 microfinance clients in the Siem Reap province, compared to a population above 900,000, a penetration rate 5-10 fold below more-developed microfinance markets. MFI managers in Siem Reap told us that the major constraint to the growth of microfinance at the moment is the lingering macroeconomic effects of the global financial crisis.

There are gaps in MFI coverage precisely where theory suggests that microfinance can be most effective in promoting development and alleviating poverty—in funding start-up microenterprises. Many in the community, when we asked, expressed belief that microfinance loans are only for people with money, like traditional bank borrowing. With loans available as small as $7.50 at ACLEDA, they are misinformed, but there is good reason to wonder if microfinance in Siem Reap is reaching the poorest of the poor. Microfinance is available to existing businesses with assets, and almost all borrowers use the money for inputs such as inventory for vendors and tools, seeds, and fertilizer for farmers. But the main local MFIs, which are focused on financial performance, do not loan to completely new enterprises. Nor do they provide any education or training for their clients in business operations or other skills, an increasingly common MFI service elsewhere.

In operational terms, microfinance practices in Siem Reap appear to be sound, although fairly conservative and standardized across MFIs, with limited product diversity or innovation. Those we interviewed offer both group and individual loans, ranging from as low as $7.50 for ACLEDA (the most successful MFI in Cambodia) to as much as $1,500. The prevailing interest rates were 2.5-3% per month. Loan durations range from six months to one year, with payments made either weekly, bi-weekly, or monthly. Loan structure varies, with AMRET for example offering interest-only payments with the principle due at the end, and ACLEDA requiring payments that include both interest and principle. In keeping with microfinance trends worldwide, the majority of the borrowers are women.

In keeping with typical MFI practices worldwide, Cambodian MFIs in the process of approving a loan have a loan officer visit an applicant's house and business, in order to probe the potential customer's income, assets, and business practices. When we asked, the MFIs reported that the primary reason for loan rejection is existing debt or business weakness. They also said that they do not share loan information with each other and that Cambodia does not have an official credit scoring system. Instead, the MFIs require a village chief to sign off on all loans, not to guarantee the

loans but to confirm that the villagers in question live in the chief's village and have no other outstanding loans. Clients borrowing from multiple sources hurt MFIs because over-indebtedness lowers repayment rates. However, the MFIs reported that village chiefs sometimes sign off despite a borrower's outstanding debts. AMRET employs a village committee leader that follows up on late payments and serves as a collector. In exchange for these services, and allowing the loan officer to operate at the village committee leader's house, the leader receives 5% of the interest collected in his or her village. Such incentives notwithstanding, each of the MFIs reported to us that payments were coming in later than in previous years due to the shock of the financial crisis.

As far as we saw, none of the MFIs offered training or education programs to their clients. The main educational activities were basic information sessions to explain loan contracts terms. We did see small posters promoting condom use and birth control at the meeting house of one AMRET village committee we visited. However, efforts could be made to increase the educational programs offered by MFIs to cover basic finance, business practices, health, hygiene, and literacy—all services which the more progressive MFIs elsewhere now provide. Research evidence in the literature suggests such services have positive social benefits and increase repayment rates because a healthier, more educated borrowers run better business and are able to pay back loans more consistently.

Principal Lessons:

- The relatively mature microfinance organizations operating in Siem Reap offer the prospect to build innovation, particularly in educational services, on an existing structure.
- As we suggest below, Lehigh microfinance interns could work with CFC and MFIs to develop business and entrepreneurship-related training materials and programs and foster micro-businesses, and work with MFIs to facilitate knowledge of and access to the financial services already offered by the MFIs among the CFC school students and their families.

FINDING 6: WIDESPREAD OPPORTUNITIES TO IMPROVE WATER QUALITY AND ACCESS

Water borne diseases are commonplace in rural Cambodia. In fact, they are so common that most individuals we interviewed did not even associate the intestinal diseases they experience with "being sick"; instead they simply view it as a part of their everyday life. Yet, the health consequences of poor water affect not only immediate quality of life but also the long-term economic development of the community by eroding student performance and diminishing the productivity of workers. Caring for Cambodia has recognized this linkage by installing SkyHydrant water purification systems in most of their schools (see below), but other points of intervention must be found for the community at large. Various reports indicate that about half of Cambodians have access to clean water, but definitions of what constitutes "clean" water tend to rely on easily observable conditions such as the presence of a covered well rather than scientific analysis of water quality.[12]

Ultimately, it may prove more sustainable to improve the water supply rather than treating contaminated water, but not today. For example, diarrhea, a common symptom of the intestinal

diseases that result from unclean water, can be reduced by more than 40% through point-of-use water treatment and safe water storage, and by 30-50% through improvements in the water supply, sanitation and hygiene.[13] About three-fifths of Cambodians' water usage is from groundwater and another one-fourth to one-sixth (depending on the season) comes from surface water, both of which are easily polluted in the absence of adequate sanitation.[14] Rainwater makes up about one-quarter of usage in the wet season and only 1% in the dry season. Because only 16% of rural Cambodians have access to adequate sanitation facilities, we agree with the NGOs, CFC employees, and local people who told us there is a real need for composting toilets, septic tanks, or other forms of improved sanitation.

Water treatment and sanitation practices should go side by side, but point-of-use water treatment is more tractable, and there is not much motivation for individuals to practice good sanitation if their water quality is poor. MaD for Good has installed composting toilets within communities in the Bakong area, but local acceptance appears to be an ongoing challenge. MaD's founder did say that people are learning to use the composting toilets because they are starting to recognize that they cannot keep putting waste into the ground without it affecting their water supply. We were impressed in our interviews with rural villagers in the Siem Reap region that they uniformly did recognize the connection between water and their health. However, they do not necessarily put this into practice through their sanitation habits or water treatment. Expanded education in this area and making sanitation technologies more available will help make good habits more widely practiced.

However, at the moment water treatment better fits our capacities. Water treatment must be done at the household level because community-wide water distribution systems are rare in Siem Reap. Most people get their water from wells, and various NGOs are in the process of replacing hole or pit wells with covered wells featuring hand pumps. The water table is fairly high even during the dry season, so basic water access is not a problem because it is quite straightforward to dig wells deep enough. It costs about $200 to drill a well and install a UNICEF hand pump that can be shared by 3 or 4 families. Larger wells for whole communities cost approximately $1,200, but they are infrequent. Presumably, this scarcity stems from Cambodian villages lacking the social capital or administrative capacity to maintain community-level systems, which would (among other things) require bearing the expenses of regular maintenance and the collection of some sort of user fees. The convenience of free personal backyard wells or wells shared with a few close neighbors makes convincing people to use/pay for community systems unlikely. Unfortunately, then, treatment approaches cannot be centralized to achieve scale efficiencies either.

Rainwater is cleaner and safer to drink than many other untreated water sources so this form of water supply should be encouraged as much as possible. Rainwater catchment is very common in Cambodia, making up more than one-quarter of all drinking water during the rainy season (although significantly less during the dry season). Improving upon the design and use of rainwater catchment systems could be a worthy target of future Lehigh efforts.

In our surveying, boiling turned out to be very widely practiced and the most common form of water treatment, suggesting clear and widespread recognition of the link between clean water and

health. Boiling is very effective at killing bacteria and parasites, but it is time consuming and expensive because it uses raw materials such as firewood. By contrast, we found the use of chlorine to treat water, though common elsewhere, is almost unheard of in rural villages surrounding Siem Reap. Chlorine treatment systems can be complex and the chemicals expensive.

Filtration is much simpler and affordable. Dirty water can simply be poured into the filter at any time and clean water can be collected later when it is needed. Even so, filtration also appeared in our surveying to be almost never used unless an NGO had given out a filter. In the long run, though, it would save both time and money. Both biosand and ceramic filters are distributed by several NGOs in the Siem Reap region and have immense potential for improving household health if used properly.

Unfortunately, our interviewing suggests a widespread lack of trust in filters actually being effective at cleaning the water, which appears to be due to people not fully understanding how the filters work, and how they are to be used and maintained. Most bio-sand filters we came across were no longer in use, including the three located at the Bakong high school. Upon asking various people why, it was common to get the response along the lines of "Oh, it broke or just quit working." With probing, it became clear that there was considerable confusion as to how bio-sand filters are actually supposed to be used and maintained, despite such maintenance being relatively straightforward.

We met with Trailblazers, one of the NGOs that provides bio-sand filters to various communities in the Siem Reap region. The filters cost roughly $45 and should have a lifespan of 15 years if maintained and used properly. Trailblazers have a good understanding of bio-sand filters. However, it is evident that their educational materials, provided by the Centre for Affordable Water and Sanitation Technology, a Canadian NGO, confuse and mislead users. The brochures and training materials have not been tailored to Cambodia, and several steps that Trailblazers does not recommend are nevertheless included in the training materials. For example, the brochure describes adding chlorine to the water *after* it has been put through the filter to kill any remaining bacteria and prevent recontamination, even though Trailblazers omits that step from its training as unnecessary in the context of Siem Reap. Illiterate Cambodians who rely solely on the pictures, however, are likely to add chlorine to the water *before* filtration, which will destroy the filter's biological layer, where most of the organic contaminants are removed. CFC and Lehigh could help with community education concerning the operation and maintenance of bio-sand filters, both to improve their effectiveness and to build people's trust in their ability to purify water. A simple place to start would be integrating demonstrations using Bakong high school's existing bio-sand filters into the science and/or life-skills curricula.

Another attractive alternative is the ceramic filter, especially the Rabbit Water Purifier produced by International Development Enterprises-Cambodia, which is distributed throughout the country by various NGOs, including Journeys within Our Communities (JWOC). Indeed, we saw JWOC-distributed filters in use by several microfinance clients we visited as well as in several homes near CFC schools. Filters cost $8-$13 each, and less if bought in bulk. The ceramic filter is claimed to have a lifespan of two years; however, this is only under ideal circumstances. The filters are brittle

and easy to break. Moreover, regular proper maintenance is necessary. Cleaning and care instructions for the ceramic filter are simple, which likely improves their success, but ceramic filters can be easily contaminated, especially during the frequent cleaning process.

On a larger scale, all CFC schools have SkyHydrant water purification systems. The SkyHydrant water purification unit is produced by the SkyJuice Foundation in Australia.[15] The unit can produce potable water at an affordable community level without the need for electric power or harsh chemicals, although the filtration process can occur along with disinfection from chlorine, as the CFC schools do. CFC's systems also rely on electricity to pump raw water from an underground well to a storage tank. The stored raw water is then gravity fed to the SkyHydrant where it goes through a membrane filter that absorbs solids, bacteria, protozoa, and some viruses. After the various contaminants have been absorbed and chlorine added to prevent recontamination, the water is pumped back to a clean water storage tank. From the clean water storage tank, gravity feeds the water to a number of taps and water fountain where students and staff can get safe drinking water. Chlorine is regularly added in small doses to clean the filtration system; however, should the water in the tank be left standing for four to five days (in the event of school vacation or some other lack of usage), chlorine can be added directly to the water to clean it and prevent waste.

SkyJuice personnel trained CFC staff members at each school how to clean the filters and maintain the system. The cleaning procedure is fairly direct and simple and a number of faculty members know how to clean the filters, although each school seems to have one person who is in charge of making sure the water system is maintained. The students, faculty, and even the community as a whole seem to trust the water system at CFC and are allowed to come collect water from the school to take home with them; it is especially common for the teachers and other staff to take advantage of this opportunity. One SkyHydrant unit appears to be adequate for each school's current water demand, however a single SkyHydrant unit would not be adequate to satisfy the water demand of the entire surrounding communities. It is possible to install multiple SkyHydrant units in parallel to increase the capacity up to 200,000 liters per day. Based on a typical water demand of approximately 95 liters per person per day, such a system could be adequate for a community as large as 2100 people.

While CFC's water system is clearly trusted by the community and is doing a great job of providing clean drinking water to the students during the school day, the system is not without flaws. Both the raw and treated water sits in elevated plastic storage tanks in the hot sun before it is distributed. As a result the water is very hot. Constructing a basic mechanism to shade the water tanks would be a simple project, and a possible project for Lehigh's architects and/or engineers to design and implement using local goods. It is also fairly common for the electricity to go out for extended periods of time, during which water could be pumped out of the well by hand but it would be worth looking into installing a back-up generator.

Principal Lessons

- The water/sanitation work currently being done by NGOs in Siem Reap is generally piecemeal, not self-sustaining, and lacks requisite educational components. While bio-sand filtration and ceramic filters have significant promise, especially if people are educated properly, much opportunity for improvement exists.
- We found a widespread lack of trust in whether filters actually clean the water and people not fully understanding how the filters work, are used and maintained. One place to start would be integrating demonstrations into the science and/or life-skills curriculum. Lehigh could work with CFC and local NGOs to develop a curriculum on the connection between water, sanitation, and health, and to teach people how to maintain their water filters, which is not difficult if the tools are available. Related useful projects for Bakong high school science students (perhaps working with Lehigh interns) would be tests on filters within various households to determine if they are being maintained properly.
- Possible microenterprises might provide fee-based pick-up and delivery micro-cleaning services for ceramic filters, which could improve effectiveness. Microfinance could provide start-up capital for purchasing initial stocks of filters, through JWOC or elsewhere.
- Lehigh could perform a significant service through research evaluating which of the various techniques for distributing water filters works best. Both bio-sand and ceramic filters are used and a very few chemical systems also exist. Some NGOs require that villagers qualify for a donated filter, while others make people pay part of the cost. Education is either through leaflets or face-to-face.
- Lehigh should continue to do research to determine the best techniques for education and training and to identify which technologies will be most appropriate for water treatment and sanitation. Lehigh already does such research, which can be tailored expressly for Cambodia. Students can investigate possibilities with composting toilets, latrines, and septic tanks to find suitable sanitation practices. For example, Lehigh's chapter of Engineers Without Borders could design a water system for a CFC community—like they have done in Honduras—or raise funds to implement composting toilets.

FINDING 7: AGRICULTURE A TOP PRIORITY

Fully 80% of Cambodians are involved in agriculture, so any effort to speed development and alleviate poverty must contend with problems in that sector. Agricultural productivity in most parts of Cambodia, including Siem Reap, lags well behind that of neighboring countries, especially Thailand and Viet Nam, the two largest rice exporters in the world, which together account for about half of total global rice trade.[16] For example, in the Balang Commune, 1 hectare (10,000 sq.m) of land produces up to, but often less than 800 kg of rice.[17] During our interviews with villagers, we learned that in this commune, families with a typical .5 ha plot usually eat all of their crops within about nine months and then suffer a food shortage the remaining months of the year.[18] Agricultural

wages are correspondingly low, when work is available at all: only those who own 5-10 ha or more of land hire labor, and then only for about one month during the harvest season at about $1.50 (or a day.

Relative to such wages, land is expensive, $600 - $1000 per ha., when available. So, many families own only small plots of about 20 x 30 meters. Moreover, the land is often displaced from the families' homes, sometimes up to 10 km away, causing serious transportation and labor problems. The general solution is farmers biking to and from their fields. They transport their crops and tools in oxcarts. This fragmented land tenure system is one root cause of the region's low agricultural productivity

The quality of the land and of related natural inputs such as water are key to agriculture in any economy, but the land tenure system is equally critical, in part because it affects the sustainability of land quality. Growth in agricultural productivity arises from the accumulation of three forms of capital: physical capital (i.e. equipment and physical improvements to the land), social capital, and knowledge capital. The accumulation of each relies on long-term processes that follow naturally from stable land tenure arrangements that reinforce the connection between farmer and land. Such arrangements are lacking in Cambodia.

Knowledge capital in the form of best practices in cultivation, input selection, cropping choice and marketing processes is essential to maximize yields and income. However, in Cambodia a primary source of knowledge capital which dominates in most poor countries—the practical "hand-me-down" of conventional wisdom accumulated over decades and even centuries of local practice—has been sabotaged by fluctuations in land tenure systems over the past century and a half.

Under the pre-colonial Khmer feudal system, all land was the property of the sovereign, but in practice it was freely available for a small tribute fee to anyone who occupied, cleared, and cultivated it. Such systems of individual rights to use property belonging to others, called usufruct, is common wherever land is not a scarce resource. Beginning in the nineteenth century, however, the French colonial administration regularized Western-style property rights in the richest rice-growing areas, but not others (including Siem Reap). This mixed system remained after independence until the Khmer Rouge collectivized all land, destroyed ownership records, transferred large populations out of their traditional regions, and killed many landowners in the 1970s. Since then, all has been in flux, with a new collective system introduced by the Vietnamese in 1979, and privatization occurring in fits and starts beginning in the mid-1980s.[19] Current problems with land titling are only the most obvious reflection of this past. It is tempting to ascribe all or most of the agricultural productivity gap with neighboring countries to the dislocations of the Khmer Rouge, but Cambodian agriculture was well behind more than a century ago.

This disruption of long-term land occupation has had disastrous implications for all the forms of capital that sustain agricultural productivity growth. In most poor rural societies, very long-term family-based "ownership" of land passed down through generations builds an almost mythic connection between farmer and land. Knowledge (capital) is passed from father to son and from

mother to daughter. Investment in physical capital, in the form of improvements to and maintenance of land quality for estate preservation, becomes a social obligation and moral imperative even when the financial returns to the current generation are tiny (or even absent) in relation to the labor effort expended. Social capital is built by the networks of shared labor of neighboring families that inevitably arise in rice cultivation, which in turn require multilateral trust established by long conventional practice and enshrined in cultural institutions. However, a recent study in Cambodia shows that only 24% of landowners report having inherited their land, whereas 44% received it from the state. Another 17% purchased it, and 16% laid claim on the basis of having cleared land that was previously a common property resource.[20] Land ownership is a major problem facing many rural Cambodians, because the top ten percent of the wealthiest land owners hold about two-thirds of the land. Academic research has shown that large land-owners typically invest less in their land and achieve lower yields than small-holders, but we found that even small-scale Cambodian farmers were unlikely to improve their land, both because they didn't have the money and because of the lack of security, ownership title, and emotional investment.

In short, Cambodian agriculture is unproductive in part because fluctuating land tenure systems have left very poor knowledge capital in the form of well-honed locally-efficient techniques, very little physical capital in the form of infrastructural improvements of the land, and very low levels of social capital in the form of cooperative modes of behavior.

In more concrete terms, Cambodian agriculture is bedeviled by poor inputs, especially a reliance on rain water. Farmers do not have irrigation or drainage unless done by an NGO; HRND spread the practice of field leveling and natural drainage canal systems to the Balang farms that we visited. Thus, crops generally grow during only one season, either the dry season (on land that is flooded during the wet season), or in the wet season (on land that lacks enough moisture for cultivation during the dry). Within a single season, however, farmers would frequently have two different harvests, one after three months and one after six months.)

The fields are plowed by cows or water buffalo, which some families own and others rent, but there is a general shortage of draught animals. The animals also produce manure, but not enough for fertilizing needs unless it is mixed with other organic elements according to techniques taught by NGOs. Chemical fertilizers are generally unaffordable, and during several interviews we heard that many farmers use fertilizers and pesticides that are dumped in Cambodia after being rejected by more developed countries for failing safety standards. The farmers, furthermore, do not know how to use these chemicals properly because they lack adequate training and cannot read the rudimentary instructions included with the product because they are not written in Khmer. This causes an entirely new array of problems including soil erosion and depletion, chemical runoff, water contamination, the creation of resistant strains of pests and diseases, dependency on these fertilizers, and health issues caused by all of the above.

It surprised us to see that NGOs are necessary to show farmers how to prepare both wet and dry compost, a routine and nearly universal technique in other regions where we have worked. This illustrates why we often heard the sentiment that Cambodian agriculture is in need of education on

"best practices," but it also demonstrates how much return may be earned from relatively simple "innovations." Post-production practices may also be refined: post-harvest rice is dried by laying it out on a mat in the sun and threshed at the farmers' home by hitting it in bundles against a mat. The rice is then stored in a separate building on the side of the house or sold before milling. When the farmers need the rice, they then have it milled because after the rice is milled it goes bad in a month. We were told that there are multiple people that do milling in every village. Milling is often free, but the millers retain the cracked grains which they sell (very cheaply) for use as animal feed. Although we did not get to see milling happen, we were told that it is a twenty-four hour process and that more than 60% of rice gets lost in the milling process. This reported low efficiency rate is consistent with our background research. As noted before, Cambodians culturally prefer milled (white) rice to brown rice, and, except for the NGOs, they did not express any concern about these inefficiencies.

Several NGOs are doing outstanding work on agriculture in Siem Reap, and they appear to be eager potential partners for our efforts, including our proposal for an agricultural demonstration farm at the Bakong high school. The broadest of these is DED, the German Development Agency, which is currently operating at the behest of the Cambodian government, in partnership with the Cambodian Department of Agriculture and other international organizations. They have focused their work on three sectors, with agricultural value chain promotion of most interest to us. They work with groups of producers and collectors of fruits and vegetables to introduce new crops, seeds, and techniques. They also seek to provide market information throughout the value chain to help producers identify and meet consumer demands. They use demo farms regularly to help introduce and spread new techniques. DED is driving farmers toward working in co-ops with their collectors in order to increase their 7% share of the local market, currently dominated by imports from Vietnam and Thailand.

HRND is working at the field level to promote natural (i.e. organic) farming practices, in which they have detailed and locally-specific knowledge. This entirely Cambodian-run NGO has extensive experience in community organization, honed in partnership with such NGOs as Engineers Without Borders and Human Translation. They have also promoted a home gardening project in which large landowners permit access to land by families without a plot of their own. HRND work extensively organizing rice banks, cow banks, and pig- and chicken-raising. They have an established training center and library not far from the Bakong high school, a sizable and well-trained staff, and they are looking for additional partners.

Several other NGOs are active in areas related to agriculture, and all expressed interest in a project that would incorporate a high school. Jamie Amelio asked the commune head if people would come to adult education at Bakong High school concerning agriculture, water, and health. He said yes, that he found such a proposal interesting and that he would try to enforce attendance.

Principle Lesson

- Innovation in agricultural education offers the best fit between high-priority needs of the community and our potential impact, given the capacities and priorities of both Caring for Cambodia and Lehigh's social entrepreneurship program.

IV. RECOMMENDATIONS

Several specific opportunities, detailed below, leverage the assets of Lehigh University and Caring for Cambodia to achieve our goals and our overall vision of a link between a robust and sustainable program in social entrepreneurship at Lehigh and a flexible "hub" of activities in Siem Reap. Our immediate plans emphasize two main components: (1) the creation of an agricultural demonstration farm at Bakong High School to enhance productivity in the largest sector of the local economy and to educate Bakong students (and their families) in a range of skills relevant to agriculture and business, and (2) an NGO internship and study abroad program for Lehigh students. As we describe below, that infrastructure will also enable pursuit of smaller projects.

RECOMMENDATION 1: EXPAND SOCIAL ENTREPRENEURSHIP AT LEHIGH

Under the auspices of Lehigh's new entrepreneurship Institute, Lehigh is scaling up our nascent social entrepreneurship program to achieve a two-fold mission:

1. To provide an unmatched educational experience for our students in actually changing the world. Many universities teach about development problems; few do much to solve them. Such a unique program in international social entrepreneurship would position Lehigh as a leader among universities and a model for others to follow.

2. To become responsible global citizens by confronting and solving one of the great moral and technical challenges of the modern age: how to alleviate the grinding poverty that erodes the dignity and reduces the potential of a large segment of humanity.

The social entrepreneurship initiative aims to offer a formal, interdisciplinary, experiential-based, and competitive academic program for students from all four Lehigh colleges interested in social entrepreneurship and global development. Initially, we are developing a social entrepreneurship track within the newly expanded university-wide Entrepreneurship minor by introducing a series of courses culminating in a capstone practicum modeled after the experimental ENTP 398 course that produced this report.

The program draft design has the following components:

- Multi-disciplinary cohorts of students in a shared series of seminars, culminating in projects that tackle real-world problems involving global poverty.

- Students acquiring a broad background in the fundamentals of social entrepreneurship, development studies, and field methods, while developing skill sets to create sustainable enterprises that create social value.

- Students working with existing NGOs both to broaden their own experience and to deepen their understanding of the problems with which these NGOs are engaged. Engagements include both internship and on-going partnerships involving research and service.

- Projects requiring students to gain a fundamental understanding of the culture, society, polity, and economy of the country prior to travel. Experts will be brought to campus for both formal teaching and informal consultations.

- Program synergy by working with other Lehigh programs, initiatives, and clubs ranging from Engineers Without Borders and the Microfinance Club to Global Citizenship.

RECOMMENDATION 2: CREATE A LEHIGH "HUB" IN SIEM REAP

In order to continue our development work in Siem Reap, we need to maintain an on-the-ground presence which benefits Caring for Cambodia but does not drain resources or attention from it. We recommend a "hub" that would support a variety of projects benefitting from common logistics, local knowledge and contacts, and the accumulated experience of others. We anticipate that this hub will be partially virtual, but also center on a paid local contact to handle logistics, in much the same way that Mr. Ung Savy acts as coordinator for CFC. The Lehigh hub in rural Honduras operates similarly.

It would also require a Lehigh "hubmaster" to monitor and organize the various activities. That (part time) hubmaster role might be filled on a rotating basis by a Lehigh faculty member or a graduate student doing thesis research. Hub operations will be fleshed out in consultation with the first cohort of NGO internships, which lie at the heart of this hub concept.

NGO INTERNSHIP SEMINAR

Siem Reap is home to one of the largest concentrations of NGOs in the world, both international and local. Meanwhile, internationally-oriented Lehigh students are eager to obtain internships outside the United States dealing with real-world problems. A long-term relationship would prepare Lehigh students to cope with global poverty and for NGO work upon graduation. We propose to secure 2-4-month internship arrangements with six to twelve NGOs, and to conduct a credit-bearing seminar attended by each of the interns.

This student internship program is along the lines of the successful Prague, Belgium and Shanghai programs, except with local NGOs. These three Lehigh international internship programs focus on placing students in business and engineering-related fields. Lehigh lacks a well-established pathway for non-profit internships for students interested in international issues of development, health, education, and the like. Because such international internships are highly desired but difficult for

students to find independently, we believe sufficient demand exists so that tuition and fees can readily make this program self-sustainable.

The seminar would be led by a rotating group of Lehigh faculty and other experts, who would participate in Siem Reap for periods of one to four weeks. Topics would include NGO operations, elements of social entrepreneurship, development theory and application, and various aspects of Cambodian culture, polity, society, and economics. This flow of personnel would build interest in Cambodia among faculty and students at Lehigh. The program would be sustained financially by the tuition and fees paid by Lehigh students for the seminar and the internship. Lehigh students would be compensated for their efforts with university credit.

Lehigh students would gain exposure to NGOs operating in a variety of fields from many different countries, thus learning to recognize best practices by the successes of different initiatives, while identifying programs that simply do not work. By sharing their experiences, the internship seminar would build a formidable collection of wisdom that could be dispensed to the benefit of all NGOs.

NGO NETWORKING SERVICES

The interns in the seminar will contribute to the work of the NGOs with which they were placed, not just by applying the skills acquired through the coursework offered in Bethlehem and in Siem Reap. The will also make up a network that connects NGOs with one another and finds synergies in service provision. By bringing back to their respective NGOs the lessons learned and shared by all the interns in the seminar, they would provide real-time feedback about the successes of their own programs as well as similar ones run by others. The program can also leverage the placement of students to host regular networking opportunities for the staff of participating host organizations, aimed at improving collaborative social capital among NGOs in the region.

Interns would also seek to find a niche for Lehigh and/or CFC-school students to perform shared-services for multiple NGOs, to ease the burden imposed by the limited scale of most NGO operations and the small size of staff. For example, we found that many NGOs lacked transportation capacity, spread-sheet skills, and translators. Interns could design opportunities for different NGOs to share services or resources and thereby improve their operations while reducing overhead costs. NGOs might cut down on overlapping initiatives; eliminate inefficient, counter-productive, and unsustainable projects; and coordinate their work to improve their effectiveness.

ENTREPRENEURSHIP EDUCATION

The hub can also promote hands-on entrepreneurial education for both Lehigh students and for Bakong high school students. First, the Lehigh interns, trained as social entrepreneurs, would also be seeking innovative solutions to social problems, which could lead to a continuing sequence of projects. With the hub as a support system for communication, project identification and logistics, Lehigh students could undertake capstone design, engineering, policy analysis or other projects that

would otherwise be infeasible independently. Students would be encouraged to develop the revenue streams required to plan, implement, and sustain their projects.

Second, Lehigh can leverage its Siem Reap hub to help bring entrepreneurship education to Bakong High School and the surrounding communities. Ultimately, economic growth in Siem Reap will result largely from the entrepreneurial activities of its own citizens. However, entrepreneurship requires training to foster attitudes of innovation and acquire necessary skill sets, guidance concerning opportunities for start-up enterprises, and access to capital financing. Lehigh can help with both through curriculum development with the Bakong high school and with student partnering.

Lehigh interns could be paired with Bakong high school students and work together to identify opportunities for successful poverty interventions and for new enterprise development. Various formats of the program are possible with Lehigh students serving as mentors or partners on joint projects for community development. High school students would learn from Lehigh students, as well as explore potential career paths, while NGOs would have the opportunity to meet and train possible future employees and to work Caring for Cambodia into their NGO network. Bakong students could also get paid as Khmer-English translators, an incentive to learn English.

Entrepreneurship training will be especially valuable because it can help Bakong high school and Lehigh students alike recognize that they have the ability to shape their own future and make a difference in their life and the lives of others. The intention of the program will be to empower students to make and find their own opportunities. The program should contain a motivational component focused on the end goal of improved social status, quality of life, or making a significant difference within the community. The Bakong high school can serve as a catalyst for building the social capital and community leadership that is severely lacking, but fundamentally needed in the region.

RECOMMENDATION 3: ADVANCE AGRICULTURAL TECHNIQUES THROUGH A DEMONSTRATION FARM

We propose to initiate a scalable agricultural training program in CFC schools, centered on a small demonstration farm on CFC's Bakong high school grounds. The training program would affect the community and the Bakong high school in many ways, and, if successful, it could be replicated elsewhere in the region. The program would provide students with technical expertise in the field of agriculture and, in the process, raise crop yields and improve resource allocation. We hope that a program in agriculture will also reduce the dropout rate because students can contribute more to their families through increased knowledge in agriculture than by dropping out to work on the family farm.

In addition, by drawing the families of students and local farmers to the school to participate in the demonstration farm as adult education, the program will have impact on the community more broadly. The farm could show benefits to the local economy within months of start-up and would

make CFC a community resource not only for agricultural education but also for networking that would build social capital. Moreover, a comprehensive program that addressed the entire value chain of agriculture rather than just field-level techniques would provide an entry for students into related business ventures.

The agricultural training program would consist of a regularly held class at the high school paired with a laboratory in the form of a demonstration farm on school grounds, where eight hectares are available and where there is already an orchard (currently overgrown). The class could be taught by a regular teacher who has undergone agricultural training through a local NGO such as ADDA or ActionAid, both of whom are active in the area. Alternatively, a skilled famer or agricultural expert who supervises the lab of fieldwork applications could be given pedagogical training. Some local NGOs (e.g. DED, HRND, READA) are already providing agricultural instruction through demo farms and their personnel could be borrowed or hired away for this purpose. For example, HRND's supervisor of agricultural training went through the ADDA course. Alternatively, a graduate of the agricultural college in Phnom Penh might be hired, since they earn only about $200 per month upon graduation and not all of them find jobs. Day-to-day farm operations and maintenance could be performed by students and/or overseen by a contracted local farmer who, in return, could keep the farm's output. The latter would be similar to the cooking-in-exchange-for-housing arrangement we saw used at the Amelio school.

The regional NGOs that specialize in agriculture, including DED as well as HRND, ADDA, ActionAid and several that run smaller programs could be part of a guest lecture schedule, which could be organized by a Lehigh intern or a CFC graduate with a JWOC scholarship. Tools and start-up costs could be financed through a microfinance loan.

The demonstration farm would operate on one or more the eight hectares that surround the Bakong high school. The demonstration farm would be a regular part of the curriculum, and students and their families could take part in various agriculture experiments, including different rice strains or vegetable seeds, composting practices, animal husbandry, drainage/irrigation/field leveling techniques, etc.

The students could collect the data from different types of agricultural practices so as to identify the most efficient practices for their own farms, perhaps under the supervision of a Lehigh intern or thesis student. This would allow the region to reap the benefits of alternative farming practices without any individual farmer taking any risks on their own land. Students could be given responsibility for different plots of the land and then compete to see who can most efficiently and creatively cultivate crops. This would give students incentive to understand different agricultural practices and give them pride in their own work.

In addition to the rudiments of field-level techniques taught by READA, HRND, ADDA, Trailblazers or ActionAid, class topics could include cropping, distribution and marketing decisions, conducted by a representative of DED. They currently organize meetings among value-chain participants in order to maximize productivity and marketing potential, especially with respect to

vegetables. Students and their families would learn about business in the process, and students could potentially work as interns with collectors or middlemen as a part of this learning process. DED expressed to us interest in this idea. Lehigh's Engineers Without Borders could work with Bakong students in designing irrigation, drainage, or sanitation systems for the region. The agricultural market information system, discussed below, might be included as well.

RECOMMENDATION 4: BUILD MICRO-ENTERPRISES THROUGH ENTREPRENEURSHIP

We envision of steady stream of Lehigh students and faculty visiting and working in Siem Reap, all focused on identifying opportunities to create micro-enterprises that would foster development and alleviate poverty, while working with local students, NGOs, and the community. Not only would these micro-enterprises provide a source of income for the CFC graduate running them, but they would also provide a beneficial service to the community at large, and encourage others to attempt entrepreneurial activity of their own.

Lehigh entrepreneurs would come from:

- Lehigh's "hub" of interns and the flow of faculty associated with it.
- Several Lehigh programs that feature a required capstone project for their students, among them: Integrated Product Development, Integrated Business and Engineering, Global Citizenship, and Leadership Lehigh, as well as the Entrepreneurship minor. Any one of them could readily make the NGOs in Siem Reap a target of their work, while fulfilling Lehigh's new strategic goal of giving every student an opportunity for a significant international experience.
- Many Lehigh student clubs that are engaged in international outreach, especially Engineers Without Borders and the Microfinance Club. The existence of a hub would encourage them to work in Cambodia.
- Individual students working on their own independent projects, including honors theses and graduate research.
- Classes that could benefit from a trip abroad to further their own mission would be encouraged to add an entrepreneurial component: architecture students considering housing, for example.

The activities of these Lehigh entrepreneurs would include:

- Providing training to Bakong High School students (and teachers), under the supervision of a CFC teacher, in accordance with their own skills, perhaps in business, computer literacy, health or hygiene education. Initially, this would be an occasional "guest lecture", but could grow into a fuller course of life skills as the effort matures.

- Engaging NGOs in providing lectures as well, beginning with the agricultural demonstration farm discussed below.

- Working with Bakong students, teachers, and community members to identify targets of entrepreneurial activities, some preliminary ideas for which follow.

- Offering loan guarantees to microfinance institutions in the region such as AMRET and ACLEDA to fund promising entrepreneurial ideas, and to pair potential entrepreneurs with Lehigh specialists.

Examples of possible enterprises identified by the field research team on this trip include the following, but many more await discovery:

- **Market Information Systems.** A few of the NGOs we had visited, including DED and READA, made mention of an agricultural market information system. Both these NGOs are active in delivering market price information--generally posted on paper in village centers in person by NGO personnel about once per month--to rural villages so that producers and collectors (middlemen) are aware of the current market prices of their crops. There are concerns that this means of feeding information monthly is beneficial, but not sustainable.

  Some farmers and collectors also receive this information through (government-sponsored) radio broadcasts, but this is not very common. One government initiative in particular, Cambodia Agriculture Market Information System (CAMIS), makes available agricultural market data through mass media systems, including FM radio (broadcast daily, Monday-Friday), the internet, and SMS-messaging. Wholesale agricultural price information is collected three times weekly in 21 major markets throughout eleven provinces, including Siem Reap. We have taken an interest in the developing method to transmit this information via cell phone between traders. As of now, the process is as follows: you send a message to the specified cell phone number with the product and market codes you want to know about. After receiving this information, you can also request contact information for the traders or producers of the product and market about which you are inquiring.[21]

  Although this system is in place, we are unsure but skeptical of its outreach, especially in Siem Reap province, since we did not see it being used anywhere we visited and no villagers or village chiefs we interviewed mentioned it. Lehigh and Bakong high school students involved in social entrepreneurship or the NGO hub program may be able to spread awareness about this system to village producers and collectors. This would help the producers' position in the value chain and allow them to adjust their work to meet market demand better. Moreover, if the CAMIS initiative is not very widespread in terms of the number of markets it has price information for within Siem Reap, students could possibly help design a way to broaden the system, giving producers and collectors greater choice of where to sell/buy agricultural products.

In order to make this expansion project sustainable, the program and process for sending and receiving this data might be entrusted to niche micro-businesses in Siem Reap. Having entrepreneurs on the ground in Siem Reap operating the system for small fees would ensure the system is maintained and propagated. Not only would farmers benefit from more accurate price information by knowing which crops to produce more of and which markets to sell in, but the entrepreneurs would be able to make a small profit from supplying this information.

On a more basic level, a micro-business could also sell the market information at a small fee to village councils, merchants, CFC or other organizations, who could then post it at their locations on a frequent regular basis. For CFC specifically, this would get more parents to the schools, something the Amelios expressed a desire for. There is also the possibility that if many farmers gathered in one such place to get the updates, they will have more of an opportunity to talk amongst themselves about agricultural practices/techniques and cooperate over growing patterns so as to better take advantage of the market demands.

- **Point-of-use water treatments.** Pumps and filters–whether bio-sand or ceramic–are common in Siem Reap, but maintenance and cleaning are seldom adequate. Since we found on the ground that households and communities with filtration systems rarely know how to maintain the system properly, an initial project would be to create better training materials to support bio-sand filters used by CAWST and installed by Trailblazers. It may be possible for a CFC graduate to form an enterprise, capitalized with a microfinance loan, that goes door-to-door to deliver, clean and maintain filters.

- **Irrigation pump service**. A CFC graduate could start a business selling or renting out portable pumps to farmers, for irrigation in the dry season and drainage in the wet season. This would provide the business owner an income, and provide the farmer with a valuable service. Pumps could also be manufactured locally in Siem Reap. A thriving trade in pump service mico-businesses like this, initially capitalized by microfinance with pumps manufactured locally exists in Kenya and several other African . This is particularly attractive in Siem Reap because of the high water tables: portable leg-operated pumps (e.g. the $33 KickStart MoneyMaker pumps) are capable of pulling water from more than 20 feet deep and irrigating an acre or more.

- **Refrigeration service**. Since refrigerators were rarely found in Siem Reap, a CFC graduate could earn money by purchasing a refrigerator and selling items that require refrigeration/ freezing or charging villagers to store perishable foods. Refrigeration at market sites would be ideal since a lot of produce perishes before being sold at market. A micro-entrepreneur with a small store who we met in Peru had quadrupled sales rapidly after using a microloan to introduce the first freezer in her village.

- **Children's books.** As a response to the lack of children's books in Cambodia that was pointed out to us in the Amelio School's library, we think that Lehigh would be able to provide a useful resource to the Caring for Cambodia schools by aiding in publishing

children's books in Khmer. The stories could come from students in the Caring for Cambodia schools and would provide them with a creative outlet while avoiding the cultural and language barriers confronted in the translation of English or other children's books. Graphic design, art and other students from Lehigh then could help in the design of the books. A local Siem Ream microbusiness with microfinanced printing equipment could provide finished copy to the schools.

Students could also help write children's books with the intent of educating Cambodian children on various issues that affect their lives such as issues with water and sanitation. CFC-school students or Lehigh art students could illustrate the books and CFC-school graduates or students could be paid to translate. This is project that could engage Lehigh students of various disciplines such as education, English, art, and whatever disciplines specialize in the book's topic of interest.

RECOMMENDATION 5: CFC HIRE A GUIDANCE COUNSELOR TO MATCH GRADUATES WITH OPPORTUNITIES

CFC provides students with an excellent education and gives them a great start on achieving success; however, if a student cannot find a job that provides more financial returns for their family, then they are likely to return to their old way of life, even once they have graduated from high school, especially if they are unaware of other options.

A guidance counselor for the Bakong high school could seek out such opportunities for CFC graduates. He or she would be familiar with various opportunities for CFC students such as college scholarships and vocational training, as well as various job opportunities or career paths. Some examples follow. The counselor role would advise students on what path might help them meet their goals and steer them accordingly. A second role would be to encourage entrepreneurial initiatives, for which purpose the guidance counselor could receive some "entrepreneurship boot camp" training by Lehigh.

JWOC scholarships. One of the most significant opportunities that can be offered to CFC graduates are scholarships for higher education. Journeys Within Our Communities in Siem Reap offers scholarships to students that have graduated Cambodian high schools with high marks, yet are unable to afford to go to university. As part of the program, JWOC's scholarship recipients dedicate a few hours per week to volunteering at JWOC and helping out with the management of their programs. JWOC expressed to us interest in forging a relationship with a high school that could feed them students academically capable of college work yet lacking financial resources. Currently, they wade through many applications of students who turn out not to be needy. The CFC guidance counselor could assist students with these applications, while certifying their eligibility.

Lehigh scholarships. Using the JWOC model, Lehigh University could provide scholarships for promising CFC graduates to further their education. Scholarships could fund enrollment in either a summer educational or vocational program at Lehigh (such as the high-school-oriented PA School

for Global Entrepreneurship or the Global Village program), or in another promising university in South-East Asia. Lehigh and CFC can work collaboratively to find a formula like the JWOC model whereby the most promising students receive further education in exchange for active participation in one of the CFC projects or entrepreneurial endeavors. If this were provided in conjunction with the entrepreneurship program proposed above, promising students with exemplary, socially-responsible projects could benefit from the scholarship program.

Hospitality School. Another option is sending CFC graduates to the Hospitality School, which trains people to work within the hospitality industry--specifically in hotels and restaurants. As a result, admission is highly competitive. The Hospitality School requires proficiency in English at the time of application and people graduating from the one year programs can earn a much higher wage than most Cambodians. Hospitality School graduates reportedly earn three to ten time what they would have within two or three years of completing the program. So, this is a strong opportunity for CFC graduates. Although the school is fairly costly, there are also scholarships offered (directly through the school itself) which would allow most CFC graduates to attend, should they qualify.

V. NEXT STEPS

In order to develop the recommendations above our near term next steps include the following. The aim is to launch a pilot internship hub program with 6-8 Lehigh student interns working with NGOs in Siem Reap during summer 2010.

Baker Institute for Entrepreneurship, Creativity and Innovation. The Baker Institute was formally launched on Feb. 19, 2010, and will be directed by Professor Watkins. The Institute will be responsible for ramping up entrepreneurial programming campus wide, including the Social Entrepreneurship Program as a central component.

Social Entrepreneurship Program: During spring term 2010, a faculty and student planning group is identifying curricular outlines of the Social Entrepreneurship track within the Entrepreneurship minor. Details of some courses will require the participation of faculty not yet part of the program, especially a Professor of Practice yet to be hired.

Lehigh in Cambodia Hub: A Lehigh faculty member and one student, who will serve as the hub program coordinator during summer 2010, will travel to Siem Reap during Lehigh's spring break in March, 2010 or in early May to negotiate initial internships for summer or fall 2010. They also hope to collaborate with CFC personnel to identify a local Siem Reap resident to help handle logistics on the ground longer term.

Agricultural Demonstration Farm: The Lehigh faculty and student team will contact the various agricultural NGOs to confirm their already-expressed interest (and/or identify new potential partners) and subsequently work with CFC to develop an appropriate pilot project curricular segment. Initial coordination meetings will be set up while during the spring break 2010preparatory visit to Siem Reap. Full joint planning with CFC and development work on the demo farm and curriculum could begin with interns placed with appropriate NGOs as early as summer 2010.

Micro-enterprise Development: Starting as early as summer 2010 within the interns hub program, Lehigh interns and faculty and CFC faculty and students can work in Siem Reap to identify potential local micro-entrepreneurs, focusing on CFC students' families and graduating CFC students. Ideally, the interns would be placed with microfinance institutions.

Lehigh student capstone projects: Lehigh's IBE, IPD and CSB capstone courses begin each January, so identification of potential Lehigh student design projects should take place during the summer hub program and finalized during fall 2010 for January 2011 starts.

Poverty and Development course projects: In addition to the team that created this report, a small research team from Professor Moon's Poverty and Development course have taken up the case of Cambodia. During spring semester 2010, they are using proposals identified in this report to begin their research and further investigate strategies for continuing work in the region. One example of this is identifying more specific strategies for developing the agricultural sector within the CFC communities. They may also work on drafting a first-cut agricultural and entrepreneurial training curriculum that CFC could adopt to implement within their schools.

Social Entrepreneurship Collaborative Forum. Currently, one of the ENTP 398 travel team students, Lisa Boyd, is working on creating a social entrepreneurship umbrella organization for all student clubs working on initiatives to further the cause of social entrepreneurship on a local or global level. The intent is to create an online database/forum through which students and clubs can post information concerning projects they are doing, things they are interested in, ideas for collaboration, etc. This will hopefully bring together students and clubs that may not have otherwise known about each other's work or interests. The network will be a part of Lehigh's formal entrepreneurship Institue and social entrepreneurship program, but will also allow students who are not directly involved with the academic component to get involved and explore the opportunities Lehigh has to offer.

Development Planning. To ensure success and sustainability of this program, we continue to work with the development office to secure funding for the social entrepreneurship program faculty and operations. Since we hope to continue the partnership with CFC schools in Cambodia, we seek to attract a faculty member well-versed in Cambodian studies. This may be expensive, so we are also exploring finding Fulbright scholars interested in helping students learn about this particular region.

ENTP 398. The ENTP 398 course has again been scheduled as a pilot course for fall 2010. For this program to move forward, there must be a steady interest from students as well as an institutional commitment of a faculty member to staff the course regularly on an ongoing basis after the pilot years. Once we attract a faculty member or Fulbright scholar to oversee this particular component of the social entrepreneurship program, we will seek faculty approval to get ENTP 398 permanently listed as a course in the catalog.

PA School for Global Entrepreneurship. We would also like to pursue fundraising efforts to provide scholarships for select CFC graduates to attend Lehigh's intense 6-week summer immersion high school program, the Pennsylvania School for Global Entrepreneurship. The program currently

attracts about 75 students annually, 12-15 of whom are international students. Lehigh students serve as mentors and councilors during the program. So by bringing CFC students to Lehigh, not only will the CFC students benefit, but also the American high school students and Lehigh students will benefit from the expanded perspectives brought by the Cambodians. This could happen as early as summer 2010.

VI. PROPOSED BUDGET

One-Time Interns Hub Program Start-up Summer 2010

Note: start-up phase expenses; should be self supporting via tuition thereafter. First year tuition revenues cannot be estimated at this time.

Planning Trip March or May 2010	
RT Airfare, hotel, meals, etc., for 2 @ $3000	$6,000
Summer 2010	
Program teaching faculty summer 2010: 6 weeks @ $2500/wk	$15,000
Graduate assistant/coordinator: 6 weeks @ $20/hr. 40 hrs/wk	$4,800
Housing & food for faculty and assistant @$40/day 45 days each	$3,600
Translator 40 days @ $30/day	$1,200
Ground transport @ $500/wk	$3,000
Misc. (visas, tourist entry fees, long distance, printing)	$1,500
10% contingency	$3,500
Total one time start-up:	**$38,600**

Annual

Professor of Practice Social Entrepreneurship Program	$90,000
Scholarships for lower-income Lehigh student internships in Hub 4@$5000	$20,000
Scholarships to fund CFC students attending PA School 2@$3000	$6,000
RT Air for 2 CFC students to attend PA School 2@$1,600	$3,200
Total Annual, not including startup:	**$119,200**

APPENDIX A: ENTP 398 PARTICIPANTS

The Social Entrepreneurship Initiative's Cambodia Project is a multidisciplinary endeavor bringing together students and faculty from all four of Lehigh's colleges: the College of Education, the College of Business and Economics, the College of Arts and Sciences, and the P.C. Rossin College of Engineering and Applied Science.

The faculty guiding the ENTP 398 course were:

- Bruce E. Moon, professor of International Relations, with specializations in development and poverty in poor countries, especially the satisfaction of basic human needs. He is especially interested in the use of social entrepreneurship, including microfinance, to alleviate poverty. His twin spring semester courses ("Political Economy of North South Relations" and "Poverty and Development") have been the entry point into social entrepreneurship for many of the students in the team.

- Todd A. Watkins, Professor of Economics, Director of Lehigh's Microfinance Program, and Director of the Entrepreneurship Program. His research and teaching focus on the intersection of innovation, entrepreneurship, microfinance, public policy, and economics. Lehigh's social entrepreneurship activities are modeled on the technical entrepreneurship experience of the Integrated Product Development program, which he co-founded in 1994. His Microfinance course is also responsible for the recruitment of several members of the team.

Ten students formed the research team for ENTP 398, with members of the field travel team denoted with an asterisk.

- Nicole Bohrer, a senior majoring in Economics and Global Studies, with a minor in International Relations and interests in development economics and microfinance.

- Lisa Boyd*, a senior majoring in International Relations, with participation in the IR 222/322 development courses. She is founder of a water-related NGO in Tanzania, Vice President of the Global Union, and a member of the Global Citizenship Program.

- Anais Concepcion*, a senior majoring in Economics and Asian Studies, with interests in development economics and extensive coursework in microfinance. She is currently the Treasurer of the Microfinance Club.

- Nick Kastango, a graduating senior majoring in Industrial Engineering as part of the Integrated Business and Engineering Honors program. He has held leadership positions with the Environmental Coalition and Lehigh's chapter of Engineers Without Borders.

- Sam Korab*, a graduate student in economics, with interests in microeconomics and microfinance. He also holds a bachelors degree in economics from Lehigh University.

- Andrew Lustig, a senior majoring in International Relations and Theater. He represents the Peres Center for Peace at the United Nations as part of the LU/UN Partnership.

- Puja Parekh, a junior majoring in Global Studies and Psychology, and minoring in Economics. She is president of the Microfinance Club, VP of UN Affairs for the Global Union, and active with the LU/UN Partnership.

- Danielle (Dani) Pogachefsky, a junior majoring in International Relations. She has focused on reproductive rights and health care, and has worked with the Somaly Mam Foundation (SMF), a non-profit based in Cambodia.

- Natalie Smith*, a senior majoring in civil engineering and architecture. She has served as President of Lehigh's chapter of Engineers Without Borders, with extensive development experience in Honduras and technical expertise in water.

- Alexandra Thrall*, a junior majoring in Spanish and Global Studies, with minors in Latin American Studies and Russian. She has been active in Global Citizenship and has travelled and studied extensively in Latin America.

APPENDIX B: CAMBODIAN CONTACTS (LOCAL TO LEHIGH)

- Chanda Choun, chc211@lehigh.edu
  Cambodian-American, former Lehigh student, currently in the US Army.

- Rorng Sorn, rorng@cagp.org, (215) 324- 4070
  Executive Director, Cambodian Association of Greater Philadelphia (CAGP). Demonsrated a serious interest in a mutually beneficial partnership between Lehigh and their organization.

- Daravann Yi, dyi215@yahoo.com
  Author author of the book *Salt Seeker: When there is life, there is a will to survive*. The book recounts Daravann's growing up during the Khmer Rouge and his escape from the country as a boy. Counselor at the Community College of Philadelphia, and the founder of Salt Seeker Foundation, an NGO dedicated to helping orphans in Cambodia. He enthusiastically accepted our invitation to visit Lehigh, and led a discussion on his flight from genocide, and more broadly on the damage the Khmer Rouge wrought on Cambodian civil society and collaborative social capital.

- Vimul Ros vimul@vimographics.com, cell: (267) 971-0288
  21 years old, born in Cambodia. He went to school at Dickenson. Working at CAGP while taking a year off from school. His father is Saphan Ros (below). Vimul and Saphan were both very enthusiastic about assisting our group in whatever ways possible.

- Saphan Ros, tepiros@yahoo.com , (cell) 016 9696 27 (from Cambodia), (855) 16 969627 (outside Cambodia)
  Works for the Cambodia Ministry of Defense and is well connected within the government. He also created an English curriculum that is currently being used in many of the Cambodian schools. Vimul suggested that if the travel team was interested, his father could arrange a meal with the Princess of Cambodia, who was the first female Prime Minister to run for

election. Vimul mentioned that his father was very close with the head of the Ministry of Education—perhaps a useful contact for the CFC schools.

- Mades Meas (maesmades@yahoo.com, skype id: Madeslee)
  Fluent in both Khmer and English. Often guides groups of international tourists. A Skype enthusiast willing to chat with group during our class period, even though that meant the middle of the night for him while in Cambodia.

APPENDIX C: NGO AND OTHER CONTACTS IN SIEM REAP

ACLEDA BANK

- Mr. Keo Chamroeun, SAVP & Manager
- Email: keo.chamroeun@acledabank.com.kh
- Phone: (855) 015 400 101

AMRET MICROFINANCE, SIEM REAP BRANCH

ANGKOR HOSPITAL FOR CHILDREN

- Eugene Traguc, M.D., F.A.C.S., Volunteer Consultant Surgeon and Cardio-Vascular Surgeon, Board Member, Friends Without a Border (NGO who set up the hospital)
- Email: etragus@hotmail.com
- Phone: 855 – 063 – 760 – 452

DEUTSCHER ENTWICKLUNGSDIENST (DED)

- Stuart Morris, Senior Advisor for Agricultural Value Chain
- Telephone: 092 248 597
- E-mail: stuart.morris@ded-cambodia.org
- http://cambodia.ded.de
- http://www.gdc-cambodia.org

ECOLE D'HÔTELLERIE ET DE TOURISME

- Paul Dubrule

ENGINEERS WITHOUT BORDERS, NY PROFESSIONAL CHAPTER, SIEM REAP

- EWB-NY General contact, Email: baling@ewbny.org
- Jessica Miller
  - Email: Jessmiller64@gmail.com
  - Previous project manager for EWB-NY's dam project in the Siem Reap region of Cambodia
  - Lehigh alumni,
- Bryse Gaboury
  - Email: Bryse.gaboury@gmail.com

- Telephone: 017-406-012
- First project manager for EWB-NY's dam project in the Siem Reap region of Cambodia
- Currently lives in Siem Reap and is in the process of starting his own engineering firm in the region to work on civil projects.

HUMAN RESOURCE AND NATURAL DEVELOPMENT ORGANIZATION OF CAMBODIA (HRND)

- Mean Someth, Founder and monk
- Email: hrndcambodia.someth@gmail.com
- 012496238
- Website: http://hrnd-siem-reap-cambodia.blogspot.com/

HUMAN TRANSLATION

- Yinh Ya (Chai), Engineering Officer for Human Translation
  - Email: Chai@humantranslation.org
- Mr. Ben Heng Kat, Works for Human Translation, responsible for community surveys.
  - Email: bunheng@humantranslation.org
  - Telephone: 012-974-228

JOURNEYS WITHIN OUR COMMUNITY (JWOC)

- General email: info@journeyswithinourcommunity.org
- Website: http://www.journeyswithinourcommunity.org/
- Camilla McArthur: Camilla@journeyswithinourcommunity.org
- Andrew Piner: Andrew@journeyswithinourcommunity.org

LO-YUYU KHMER CERAMICS AND TEXTILES PRODUCTION

- Workshop and sales in Prolung Khmer centre (road to Bakong, Siem Reap)
- Tel: 012-576715 012-393896
- E-mail: yuko@online.com.kh

MAD FOR GOOD

- Director - Phillip Starling
- 092 121 027
- http://www.madforgood.org/contact
- Office is 20km out of town (near Bakong Primary School)

RURAL ECONOMIC AND AGRICULTURE DEVELOPMENT AGENCY (READA)

- #0263, Group VI, Chong Kaosou village, Slor Kram commune, Siem Reap district, Cambodia.
- Mr. Lok Sokthea, Executive Director.
- http://readacambodia.org/

- (855-16) 68 34 68
- (855-12) 61 21 21
- (855-63) 965 545
- E-mail: reada_cambodia@yahoo.com
- Tel:092 98 57 98 (Lok Sokthea , READA Executive Director)
- Tel: 012 21 82 49 (Oum Phoeun , READA project coordinator)
- Tel: 012 94 07 63 (Net Sarann , Admin/Finance officer)

TRAILBLAZER FOUNDATION

- Contact: Mr. Rattana
- 855 (0)12 943 110
- www.thetrailblazerfoundation.org

APPENDIX D. SYLLABUS FOR ENTP 398, FALL 2009

ENTP 398: International Entrepreneurial Symposium, Fall 2009

Fourth ***draft***
20 August 2009

International Social Entrepreneurship and Development Practice: The Case of Siem Reap, Cambodia [1]

Instructors [2]

- X Lead instructor: Bruce E. Moon, Professor, Dept. of International Relations, 208 Maginnes, x83387, bruce.moon@lehigh.edu
- X Co-instructor: Todd A. Watkins, Professor, Dept. of Economics and Director of Entrepreneurship, Rauch 471, x84954, taw4@lehigh.edu

Description

International social entrepreneurship aims to change the world through innovation in solving social problems. This course is itself such an entrepreneurial project. Among its layers of missions, two stand out: to teach students how to affect meaningful social change in poor countries and to develop a start-up plan for a sustainable program in International Social Entrepreneurship at Lehigh.

It is an experimental pilot and, like all entrepreneurial projects, it is inherently open-ended and fluid. To put it more plainly, we'll be making it up as we go. Students will play a key role in shaping this effort, working in a single team with faculty to generate ideas for poverty reduction, to develop those ideas into concrete on-the-ground plans, and to take initial steps to implement them.

The immediate focus of our attention is an opportunity to attract financial support for an International Social Entrepreneurship program from a particular pair of donors, Bill and Jamie Amelio, founders of the NGO Caring for Cambodia and several associated schools. To do so, we must demonstrate to them our ability to generate development progress and reduce poverty in our target locale, Siem Reap province in Cambodia.

We will devote the first half of the course to learning about the nexus between social entrepreneurship and development practice, while simultaneously researching a wide range of poverty problems and development opportunities in Siem Reap. We will brainstorm possibilities for innovative projects to solve selected problems amenable to entrepreneurship.

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1 A companion course, CIE 404, will also participate in planning for the Cambodia project. It is taught by Iveta Silova McGurty, Assistant Professor, Comparative International Education, 111 Iacocca Hall, x85750, ism207@lehigh.edu. See syllabus on BlackBoard.

2 In addition to the two main instructors, extensive consultations on project ideas will be provided by Prof. Silova and Lisa Getzler-Linn, Director of the Lehigh Entrepreneurial Network, Wilbur Annex 102, x84620, lig4@lehigh.edu. Research assistance will be provided by Roseann Bowerman, Social Science Librarian.

In November a small travel team will visit Cambodia to sharpen our research, do feasibility studies on project ideas, and lay the groundwork for subsequent visits. This first travel team will consist of three faculty (Moon, Watkins, Silova) and six students chosen by the course organizers from both ENTP 398 and CIE 404 before the semester begins. All or most travel expenses will be paid by the program, but travelers may be asked for a small contribution. All students, including those not travelling, will participate fully in preparation for the trip, with the expectation that they may be selected for future travel teams if we succeed in securing the funding we seek.

The second half of the course will then develop those ideas further and write a proposal to the potential donors explaining how we intend to (1) create positive social change in our target area through specific projects, and (2) build a sustainable organization at Lehigh to continue work in international social entrepreneurship. Working within the broader structure of the Cambodian effort, students will have the opportunity to develop entrepreneurial plans of their own.

In keeping with the mission of the course to advance student entrepreneurship at Lehigh, students are encouraged to pursue their own international development ideas, whether related to the course or not. A number of competitions represent funding opportunities for student entrepreneurship projects, including those developed in this course. Most prominent among those is the Lehigh Social Venture Creation Competition for Student Entrepreneurs , which awards a prize of $5000, and the Davis Projects for Peace, which awards $10,000. Contact the course organizers, especially Lisa Getzler-Linn and Todd Watkins, for more information on these and other competitions.

Objectives

Students will participate in the design and pursue initial steps towards launching a specific international development start-up program or organization conceived by them or some subset of team. Students will:

- Learn the best practices, successes and failures, opportunities and constraints in the field of social entrepreneurship, especially in relation to NGOs;
- Learn best practices in field methods with respect to development projects;
- Increase their understanding of the processes and problems in launching new international development programs and organizations, by integrating the insights of the entrepreneurship literature and development theory;
- Acquire the tools and conceptual framework to launch a new social venture through a real-world, team-oriented learning experience;
- Develop the ability to identify needs and opportunities in international development;
- Develop entrepreneurial abilities to attract resources to realize organizational goals;
- Improve their skills in unstructured decision making and problem solving;
- Improve their professional oral and written presentation and teamwork skills;
- Write organizational business plans and related advocacy materials;
- Present orally the organizational goals and start-up plans.

Grades

Grades will be determined by course organizers in consultation with your teammates, based on...

- Written reports, including drafts, and oral presentations on early research assignments (15%). Final version due at end of term.
- Research assignment #4 papers (25%)
- Final team report (25%), to include project proposals, detailed description of field activities, copies of briefings, a weekly work record, an annotated bibliography of books, articles and other material used in the project and a copy of the oral presentation.
- Final oral presentation to potential donors (10%)
- Individual contribution and, especially, effort (25%) based on our and your peer's evaluation. At term's end will also ask each of you for a peer evaluation of other teammates.

Expectations

We expect 3 credits worth of work from each student. A typical 3 credit course meets 2.5 to 3 hours per week and faculty generally expect two to three times that out of class doing reading, homework, writing and so forth. This is roughly 5-10 hours of effort per student per week outside of class meetings. Sustained effort at this pace throughout the semester is required by each member of a project team to prepare substantive, Lehigh-quality start-up organizational plans.

If you have a documented learning disability, and will be requesting academic accommodation for this class, please contact Dean Cheryl Ashcroft in the Office of the Dean of Students, UC 212, x84152.
Lehigh University Student Senate, Statement of Academic Integrity.
"We the Lehigh University Student Senate, as the standing representative body of all undergraduate, reaffirm the duty and obligation of the students to meet and uphold the highest principles and values of personal, moral and ethical conduct. As partners in our educational community, both students and faculty share the responsibility of promoting and helping to ensure an environment of academic integrity. As such, each student is expected to complete all academic course work in accordance to the standards set forth by the faculty and in compliance with the university's Code of Conduct."

Because of the time-urgent and sequential nature of our activities, it is likely that the effort required will be uneven, with some unusually heavy periods of work. We expect each student to attend all meetings. In extenuating circumstances if you must miss a meeting, notify your teammates and the organizers ahead of time, and explain why.

Calendar

Note the following due dates and scheduled meetings for the entire class. In addition to these scheduled meetings, groups will meet among themselves and with course organizers at arranged times. We will meet jointly with CIE 404 in preparation for the Cambodia trip on a schedule TBA. The preliminary schedule assumes travel to Siem Reap around the 11th week, roughly early November, but that is only a guess. All dates and the order of topics are fluid.

Week 1 – Introductory meeting

- Course goals and course procedures
- Is this course for you?
- Inventory of team skills, experience, and assets. **Blackboard assignment**: Tell us about yourself. Post a description of your interests, skills, background, and travel related to entrepreneurship and development.
- The intersection of social entrepreneurship and development practice, very briefly. Details in later weeks. The literatures of social entrepreneurship and development studies are fully compatible, but they have different emphases, address different audiences, and use somewhat different language. We will learn from both of them in creating an integrated approach to solving specific social and economic problems, including those in education, finance, and health.

> Given time constraints in this course, we will skirt around all but the most fundamental aspects of development theory. Students are encouraged to consult the syllabi for IR 222, the Political Economy of North-South Relations, and IR 322, Poverty and Development, and to consider taking these courses during the spring semester. Since several students in this course have already completed those courses, we will rely heavily upon them to share their knowledge.

- **Research assignment 1** for quick introduction to Siem Reap, Cambodia (near Angkor Wat) for individuals or pairs, taking advantage of existing skills and experience of team members wherever possible. Prepare brief presentation and documents with links, making them available to team. See below for due dates, which vary. Introduce Roseann Bowerman, the social science librarian to help with research.
  - X maps of all kinds, but especially place names to orient our research,
  - X weather to determine travel time and agricultural seasons,
  - X precise locations of Caring for Cambodia schools,
  - X Caring for Cambodia activities and orientation, and Amelios' philosophy,
  - X active NGOs throughout Cambodia in all sectors, but especially those in sectors of interest and in Siem Reap (Be alert for interesting ideas that can be borrowed, adapted, or improved). Start with the Cambodian NGO forum and Cooperation Committee for Cambodia;
  - X active IGOs and national aid agency projects in Siem Reap, e.g. USAID, UNICEF, World Bank. See also the CIE 404 assignment "Donor Logic Case Study"
  - X images – what does this place look like,
  - X topography with respect to agriculture, resources, settlement patterns, and travel,
  - X transportation to Siem Reap and within it (especially for markets and tourism),
  - X local Khmer speakers and other possible aids for our research (including faculty, staff, student, alumni).

Week 1 – Second meeting: launching our research

- Very brief presentations by students on these **research assignments (1)**:
  - X maps,
  - X weather,
  - X locations of CFC schools

- An introduction to poverty and development. What is poverty? What is development? The multi-dimensionality of poverty.[3]
    - Dudley Seers, "The Meaning of Development," *International Development Review* 11, 4 (December 1969): 2-6. ***Warning: Always read footnotes and endnotes!***
    - E. Wayne Nafziger, "From Seers to Sen: The meaning of economic development," UN University/World Institute for Development Economics Research Jubilee Conference, 17-18 June 2005.
    - Moon, "Basic Human Needs", chapter 1, *The Political Economy of Basic Human Needs* (Cornell University Press, 1991)
    - Anirudh Krishna, "Escaping poverty and becoming poor: Who gains, who loses, and why?" *World Development* 32, 1 (2004): 121-136.
- **Research assignment 2** for pairs or groups to diagnose poverty problems and development opportunities in Cambodia, wherever possible focused on rural areas, especially Siem Reap. The importance of these steps will be described more formally in later weeks, but their practical relevance should be apparent even now, especially to those with prior experience in development studies and knowledge of development theory. We will rely heavily on those students at the beginning.
    - X poverty indicators [income, employment, health, nutrition, education]. Start with
        - the 2007 Cambodian Human Development Report from United Nations Development Program.,
        - and UNDP on poverty reduction below.
    - X water quality and access, both potable and agricultural,
    - X tourism profile – where do niches exist for further development?,
    - X agricultural patterns and production [cropping, efficiency, etc.] and problems [soil, water, inputs, technology, knowledge and skills]. Our rice expert can start with
        - Harry Nesbitt, Rice Production in Cambodia:
    - X employment patterns, needs, and opportunities. Macro picture of Cambodian development and poverty problems. Start with
        - UNDP, "The macroeconomics of poverty reduction in Cambodia"
        - UNDP, "Cambodia Country Competitiveness: Driving economic growth and poverty reduction"
        - Cambodia's Poverty Strategy Reduction Paper (IMF Country Report 06/266)
    - X finance, especially at the village and household level. Start with
        - Matin, Imran, David Hulme, and Stuart

In addition to scholarly studies, our research must eventually tap the following. Roseann Bowerman will develop a research guide and help us with research strategies.

- the leading development agencies and IFIs: UNDP, World Bank, UNESCO, Asia Development Bank, IMF, etc.
- sectoral IGOs: World Food Organization, World Health Organization, International Rice Research Institute, etc.
- leading research institutes: Institute of Development Studies (Sussex), Cambodia Development Research Institute.

Any assigned paper without an HTML link can be found on the Course BlackBoard site.

3 See also readings from CIE 404, modules 1-5.

Rutherford (2002) "Finance for the poor: From microcredit to microfinancial services," *Journal of International Development* 14: 273-294.

- Angkor Mikroheranhvatho (Kampuchea) Co. Ltd (AMK), "Client Household Profile"

X assets (resources, skills, human capital, and social capital that constitute comparative advantage) Start with

- Adkins, "Social capital put to the test".

X education.[4] Start with

- Asian Development Bank (2003). Education sector-wide approach: Cambodia education case-study.
- Shoraku, A. (2008). Educational movement toward school-based management in east Asia: Cambodia, Indonesia, and Thailand. [Background paper for the EFA Global Monitoring report].
- Presertsri, S. (2008). Cambodia case study of government and donor efforts for improved aid effectiveness in the education sector (2000-2008). [Background paper for the EFA Global Monitoring report].
- Tan, Charlene (2007) Education reforms in Cambodia: issues and concerns. *Educational Research for Policy and Practice* 6:1, 15-24.
- Ayers, David (2001). Tradition, modernity, and the development of education in Cambodia. Comparative Education Review, 44(4): 440-463.
- World Bank (2005). Cambodia: Quality basic education for all.

Week 2A Social Entrepreneurship

- Updates from working groups on difficulties in researching assignments. Schedule sessions with Roseann Bowerman for research strategies as needed.
- What is social entrepreneurship? What are the key components of social entrepreneurship?
  - David Bornstein, ARestless people,@ AThe role of the social entrepreneur,@ and AMorality must march with capacity (about James Grant),@ chapters 1, 8, and 19 in *How to Change the World: Social Entrepreneurs and the Power of New Ideas* (Penguin India, 2005). Remainder of book is recommended.
  - J. Gregory Dees, AThe meaning of social entrepreneurship,@
  - Collected quotes which define the approach
  - (rec) Jay Weerawardena and Gillian Sullivan Mort, "Investigating social entrepreneurship: a Multi-dimensional model" *Journal of World Business* 41, 1 (2006): 21-35.
- What is it not? Varieties of mixes between traditional for-profit corporations and non-profit NGOs. What organizations are not right for social enterprise? How do mission and market forces support and also compromise each other?
  - Roger L. Martin and Sally Osberg, ASocial entrepreneurship: The case for definition@
  - Kim Alter, ASocial Enterprise Typology@ (skim)
  - (rec) Ana Maria Peredo and Murdith McLean, "Social entrepreneurship: A critical review of the concept," *Journal of World Business* 41, 1 (2006): 56-65
- Examples of social entrepreneurs: Bill Drayton, Paul Farmer, Michael Young, Andrew Mawson. Sources of social entrepreneurship ideas:

4 The lead role in educational needs assessment will be performed by students from CIE 404.

http://www.kiva.org/
http://www.ashoka.org/about
http://www.schwabfound.org/
http://www.skollfoundation.org/
http://www.acumenfund.org/
http://www.socialedge.org/

Week 2B Entrepreneurship and development

- The intersection of social entrepreneurship and development practice: small-scale experiments in innovative development projects precede the scaling that marks social entrepreneurship. Reflections on Week 2A readings. Specialized sectoral analyses in education, health, water, finance in the context of development and entrepreneurship.
  - Social Ventures as Learning Laboratories, by Greg Dees in *Innovations*, Davos 2009 Special Edition
- Where are we, organizationally?
- Brief presentations on **research assignment 1** . Brainstorming on entrepreneurial ideas.
  - X Caring for Cambodia,
  - X active NGOs in Cambodia (especially in Siem Reap),
- Very brief presentations on **research assignment 1**
  - X images,
  - X topography,
  - X transportation,
  - X local Khmer speakers.
- Presentation on **research assignment** 2: poverty indicators in Cambodia and Siem Reap. Brainstorming.

Entrepreneurial idea: Enhancing agricultural productivity by introducing higher-yield seed and encouraging its adoption through crop insurance.
Modern rice varieties would increase farmer incomes, but farmers will not adopt new seeds because they are risk averse. Micro-crop insurance could solve the problem. Some risk can be laid off with climate insurance.

Week 3 Development Problems in Siem Reap

- Presentations of **research assignment** 2 on the Big Five sectoral problems that motivate most development interventions by NGOs(covered in second assignments). This research has been on-going in groups since Week 1. Brainstorming on solutions, including stealing without mercy from successful projects or interesting ideas.
  - X water,
  - X food,
  - X health,
  - X education,
  - X finance
- Presentations of **research assignment** 2 relevant to the problems of special interest to the donor. Brainstorming:
  - X employment opportunities,
  - X Possible "quick hits" concerning tourism,
  - X utilizing other community assets
- **Research assignment 3:** Formation of tentative working groups on selected problems.

Entrepreneurial idea: Develop some aspect of peasant life, agriculture, or history as a tourist attraction.

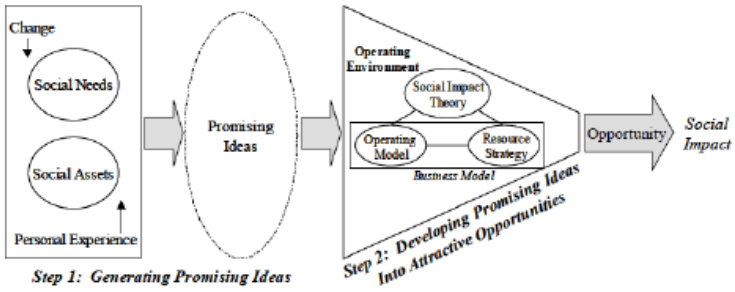
Week 4 Conceiving the project

- Research continues on assignment 3. Updates from working groups on problems and ideas for development interventions. **"Elevator pitch" on possible projects** from each group.
- Steps to becoming a social entrepreneur (the opportunity creating process), from Guclu et al. (2002), illustrated below. Identify essential components of several NGO ventures including vision, capitalization, execution, growth plan, etc.
    - Ayse Guclu, J. Gregory Dees, and Beth Battle Anderson, "The Process of Social Entrepreneurship: Creating Opportunities Worthy of Serious Pursuit"

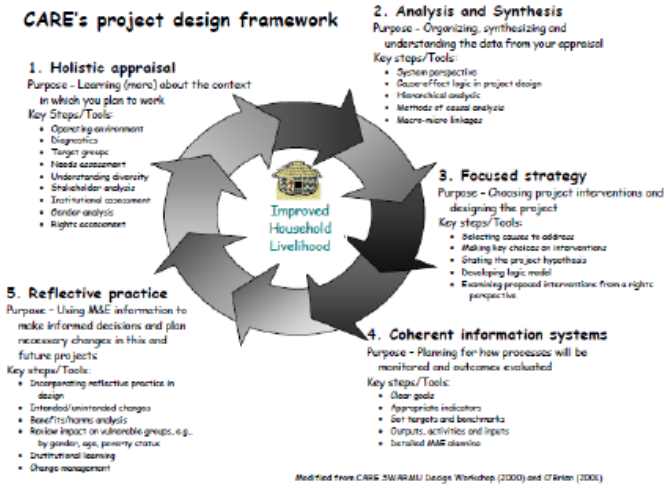
X Step 1: Generating promising ideas

X Step 2: Developing promising ideas into attractive opportunities.

Figure 1: The Opportunity Creation Process



- Steps to performing effective development work, illustration below from Caldwell (2002). Notice that, slightly different terminology aside, the basic elements as described in the development literature (such as in the Handbooks by CARE [a relief NGO], DFID [a government aid agency), and the World Bank [a research and funding IGO]) are all virtually identical to those described in the social entrepreneurship literature (such as in Guclu and Dees). The discussion of the "operating environment" is usually more detailed in the specific development literature than in the general social entrepreneurship literature, so we will tend to follow Devlit for that. However, Devlit tends to take as given the innovative "promising ideas" that are emphasized by social entrepreneurship, which is also better on attitudes, skills, organization, etc., so we will rely on E-ship for those elements.



- Richard Caldwell, *CARE Project Design Handbook*, 2002, Chapters 1&2. . Glance at Annex 5.4 – 5.6 to see similar formulations.
- UK Department for International Development (DFID), 2002. *Tools for Development: A Handbook for Those Engaged in Development Activity*, Chapter 1. Skim to note similarity.

- Applying the attitudes, skills, and vision of social entrepreneurship to the particular context of poverty alleviation and fostering development.
  - Robert Chambers, "Poverty and livelihoods: Whose reality counts?" *Environment and Urbanization* 7, 1 (April 1995)

Week 5 The fundamentals of development practice: understanding the operating environment

- Submit paper on **research assignment 3 (Statement of Opportunity/Needs)** and **oral elevator pitch** from working groups on problems and ideas for development interventions. Seminar evaluation of promising ideas. Narrow the ideas we will consider intensively for this semester's trip to two or three. **Research assignment 4**: Reassign working groups to concentrate on these problems and possible projects. In depth research continues.
- Conceptual introduction to development field methods. Links among development goals, guidelines and activities. Introduction to the project/program cycle. Briefly, what makes a successful development project, with an emphasis on "fit" and sustainability (.ppt).
- Fundamentally, we need to understand the nature and causes of the problem(s) to be solved. Caldwell tries to reduce this to a series of steps with names and graphic illustrations, but there are various ways of conceptualizing the chain of assumptions and theories that constitute the cause and effect relationships governing the causes of, and solutions to, the identified problems.
  - Richard Caldwell, *CARE Project Design Handbook*, 2002, Chapter 3.
  - *Recommended skim:* World Bank. 2003. *Social Analysis Sourcebook*
- Development diagnostics: stakeholder analysis, institutional mapping, needs assessments. Logical frameworks (logframes). Understanding the operating environment Identifying good practices.
  - Caldwell, chapter 4.
  - DFID, *Tools for Development*, read chapter 2, skim chapter 5.
  - Swedish International Development Agency(SIDA),2004, *The Logical Framework Approach*.

Week 6 Field methods for development

- Oral updates on **research assignment 4** from working groups on problems and ideas for development interventions. **Second papers (Statement of Opportunity Needs and Proposed Timeline of Work, see Week 7)** due on projects. Identify on-the-ground activities required to initiate feasibility studies for each project. Honing of project ideas.
- Best practices: Choosing a project site, with an emphasis on social capital and leadership (.ppt).
- Information gathering and field ethics. Surveys. Interviews. Focus groups. Participatory approaches
  - DFID, chapter 3.4, 7
- Field ethics, "money doctors", community development, and NGOs. Dangers of poor practice. (.ppt)
  - NGO Good Practice Project (NGO GPP), "Code of Ethical Principles and Minimum Standards for NGOs in Cambodia"
  - Caroline Hughes, *Dependent communities: Aid and politics in Cambodia and East Timor*
  - Ek Chanborith and Sok Hach, "Aid effectiveness in Cambodia" (2008)

Week 7 Plan of on-the-ground activities in Siem Reap. Updates on project planning, including list of people to contact. Create and refine proposed schedule of activities and develop materials and plans to conduct them, following logframes.

- Transect walk: for initial orientation, first cut at needs assessment, recognition of social capital, etc. Developing an "eye" for development and poverty. The importance of field notes.
- Structural survey to identify leadership, other NGOs, identify most important "felt needs" and compare them with "expert needs".
- NGO and elite stakeholder interviews and focus groups to assess communities, leadership, social capital, needs, and assets.
- Needs Module mass surveys and focus groups, concentrating on the two or three points of development intervention identifies earlier.
- Social capital surveys
- Poverty assessments

Week 8 TBD (allowing for catch up)

- Continue work on materials for the in-country field study.

Week 9 TBD

Week 10 Travel plans, preparation

as needed

Week 11 In Siem Reap (Nov. 1-8)

as planned above

Week 12 Reflections, recovery

- Intensive discussions of what we found, what we concluded.
- Designing a development intervention.
  - Caldwell, chapters 5 & 6.
- Creating a schedule for the rest of the semester.
- Sources of funds and fundraising constraints What is the range of earned-income strategies for nonprofits? What are non-revenue benefits of running social enterprises? The dangers of business entrepreneurs and philanthropy .What are donors/foundations looking for?
  - Mario Morino, Business Entrepreneurs & Philanthropy: Potential and Pitfalls
  - http://www.skollfoundation.org/skollawards/eligibility.asp
- Writing a business plan
- Writing a grant proposal

Week 13 Development theory

- **Continued work on proposals!**
- While we will be working at the village level, the local problems of poverty we encounter must be understood against the backdrop of development at the national and international level. Why

are countries poor? Some classic readings will help us understand, but it will be up to us to figure out which of the sources of poverty are amenable to local solutions at the scale we are capable of producing.
    - Michael Lipton, "Why Poor People Stay Poor: Urban Bias in World Development"
    - Jeffrey Sachs, "Why some countries fail to thrive" and "Clinical economics," chapters 3&4, *The End of Poverty: Economic Possibilities for our Time* (New York, Penguin, 2005)
    - E. Bradford Burns, "The Modernization of Underdevelopment: El Salvador, 1858-1931," *Journal of Developing Areas* 18 (April 1984): 293-316, reprinted.
- Back to the beginning: What are the contributions to social change of social entrepreneurship, development studies, and specialized sectoral analyses in education, food, health, water, finance.

Week 14 Assorted issues as time allows

- **Continued work on proposals!**
- Building a sustainable organization for social entrepreneurship. The evolving field
    - Center for Advancement of Social Entrepreneurship, "Developing the field of social entrepreneurship"
- Measuring outcomes (Social Return on Investment) How do social entrepreneurs define success?
    - DFID, chapter 12
- Teamwork and partnering.
    - DFID, chapter 8-10
- Scaling an innovation
    - Paul Bloom and Aaron Chatterji, Scaling Social Entrepreneurial Impact

In many respects, success in development and entrepreneurial work require the same attributes as in any other field. Consider the issues of character and other virtues in John Wooden's "pyramid of success."

Week 15 or later: Complete proposal

Reference materials for those interested

- How to start an NGO
    - "Should I start an NGO?"
    - "Should you start a non-profit,"
    - "So you want to start an NGO,"
    - "How to start an NGO," (a check list)
    - Anthony Mancuso, *How to form a Nonprofit Corporation*
    - SCORE: Counselors to America's Small Business

1 Alvord, S. H., L. D. Brown and C. W. Letts. (2004). "Social Entrepreneurship and Societal Transformation: An Exploratory Study." *The Journal of Applied Behavioral Science*, 40:3, 260-282.

2 Mair, J. and I. Martí. (2004) "Social entrepreneurship research: A source of explanation, prediction and delight." IESE Paper: D-546-E, March 2004.

3 Light, P. *The Search for Social Entrepreneurship*. Washington, DC: Brookings Institution Press, 2008.

4 Monllor, J. and S. Attaran (2007), "Creativity Model of Opportunity Recognition of Social Entrepreneurship," *International Journal of Entrepreneurship and Small Business*, Vol 6. No. 1: 54-67.

5 Drayton, William (2002), "The Citizen Sector: Becoming as Entrepreneurial and Competitive as Business," in *California Management Review* Vol. 44.

6 The entrepreneurship website can be viewed at: http://www.lehigh.edu/entrepreneurship

7 http://cagp.org/index.htm

8 Sophal, Chan and Sarthi Acharya (2002) "Facing the challenge of rural livelihoods: A perspective from nine villages in Cambodia," Working Paper 25, Cambodia Development Research Institute, Phnom Penh, December. http://www.cdri.org.kh/

9 Officially, Siem Reap district is designated as urban by the Cambodian government because it contains the administrative capital of the province, but it would qualify as rural by the usual standards of population density used elsewhere.

10 Chambers, Robert (1995) , "Poverty and livelihoods: Whose reality counts?" *Environment and Urbanization* 7, 1 (April 1995)

11 CDRI, 2009; HNP 2007, NIS_CSES; Winters et al.

12 For examples, see Cambodian Inter-Censal Population Survey (http://cambodia.unfpa.org/docs/CIPS_2004_General%20Report.pdf) and Cambodian Social Economic Survey (http://www.nis.gov.kh/index.php/statistics/surveys/cses).

13 http://siteresources.worldbank.org/INTWSS/Resources/strategyforenhancingurbansanitation.pdf

14 See: "Measuring Rural Water Supply Access" (http://www.wsp.org/UserFiles/file/927200731022_eap_cambodia_measuring.pdf)

15 http://www.skyjuice.com.au

16 United States Department of Agriculture, Economic Research Service, Rice Situation and Outlook Yearbook, February 2009, http://usda.mannlib.cornell.edu/usda/current/RCS-yearbook/RCS-yearbook-02-17-2009.pdf .
17 Average productivity in Cambodia is higher, nearly 1.5 tonnes per hectare, but only about 1.3 tonnes in the Tonle Sap plain that includes Siem Reap.

18 Average landholding in rural Cambodia is about 1.5 ha per family, but the median is about .5 ha. Roughly 1 in 5 households is landless and another 45% own less than 1 hectare. Chan Sophal and Sarthi Acharya, "Facing the challenge of rural livelihoods: A perspective from nine villages in Cambodia," Working Paper 25, Cambodia Development Research Institute, Phnom Penh, December 2002.

[19] Nicole Biddison, "Land distribution and reform in Cambodia: The effects on Agricultural Production," http://www.scribd.com/doc/21403489/Land-Distribution-and-Reform-in-Cambodia-The-Effects-on-Agricultural-Production

[20] Chan Sophal and Sarthi Acharya, "Facing the challenge of rural livelihoods: A perspective from nine villages in Cambodia," Working Paper 25, Cambodia Development Research Institute, Phnom Penh, December 2002.

[21] Refer to the CAMIS SMS site for more details as well as product and market codes: http://www.camis-kh.org/?q=en/node/8