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Sustainability Series: Creating Student Sustainable Practices Within SFS and Beyond

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SIT Graduate Institute

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SUSTAINABILITY SERIES:
CREATING STUDENT SUSTAINABLE PRACTICES WITHIN SFS AND BEYOND

Staci Hagen
PIM 69

A Capstone Paper submitted in partial fulfillment of the requirements for a Master of Arts in International Education at the SIT Graduate Institute in Brattleboro, Vermont, USA

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Advisor: William Hoffa
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ABSTRACT

The School for Field Studies (SFS) is a non-profit environmental research based study abroad program that integrates academic, research, social and community activities in a holistic education model. One of the six SFS centers is the Center for Coastal Studies (CCS) in Baja California Sur, Mexico. At CCS, students take courses that explore local and regional environmental, social and economic problems and they have the opportunity to design their own research project. Even though students study these problems and come up with sustainable solutions, it does not mean that they make personal choices with the least impact on the environment. The proposed Sustainability Series (SS) is designed to raise student’s awareness about their personal effect on the environment through consumer choices and connection to the environment. This seven-session series is integrated with the current SFS CCS semester and addresses the need for student’s to examine their own beliefs and habits, engage in sustainability practices, and to learn skills that will last beyond a semester abroad.

The SS program design will use Kolb’s Experiential Learning cycle and Lieb’s Principles of Adult Learning. Students will reflect on places that they visit, such as a permaculture center, the landfill, a local beach, and the recycling center. Through discussions, activities, and practice, students learn ways to incorporate personal choices in their lives that lead to a smaller environmental footprint. With the implementation of SS, sustainability can have a reach beyond a semester abroad.
**INTRODUCTION & BACKGROUND**

Travel and exploration of new cultures quickly became an integral part of my life in high school in rural Iowa, partly due to the foreign exchange students I befriended. I grew up on a large, industrial corn and soybean farm, yet developed a strong interest in national and world affairs. The summer after I graduated high school I went to work for the YMCA of the Rockies in Estes Park, Colorado. It was full of young, energetic international students waiting to explore America. These friends also inspired me to study abroad, and thus I was off to spend semesters in Spain, Mexico, and Australia during my undergraduate experience. Amidst my time back at Iowa State University, fueled with a newfound interest in nutrition and food, I found myself at the Agriculture study abroad office. Given my background and Spanish ability, I was given a communication internship at EARTH University in Costa Rica, which for the first time, allowed me to spend time in a place entirely dedicated to sustainability and social justice. In the years that followed, I sought out jobs that allowed me to travel, teach environmental education, lead trips, and learn about sustainability. Along the way, I realized that everyone should have access to these kinds of life-changing experiences and that I had the skills, experience, and drive to help make that happen for others.

When I came to the SIT Graduate Institute, social change and sustainability became just as important to me as international education and I wondered how I could marry these two themes. When it came time to choose a practicum, I found a way to integrate my love of study abroad, Spanish language, outdoor work in the field, and a way to support a sustainability based study abroad program. The position I accepted was as a Student Affairs Manager (SAM) with the School for Field Studies.

The School for Field Studies (SFS) is a non-profit environmental research based study abroad “third-party provider” that offers semester and summer programs at six field centers worldwide. As the oldest environmental study abroad program in the US, SFS integrates
academic, research, social, and community activities in a holistic education model (About Us, 2010). The academically rigorous and interdisciplinary curriculum of each program is designed to allow students to actively discover and understand the complexities of local realities related to environmental, social, and economic problems. Through teaching and research, the center faculty and staff introduce students to field research methods, data collection, and analysis and promote student interactions and reciprocity with local communities (Mexico Program Manual, 2010).

One of the field stations is called the Center for Coastal Studies (CCS), better known to citizens in Puerto San Carlos (PSC), Mexico, as the “Escuela de Campo.” Located on the west coast of Baja California Sur (BCS) in Bahía Magdalena, the school has been a long time resident of the local community. Bahía Magdalena is the largest coastal lagoon in BCS, and with a high marine life abundance in its warm waters, the World Wildlife Fund (WWF) has ranked the bay as one of Mexico’s most importance coastal habitats in need of protection (“Program Manual,” 2010).

**THE SFS SEMESTER PROGRAM**

The current course curriculum provides students with a full course load of eighteen credit hours. Students take three core classes in Coastal Ecology, Principles of Resource Management, and Economic and Ethical Issues of Sustainable Development. An additional two-credit course is in Spanish Language, Culture and Society. To round out the eighteen credits, the students engage in a Directed Research project.

<table>
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<tr>
<th>Semester Course Descriptions</th>
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<tr>
<td>Coastal Ecology</td>
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<td>Principles of Resource</td>
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Coastal Ecology provides students with fundamental knowledge necessary to understand the main ecological processes and interactions that occur in coastal and marine ecosystems. In order to understand the human component of development and the connection between society and natural resources, students will learn about the Principles of Resource Management. Since the livelihood of the community of Puerto San Carlos evolves around the fisheries, the goal is to better understand how to balance the environmental, social and economic components of development to be more sustainable and beneficial ("Program Manual," p. 11, 2010).

The third course examines the relationship between the natural environmental and the inhabitants of Baja California Sur (B.C.S). Economic and Ethical Issues of Sustainable Development takes a look at the, “ethical, economic, educational, social movements, cultural, historical, external, and political/governmental/policy elements that have formed and continue to mold how humans relate to Baja’s amazing environment” (“Program Manual,” p. 11, 2010).

Language, Culture and Society of Baja California Sur, Mexico, is a two-credit course that helps maximize students’ studies with DR projects in the community and social integration in Mexico. Students take part in oral and written practices and engage with native speakers; through lectures, discussion, and field experiences, students understand cultural contexts and phrases.

An integral component of the semester program is the student Directed Research:
The reason for specifying directed research, as opposed to basic, applied, or independent research, is that student’s research a specific topic related to the Center’s five-year plan, led by our resident faculty. The aim of this course is to provide students with the opportunity to apply the scientific process in a field research project that addresses a local issue related to the environment. Through the Directed Research project, students will contribute to a growing body of scientific research that informs local conservation, resource management, and economic development decisions. Each student will join a faculty-led team that will carry out field research, data analysis, and communication of results. This is a rigorous course designed to introduce students to the real-world challenges of conservation-based field research. The specific tools used in this course include experimental design, field techniques, basic descriptive statistics, and statistical analyses. Succinct scientific writing, graphic and tabular presentation of results, and effective delivery of oral presentations will be emphasized.” (Program Manual, 2010)

These courses are carried out by the on site staff. Each SFS center has a director, three resident faculty members, a student affairs manager (SAM), a number of research assistants and a host of support staff. SFS centers attempt to hire exclusively from the host country. In Mexico it means that the entire staff is Mexican except for the Social Economics Professor and the Student Affairs Manager, whose position qualifications are traditionally difficult to fill from within the country.

The CCS site has seen many changes over the last seventeen years, but many of the unsustainable practices in the town have not changed drastically even with the student and faculty research. The problems range from overfishing, water contamination, to pirating. The sardine factory still pollutes the water and leaches horrific smells into the air, the waft of brown clouds are still emitted from the electric plant. Changes can take place over extended periods of time and certain variables, such as the Mexican economy and governance, culture
of the *comunitud* and personal opinions, can often be well out of the CCS’s control. The school conducts research, but does not necessarily implement the results. In order to be able to do research in the area, CC tries to integrate and give back to the community, which means the school takes an active role in creating positive relationships with our neighbors and pitching in with community service (“Memo,” 2010). We have accomplished this by doing things such as hosting town & beach clean-ups, giving environmental and English classes, and participating in the Turtle and Whale Festivals.

Part of my role as the SAM is to create these relationships with community members and people interested in the work that we do. The SAM job description also includes many other roles: counseling, community outreach, safety and risk management, orientation, marketing, and facilitation, amongst others. The aim of the role is to foster communal living and adhere to center and academic goals. The SAM role has evolved over time, largely due to the different SAM personalities and agendas, as well as to the fluctuating student and staff demand, interest, and time. Unwritten in the job description, the position has also included Center food purchasing, menu creation and recycling projects because of the previous SAM initiatives. For example, the previous SAM started a recycling center in town, distributed cloth bags, and taught environmental education in the kindergarten. Unfortunately, due to cultural and monetary issues, many of these practices have not stuck. However, she helped carve an unwritten sustainability niche in the SAM position where I have been able to integrate my interests in study abroad and sustainability.

**Program Rationale**

Throughout the past year at CCS, I have witnessed the unsustainable practices of students and staff. Some of these practices can be seen when plastic soda bottles are purchased instead of recyclable cans or returnable glass bottles, or when cloth bags are
perpetually forgotten on shopping trips. When staff members return from shopping, often so do thirty plastic bags of food and goods. Even though recently these plastic bags have become biodegradable, they still take energy to be produced.

I have also noticed that many of the students that come to our program have some sort of food preference, which could be due to allergy, taste, or personal choice. Those that choose to eat sustainably, such as those who don’t eat beef because of the cow’s large environmental footprint, end up explaining the rational behind their choices to others. However, even with this good intention, some of the alternative meat choices that they want are also not sustainable. Tofu is shipped and driven thousands of miles to get here, while meat might be from this state. Other students’ ask for Oreo’s and Coco Krispies, which are shipped from the US, and even the apples come from Chile. To purchase or consume various food items is a choice that we have to make, and some have a larger environmental impact than other. I have not heard enough deep conversations or structured discussions about our personal sustainability impacts, especially since we can control how deep that runs. Granted, Puerto San Carlos is not the most sustainable town because of its location in the desert and most of the products have to be transported in. However, students come to “explore the human and ecological dimensions of the complex environmental problems faced by our local partners, contributing to sustainable solutions in the places we live and work” (About Us, 2011). They are here to study and talk the talk, so why not walk the talk? Even though a typical SFS student has some environmental background or interest, they are all over the spectrum in terms of sustainability knowledge and practice. In a survey given out to CCS students in the spring 2011, they commented that they have high levels of environmental awareness, but that they still have a lot to learn (Questionnaire, 2011). What better place than to learn new awareness than at school?
Ciegis and Gineitienè (2006) critique the role of universities in promoting sustainability, and they believe that universities, amongst other institutions of higher learning, must take the lead for learning, teaching and integrating sustainability issues in their programs. Along the same line, UNESCO dedicated the last decade (2005-2012) to Education for Sustainable Development and believes that universities play a central role in shaping the community, but they [universities] still lack policies and awareness. They should “integrate sustainability issues into their policy and programs” (UNESCO, 2005). Dr. Cortese (2010), President of Second Nature and former Tufts University Dean of Environmental Programs, said it best, “Institutions of higher education bear a profound normal responsibility to increase the awareness, knowledge, skills and values needed to create a just and sustainable future.”

Universities that have taken on “green campus” initiatives participate in activities such as recycling programs, sustainability clubs, encouraging use of public transport, making buildings LEED certified, supporting gardens and buying local foods for dining halls. Others are members of AASHE, the Association for the Advancement of Sustainability in Higher Education; it unites all stakeholders on campus and recognizes that sustainability must be integrated into teaching, research, and campus operations. According to the AASHE website, over 800 institutions that are a part of the association are working towards global sustainability (AASHE, 2010).

SFS is accredited by Boston University and for all intensive purposes, is an American University campus in Mexico. To maintain consistency, higher education sustainability practices should also be done within study abroad programs. Current rhetoric includes how to minimize impact while traveling overseas and how to be environmentally conscientious. There is an overarching principal that study abroad is not environmentally friendly because of the resources it takes to fly overseas. Dvorak, Christiansen, et al. (February 2011) wrote
about this in *A Necessary Partnership: Study Abroad and Sustainability in Higher Education*, and they discuss the contradictory trends of internationalization efforts and environmental sustainability at the institutional level. They came to the conclusion that study abroad is indispensable, but programs should be evaluated according to their environmental impact, and ideally should support sustainability through creative design. They described these programs as "green study abroad," and they can fulfill both the "integrity of internationalization and commitments to sustainable practices" (p. 2, 2011).

SFS study abroad programs are built upon examining environmental problems and promoting ideals of environmental sustainability, it could easily incorporate sustainable living practices. As an institution, SFS encourages practices that protect the available resources. Part of the mission statement reads, “The SFS community is part of a growing network of individuals and institutions committed to environmental stewardship” (About Us, 2010).

In order to further our environmental stewardship, students must develop an understanding of personal choices. RMIT University published an article (2011) which stated the belief that, “Students need to engage with ethical and sustainable practices in order to effectively respond to the challenges of rapidly changing local and global environments.” To promote sustainable personal actions and habits, students should be engaged in conversation topics as to why certain imported foods could not be found or purchased, or why Puerto San Carlos has such a trash problem.

When students participate in ethical and sustainable practices within the context of their discipline or profession it increases their capacity to take up positive roles as responsible and committed members in their personal and professional communities. (RMIT, 2011)

Sustainability practices can easily be integrated into the current CCS curriculum because living in community is an intensive part of the SFS program- students eat, live, sleep
and play together. For all intensive purposes, we are one big family, school, and field station. Students want to learn about sustainability and I have seen the need for an outlet to connect to practice. To enrich the current semester program, I propose that an additional seven structured learning opportunities be added to the semester curriculum. The *Sustainability Series* (SS) will enhance SFS institutional goals and mission of sustainability, offer opportunities for students to discuss, view, and practice sustainable living practices and help the CCS semester keep pace with high standards of a “green culture.” It will also help SFS in their commitment to sustainability by incorporating elements of how to live with less environmental impact.

**Theoretical Foundations**

The proposed SS design uses David Kolb’s Experiential Learning Cycle and Stephen Lieb’s “Principles of Adult Learning.” The idea of experiential education demands active participation of the student in hands-on opportunities and learning experiences, which connect the student’s life with the learned content. Experiential education combines active learning with concrete experiences, abstract concepts, and reflection in an effort to engage all learning styles (Coffey, 2009, para.1). Please see appendix A for a diagram of Kolb’s Learning Cycle.

SFS academic programs already take an interdisciplinary and experiential approach to education, and the SS will build upon the existing theoretical foundation.

As students engage in high-quality field research, they begin to understand the challenges of confronting environmental issues. They learn the value of experiencing another culture, of collaborating with their fellow students and with the local community to develop workable solutions. They are also given the rare opportunity to work side by
side with an international research team and learn state-of-the-art field research skills (SFS, 2010).

To bring continuity to the overall program experience, the Sustainability Series will follow the same design. Within the program in each course, the students will also move through Kolb’s cycle which include the five stages: Experiencing, Publishing, Processing, Generalizing, and Applying (Sigda and White, 2009). In the SS, the cycle starts by bringing in students’ own experiences, then allows students to participate in learning opportunities that enrich learning about sustainability, and concludes with practice and reflection for how these practices may continue in the future.

Each class also follows the learning cycle. Group activities and reflections will begin each class and are used to enrich the learning for the group and allow students to reflect so they can move through the cycle from “So what?” to “Now what?” How can this new knowledge be applied to each individual and their personal life choices? The aim of this series is to create knowledge about sustainability and learn about the effect of personal changes. This is transformation from direct experience, which is experiential learning (Itin, 1999). In the definition of experiential education by the Association of Experiential Education, educators engage with learners of different learning styles and backgrounds in directed experience and focused reflection (AEE, 2011). Thus, the Sustainability Series looks to draw on experiential learning through experiential education.

Lieb’s “Principles of Adult Learning” is also an important element to the course design. There are six factors of motivation for Adult Learners, which include: social relationships, external expectations, social welfare, personal advancement, escape/stimulation, and cognitive interest (Lieb, 1991). The students are young adults, typically ages 19-22, whose needs should be met to hold their attention and encourage learning. The Sustainability Series design uses several of these motivators in the class
design. It will provide stimulation, or a break from the routine because students will have structured opportunities to leave campus as a group and hear other voices besides those of the faculty. The SS is created to engage and stimulate discussion, and a number of students have cognitive interest in sustainability. This interest, along with the need for association and friendship, will encourage student participation because of the natural social dynamic of the group of people living in community. The community does everything together due to the nature of the semester curriculum and goals.

**LITERATURE REVIEW**

The School for Field Studies is one of many environmental study abroad programs according to the website GoAbroad.com. A student looking for an Environmental Studies/Sustainability program abroad would have to choose amongst 257 organizations offering a total of 668 Study Abroad programs (Study Abroad Directory, 2011).

What sets SFS apart from this considerable list of programs is that it allows students to “combine hands-on environmental studies with scientific research to develop sustainable solutions to local, critical environmental problems” (About Us, 2011). Each of the six centers around the world has been able to work with local communities to come up with ways to manage their natural resources. Students have the opportunity to develop their own “directed-research” projects with a professor that contributes knowledge to the goals and mission of each centers’ five-year plan. There seems to be a division in study abroad programs- those that study environmental issues and those that focus on practicing sustainability.

**PROGRAMS THAT PROVIDE SIMILAR OPPORTUNITIES**

Another similar education abroad program that offers field-based environmental research is SIT Study Abroad, a program of World Learning, which offers summer and
semester long environmentally themed programs around the world that study competing ideas of sustainability and development and also work in projects that are “socially, economically, and environmentally sustainable” (SIT Study Abroad, 2011). SIT also engages in a field-based project, an Independent Study Project (ISP) and students present a paper at the end of the semester. Students typically collaborate with a local NGO or grassroots organization related to their project. A main difference between this program and SFS is an extended home stay, where students will spend up to a month living with a host family.

PROGRAMS DEDICATED TO SUSTAINABILITY PRACTICE

Living Routes is an educational program that strives to practice sustainability in its locations in the US and abroad. It is a non-profit organization in Amherst, Massachusetts that offers students the opportunity to study and live in "eco-villages" in the US and abroad. Students gain experience in sustainable practices such as permaculture, green building, and recycling (Living Routes, 2010). All Living Routes programs earn academic credits from the University of Massachusetts (UMass) Amherst and fulfill the Universities mission: “Create opportunities to live and learn within human-scale communities that are consciously striving to live well and lightly” (Living Routes, 2010).

GOALS AND OBJECTIVES

PROGRAM GOALS

The goal of the Sustainability Series is to design an engaging program that increases student knowledge about sustainable living practices and encourage habits that can continue once the program ends. This goal can be met through classes, discussions and visits based on the principles of adult learning and experiential education.

PROGRAM OBJECTIVES

- Discuss student past/present sustainability practices and compare resource use and waste
• Provide opportunities to see different sustainable practices and choices through visits to a Permaculture Center, gardens, the garbage dump, and the recycling center.
• Educate students about alternative consumer options that they can partake in as a lifestyle choice when they go home through discussion, movies and lectures.
• Practice Leave No Trace (LNT) Principles

**STUDENT GOALS**

Through participation in the SS, students will learn about what sustainability practices that they could adopt and continue to use after the end of the semester. They will understand how daily choices can lessen their environmental impact.

**STUDENT OBJECTIVES**

• Develop strong feelings of concern for the environment and motivation for actively participating in its protection and improvement by visiting the recycling center and landfill
• Students will understand other students practices and background
• Acquire awareness and sensitivity of other people’s viewpoints by engaging different viewpoints in class and through discussions held at the permaculture center, beach, and gardens
• Clarify their personal view of general and global environmental issues with the help of reflection
• Practice recycling and composting

**THE SUSTAINABILITY SERIES PROGRAM**

The proposed program, the *Sustainability Series*, is an addition to the current SFS course curricula. Some of the sessions enhance or change a currently offered class to use different learning theories and to connect students to place and each other. However, others are new additions to the semester. SS provides a way for SFS students, faculty, and staff to increase knowledge and connection to personal sustainability choices. Seven sustainability themed classes incorporate theories of Experiential Learning and Adult Learning throughout the course of the fourteen-week semester.
The program offers discussions to examine different opinions, self-reflection for personal growth, and present alternative practices. The program also offers visits to a permaculture center, the landfill, the recycling center, and the Buena Fortuna gardens.

**Sustainability Series Session 1: Introduction to the Sustainability Series & Center Practices**

During the first week of the program, students are introduced to the center, staff, the community of Puerto San Carlos, and to program practices. The beginning of the program is the time to setup up SFS community practices and to explain how this community may be different than others the students have lived in. The SAM will explain that to have a fully functioning community, all hands need to participate in daily activities. Further, the Sustainability Series will be introduced as a part of the semester activities that will further encourage sustainable personal choices, discussions, and daily practices.

The SAM will explain that the SS will follow Kolb’s experiential learning cycle, and that learning requires the active participation of the learner in the learning process. Each session will offer concrete experiences, time for reflection on how it affects the individual, and the opportunity to make the link to future application after the end of the SFS program. SFS students typically have a developed interest in sustainability and so this program is oriented so that students can learn more about sustainability, practice it, and take that knowledge home with them. To start the practice, students will be given two pages of information about composting to read in smaller groups (appendix B).

The SAM will gather the group after fifteen minutes and have the class discuss the reasons for composting, how it works, and will ask if it is something they think they can do. Explain that students participate in a weekly rotation of chores at the center and that the SS addition to the weekly chore list is composting.
The compost chore asks the student to check on the garden compost to make sure it has been turned over, remains moist, and that the kitchen bin is emptied. The students will be shown the location of the compost bin, what food items can and cannot be composted, and as an example, bring the bin out the compost and demonstrate how to turn over the pile. They are instructed to keep the black tarp on the pile so that it remains moist and traps heat to induce material breakdown.

**Sustainability Series Session 2: Goals & Expectations**

Currently, the SAM leads a goals and expectations workshop the second week of the semester. The outcome of the session is to help students to think about what they want to accomplish in terms of personal and group goals while they are studying with SFS. In addition to this session, students will also need to think about their sustainability goals. The SAM will open the discussion with a brainstorming session, “Why do we set goals?” Encourage ideas that can be accumulated on the white board. The SAM will share examples of previous student goals that were unattainable because their expectations were not able to be fulfilled: it might not be possible to see baby sea turtles during spring semester when they only hatch in the fall, it might be difficult to maintain a vegan lifestyle all the time while camping. By understanding and talking about wants and needs, SFS is able to satisfy student expectations.

Explain that when setting goals, it is most beneficial to use the use SMART attributes (Specific, Measurable, Attainable, Realistic, Timely) to see if goals have been achieved. Please see appendix C for an example of SMART. Note cards will be handed out and students will be given time to reflect and write the personal and group goals for the semester. After the students are finished, the SS will then include a discussion on personal sustainability goals. *What kind of practices can you personally take on while on campus? How can these*
be implemented? How can SFS and other students help you in those goals? The session will conclude by students writing down their sustainability goals. The group will be encouraged to share some of their goals with the class. The note cards are then collected to review at mid-semester and at the end of the semester.

**SUSTAINABILITY SERIES SESSION 3: COMMUNITY LIVING CONTRACT AND SUSTAINABILITY CONTACT**

Group lifestyle practices are a large part of living in community. Students and staff share housing, eat, play and work together. Sometimes it can be rather difficult to find personal space. The SAM currently runs a “Community Contract” during the first two weeks of the program to talk about and agree on how the group can function well together. However, the SS enhances how this class is taught and by using the adult learning theory and will integrate a Sustainability Contract with the Community Living Contract.

The SAM will start the session with a central “norming” activity called “Corners.” This activity is used to show similarities and differences in living habits and backgrounds of the people that are going to be living together for the semester. Each question is read out loud and the SAM will point to a different location with each answer. The students will have to pick the answer closest to what they believe or have done and congregate in the corner aligned with their answer (the list of questions are found in appendix D). Each group will be given a few minutes to discuss with each other why they chose that answer and why they think it is best choice. The questions are posed so students talk about different living situations that they have been in, what they have liked and disliked, and to be able to come to an agreement as a community. The SAM can facilitate a quick group sharing after each question. Reflect upon the experiences of good and bad living experiences. *How did you feel? What could’ve been done differently? Is it hard to live sustainably when your*
roommates were not? Faculty will be pre-empted about the activity so they will join in and so they can help lead the small group discussions when discussing contracts.

After the questions have been read, come back to the word “community” in the discussion. Get students to form a definition, which according to Dictionary.com (2011) means, “Group of people living together in one place, especially one practicing common ownership.” One staff member should go with each group, and they should be reminded that this semester we are going to be living in community with both ups and downs, and it will be best to agree on group expectations at the beginning. Students and faculty will brainstorm living conditions and practices and what is needed in order to practice sustainability, as well as study it. The application of this experience is the creation of a community and sustainability contract. As a large group, the SAM will facilitate a discussion and combine the group’s ideas into a contract that will be signed and posted in a communal area that will serve as a constant reminder throughout the semester of the principles that everyone agreed to while at SFS. To complete Kolb’s model, at the end of the semester, SS will look at further application at home.

**Sustainability Series Session 4: Leave No Trace Principles**

The SFS semester allocates time for three camping trips into the program, the first trip is for three days, and the second two are weeklong trips. The first trip is “Banderitas,” only a forty-minute boat ride away and which serves as an introduction to the SFS camping experience. The point of the current Leave No Trace (LNT) class curricula has been to emphasize the human destruction of natural habitat as part of the Natural Resource Management class. Although a very good point, the class has not emphasized a strong connection to place, which is needed to care for the environment and have a lasting impact. LNT says, “This is where commitment to land stewardship begins, with a personal
connection to place” (LNT, 2011). The goals of the session are to understand the importance, history, and principles of LNT. These principles will be used on all semester camping trips.

Using Kolb’s theory of Experiential Learning, the session will begin with an activity at “Playa Mantequilla” so that students look at the connection to place, which happens to be a beach that SFS uses for kayaking and a popular, local Sunday destination. Students will take a walk around, observe the area, and note the types of impacts in the area for about fifteen minutes. They will make a chart that lists: “Things in nature”, “What we have in common,” and “How it helps me.” To see an example of the chart and a briefing on LNT history, refer to appendix E. When the time is up, students will form small groups and share their analogies.

The SAM will share LNT history with the group and have students demonstrate the seven LNT principles. Appendix F lists each of the principles that will be divided amongst the groups to demonstrate or teach. Each group will be given five minutes to prepare and then present. More details or elaboration might be needed to explain the principles if the presentations do not make them clear. To draw out student background with the principles, the SAM will ask processing questions: How have you practiced these principles before? How might these apply to our camping trips? Are any of the practices in Baja different then those at home? Why?

The discussion will end with the detailed itinerary of the Banderita’s camping trip so that the students are well prepared for effective use of the LNT principles.

**Sustainability Series Session 5: The World of Plastic**

First impressions of Puerto San Carlos can be rather shocking. Coming into town there is a power plant consistently throwing up dirty brown clouds into the sky, toilet paper
“flowers” are stuck in the bush and cacti, and plastic bags flutter in the breeze. Beyond the town lies a beautiful blue bay surrounded by low lying mountains, home to dolphins, grey whales, turtles and more. Visitors immediately ask why there is such a problem, worse then other parts of Baja. The “World of Plastic” session allows students to visit the garbage dump and the recycling center, understand the problems behind their functioning and connect to potential solutions through discussion. Students will participate in these visits because they are typically interested in the area where they live and how it affects what they study and its shock value.

This class will be given during the first couple of weeks in the program, especially if the recycling center might reopen while the students are still studying. They will be more likely to want to help in the recycling operation if they understand the need firsthand. Class early on will also ensure student participation of current separation practices of plastic, paper/cardboard, and aluminum at the SFS center.

Before departing, students will write down their first impressions of what they think that the Puerto San Carlos and municipal trash facility might look like and types of problems that PSC might be facing with garbage from what they have seen and heard.

FIELD TRIP I:

SFS vans will transport students to the Puerto San Carlos dump outside of town. The area around town is a desert populated by grazing cows, cacti, and numerous desert animals. A gravel road winds off of the only paved road out of town, which brings vehicles to the local garbage dump. Mounds of trash have been randomly placed in any convenient place to unload- anything can be found here from porcelain toilets, piles of clamshells, to milk jugs. Within the dump, deep pits extend off the dirt road about one hundred meters, but either they are filled or people have become lazy and do not actually drive to the pits. Thus, the driveway has also become a mismanaged landfill.
The SAM will explain that the government does not have a regular waste management system and funding has not been adequately regulated. For example, there is a waste compactor that collects garbage, but it only runs when there is money for petrol or to pay the workers. Many times, people take it upon themselves to either burn or throw out their waste. In Fall 2010, a SFS faculty member, Eduardo Najera Hillman, collected about 400 local resident signatures to petition the government for a proper waste disposal system. Residents asked why they have not received these benefits if they pay taxes. It would be ideal to hold a discussion at the dump, but because of the smell and flies, it is best to save thoughts and comments until they return to the CCS.

FIELD TRIP 2:

On the way back the group will stop at the recycling center, take note its current condition, and hear its story with SFS. The SAM can tell the history and issues surrounding the center (appendix F), or the Site Director can be asked to tell it with his first hand experience.

The SAM will pose discussion questions in order to facilitate processing and generalizing: What do you see that could be improved? What do you think that we need to do in order to start recycling again?

Potential answers can include:

1. Find a buyer for the materials
2. Clean and separate the products in the recycling center
3. Build the roof on the center to keep items clean
4. Find and write a grant for funding to convert electricity on the compactor and to supply water and electricity to the center
5. Find a funding source to pay people to bring in their recyclables
6. Appeal to the local government to help with the program and to create a proper dump

Second impression discussion back at the center:
Once back at the center, the students will split into small groups and discuss the differences between their first impressions and what they saw. As a big group, the discussion will open to what has been done well and what can still be done at SFS.

The brainstorming sessions ideas can be flushed out on the board, but focus on the principles of reduce, reuse, and recycle. The discussion should center on the first and the most important “R”- how can the school and individuals consume less. Students will come up with a list of the products that use a lot of packaging material and decide that might we use less of certain products at the center. The SAM will remind students that garbage and waste are not “third world” country problem by any means. To wrap up the talk, a short video will be shown that demonstrates the need to find better uses for one of the substances that is found everywhere- plastic. The film “Midway” highlights the largest dump in the middle of the Pacific, a place where the world’s plastic congregates, and ends up consumed by the Albatross. The video can be found at http://www.midwayjourney.com/.

**Sustainability Series Session 6: The “V” Words**

The options for food consumption choices are numerous and sometimes overwhelming. This session reflects on the types of food choices that are available and the sustainability factors surrounding them. The goals of the session are to understand some of the environmental impacts of food choice, hold a class dialogue, and discuss what personal choices are able to change in Baja and at home. Before class starts, various students will be asked to share the reasons or purpose behind their food choices. The SAM will open the following discussion with a disclosure to not offend anyone and explain the SFS position:

This session is not to force anyone to do anything that they do not wish to do, but to explore the impact of food decisions. I am not an expert on this subject, but I hope that we bring out some new ideas and awareness to our group. Because of some of the dynamics of our organization, such as location, goals of study, and budget, there are
some changes that we are not able to make. Hopefully we will look at options that you
might be able to try now or after the semester.

Many of SFS studies include the management of local natural resources by looking at
the numerous stakeholders, the social and environmental factors involved, and environmental
sustainability (SFS, 2011). The SFS Academic and Research Philosophy reads, “SFS
academic programs strive to provide students with a clear understanding of the value and
management of natural resources within local contexts. Students are then able to transfer
their experiences to other contexts in their home communities and other environments”
(Dean’s Office, Jan 2008). Even though SFS is dedicated to understanding the value and
management of natural resources, agriculture and food are not typically addressed.

To understand the sheer amount of type of food choices, students will come up with a
chart of options. On the board the following titles and columns will be listed:

- Types of food consumers (i.e. vegan)
- Types of food production (i.e. organic)
- Food locality (i.e. local, regional)
- Production type (i.e. family farm, industrial farm)
- Treatment (i.e. free range, no hormones)

The idea is to help students understand that there are many choices and that navigating the
grocery store with sustainability in mind can be very difficult. To help understand how many
options are available to a consumer, count the number of combinations with the class
(multiply the number found in each column). The class emphasizes the differing types of
food consumers, and the reasons behind being a vegan, vegetarian, omnivore, etc.

It is necessary to understand the viewpoints and assumptions that are held by different
members of the class. Very often opposing viewpoints can cause tension because of deeply
held beliefs or family businesses in agriculture. It is important that the SAM encourages students and staff to share the stories and the reasons behind their choices. The Food Discussion Guide (2011) contains sustainability food facts that will be distributed in the class and read out loud (appendix H). Many of these facts point to eating less meat because it will leave less of an environmental footprint and that other foods, such as legumes, are the more energy efficient foods to produce (Pimental & Pimental, 2003). The class will process this information by answering the following questions:

- Has anyone heard of some of these numbers?
- Are any of these surprising to you?
- When might eating meat be more sustainable than alternative choices?
- Cultural aspects: What about Indigenous cultures where traditional foods are essential to cultural continuity or personal health? Here in Baja, some people eat sea turtle, which is part of the culture. Should we be opposed to that?

Now that some of the sustainability facts and opinions have been established, it is time to discuss personal options. The topic discussed is, “How is it possible to reduce your food footprint?” The idea is that students realize they can have a personal affect by eating lower on the food chain, planting a garden, shopping at a farmer’s market, and choosing food that has not traveled long distances from farm to plate. For more ideas please refer to appendix H.

To show an example of someone that passionately believes in these ideas at a young age, the class will watch a short clip of Birke Baehr on TED.com. He is not a typical eleven-year old child; he presents his take on industrial farms and tells the audience what choices he has made to be more sustainable. This is an interesting clip that inspires students and is someone that they can relate to.

The SAM will wrap up the session with the parable of the 100th monkey by Ken Keyes Jr. (appendix I). It is about the Macaca fuscata monkey, who didn’t like the taste of
dirty sweet potatoes until they learned to clean them. It only started with a few monkeys, but the phenomena caught on one day and the knowledge spread across to other islands. The message of the story is that when a critical number achieves awareness and practices it, the masses join in. Personal sustainability practices can start a revolution!

**SUSTAINABILITY SERIES SESSION 7: PERMACULTURE PRINCIPLES**

Permaculture is an ethically based system for designing sustainable lifestyles. Bill Mollison, (1980) author of *Permaculture: A Designers’ Manual*, says:

Permaculture is the conscious design and maintenance of productive ecosystems that have the diversity, stability and resilience of natural ecosystems. It is the harmonious integration of landscape and people providing their food, energy, shelter, and other material and non-material needs in a sustainable way.

One of the Sustainability Series goals is to educate students about alternative sustainable options that they can partake in as a lifestyle choice, so it makes sense to learn about the Permaculture system. This session will enhance the socio-ecology class “Environmental Education in Mexico- Service Learning.” As part of the ecology class, students watch a video on the construction of the “Earthship”, an eco-home built on the premise of being energy efficient and using recycled and local products. During the last weeklong camping trip around southern Baja, students will visit the “Earthship” and as part of the SS, they will also visit BioSana.

BioSana is a holistic permaculture-learning center three hours from Todos Santos. The visit will take place on day four of the camping trip, and the Earthship will be on day six. Even though the Earthship is a good example of permaculture, it is also about self-reliance through community, not just a single home. BioSana is also a community, run by Andrew Jones, an Australian who teaches permaculture all around the world.

The group will arrive mid-afternoon and Andrew will give a tour of the facility and discuss the elements of a permaculture center, such as a grey-water system, water catchment
areas, gardens with local foods, fruit orchards, organic and black water composting, and sustainable building projects. He will explain the overarching principle of the BioSana practice is that permaculture works with, rather than against, nature to actually improve the quality of life while reducing impact on the eco-system. Instead of clearing the land to grow crops, plants are placed next to others that are mutually beneficial. Instead of clearing land to construct buildings, trees are kept to use their canopies as part of the building design. It is the practice of sustainable farming, ranching, gardening and living in a community and blends scientific knowledge and traditional practices (Permaculture Research Institute, 2011).

Permaculture is not necessarily a new concept, as many of its principles are age old, but have not been as prevalent in Western society. The concept of living and working in community is a contrast to the individualistic background of students. This visit will serve as strong orientation to a different kind of sustainable lifestyle where resources are shared.

The Natural Resource Management Professor will give a class on water conservation while students and staff enjoy the hot springs on the property. The class is appropriately placed here because BioSana will also talk about the hardships of living in a desert and the lack of water resources.

Dinner revolves around holistic foods that are sourced locally and cater to all of the food needs in the group. Andrew will explain the different foods, where they come from, and how they are made (for menu please see appendix J). After dinner and camp set-up, students can take part in a bonfire and further conversation. In the morning after breakfast, a question and answer session will be held to further draw out conversations on sustainability.

BioSana is still in its beginning phases, and to see another permaculture garden further in development, the group will travel forty-five minutes to Buena Fortuna Botanical Gardens. It preserves 3,700 plant species of the tropical and dry tropical regions of the world whose aim is to preserve seed diversity (“Buena Fortuna,” 2011). Gabriel Howearth is a
botanist, landscape architect and “seedsman” and is the founder of the garden and president of Siempre Semillas. The group will tour the gardens and have an open question and answer with Gabriel over lunch.

To close the session, there will be a closing/reflection period where the SAM will engage the students in thinking about what they saw at BioSana and at Siempre Semilla’s and if this type of practice might be possible at the school or at home in the States.

Examples of reflection questions:

- What types of activities did we see at the BioSana?
- What did you find interesting?
- What are some of the obstacles that one might face in implementation of permaculture practices?
- Does any of that look like something we can do at SFS? Like what? How about at home?

There will also be non-formal opportunities to learn about sustainability throughout the semester. There will be movie/documentary nights that reflect some of the ideas of the Sustainability Series, films such as “Foods of Latin America” and “Coffee: A Sack Full of Power” will be shown. As movies and documentaries are a popular to unwind from the day, these will serve as an easy way to engage students.

**STAFFING**

The current staffing at the center will not change, but the SAM will take on the additional duty to run the Sustainability Series. Although it could be taught by anyone on staff that has an interest in sustainability, has the available time, and is able to lead unbiased discussions, the SAM typically has an advantage. They have a background in student affairs, capable to talk in front of many people, are able to explain SFS practices and policies, and are familiar with students’ background, food choices and allergy information. The nature of the SAM position continues to be highly student oriented and s/he needs to organize interested
students and the program schedule so that the timing of the SS classes make sense in the semester calendar.

On top of the traditional SAM responsibilities, this role calls for the ability to be flexible and communicate the rationale behind class topics. The SAM should have a deep-rooted belief in living sustainably and be able to model personal practice. If students decide that they want to change program or food aspects because they are unsustainable and the school cannot afford it or it cannot be done, the SAM must be able to moderate the conversations to eliminate backlash. The SAM should also be able to facilitate new sustainability practices and group discussions.

Please see appendix K for the complete description of an updated SAM job description.

**BUDGET**

The intention of this proposal is not to incur expenses above the center budget, but to use the time and resources available. All of the activity expenditures are in-kind donations; SFS vehicles and resources (room, electricity, staff time) are covered in the SFS budget.

The class and night at the BioSana permaculture center visit during the camping trip replaces one of the three nights on the beach in Cabo Pulmo National Park. The food expenses are more than if food was purchased and cooked at camp. BioSana charges 50 pesos a person to camp, 80 pesos per person for breakfast, and 150 pesos per person for dinner. The permaculuture talk/tour with Andrew Jones will cost $1,250 pesos.

**MARKETING**

A dedicated team at SFS Headquarters in Salem, Massachusetts, supports each center by doing the recruitment, marketing, finance, student pre-departure interviews and medical screening. Marketing Director Scott Lamer is in charge of marketing for all SFS programs.
and leads the marketing team. Some current marketing practices include using print and online magazines, an extensive website, and social media tools such as Facebook. The *Sustainability Series* will be marketed to incoming students in these current practices. To promote CCS in these materials, there will be mention of students, faculty and staff sustainability efforts.

The School for Field Studies has general and center specific Facebook groups that can reach out to current students and alumni. The general group was created to include all alumni, friends and fans of the School for Field Studies. It is regularly updated to highlight student achievements/awards, pictures of various center activities, current photo contest information, reminders of deadlines, and habitual news. It also posts links to faculty published research and blogs for each SFS center. Each SFS program has their own group, and an admissions counselor and SAM field questions prior to program start. The SAM will also remind students that the CCS encourages sustainable living practices and tell them to bring items such as Tupperware containers to use instead of plastic bags and biodegradable garbage bags for their rooms.

Every other week each center submits a blog, News from the Field (NFTF), which includes an update from both a faculty member and a student about the activities and academic progress that has been accomplished. NFTF from every center appears on the SFS website so that anyone from interested students, family, or friends can follow center activity. Students tend to write about activities that they find exciting and engaging in NFTF and in their blogs. If they find sustainability practices exciting, it will increase SFS program marketing material.

**STUDENT RECRUITMENT & ADMISSIONS**

SFS has an academic liaison team that consists of Amy Burrows, Molly Parkan, and Nicole Anderson, who are the first contacts that many students have with SFS. Not only do
they visit universities and study abroad offices, but also they answer a wide variety of student and parent questions and must be knowledgeable about each of our programs. To increase student awareness about the Mexico program, the liaisons communicate with Sustainability Clubs on campuses. Amy Sullivan and Ellen Reid, admissions counselors, also speak with many students. To help in the promotion of SFS Baja, both teams must be briefed on the additional initiatives of this proposed curriculum.

Students that study with SFS are from over 300 colleges and universities that represent a student body with majors in the liberal arts, sciences and economics (SFS at a Glance, 2011). Someone in headquarters should actively participate in conferences and organizations that endorse sustainability in study abroad to promote the SFS move towards center sustainability. There has been some representation- Amy Burrows currently represents SFS in the Sustainability SIG in NAFSA. Ideally, SFS would support SAM professional development and send them to sustainability conferences. For example, this spring, I participated in an online task force for The Forum to develop Standards of Good Practice and a Code of Ethics for students studying abroad. However, there could be funding for conferences such as the SDSU Study abroad, service learning and sustainability conference (May 12-14, 2011) or the Columbia Moving Toward a Sustainable Future conference (May 8-10, 2011). These take place during staff semester breaks and would be financially supported by SFS.

The semester programs are open to college students in good academic standing, and the summer programs also permit high school students to apply. The admission process would not need to change; it currently involves submitting an official transcript, an application fee of $45, two reference forms, a participation approval form, and filling out the SFS Application for Admission. The application solicits essay question answers about student background, the ability to live in community, and interest in the program. The
applicant is also interviewed by headquarters to ensure that the student is adequately prepared for the program, to live in a remote field station, to dig into an intensive program that requires hands on work, and to follow up on any medical issues that may have emerged. In addition, the Admissions team will also advise students on the Baja sustainability measures to get them excited to participate.

**LOGISTICAL CONSIDERATIONS**

The resources needed to run the *Sustainability Series* are fairly minimal and can be streamlined into any semester schedule. Most of the program logistics such as housing, travel, accommodation, food, insurance, etc. will not be affected.

The primary logistical matter is scheduling. At the end of each program, the Faculty, SAM, and Center Director sit down and plan out the next session’s schedule. It will be the SAM’s responsibility to make sure that the class dates fit appropriately in the semester.

*Facilities:* The SFS classroom has the seated area, tables, dry erase board, projector, and computer capabilities needed to hold the classes. During the sessions where technology is not needed, the classes can be held outside to enjoy the weather and be more comfortable.

*Transportation:* The use of the fifteen passenger vans is needed for local site visits, such as to the recycling center and to the dump. Depending on the number of students, an intern or staff member may need to drive a second vehicle.

**HEALTH AND SAFETY PLAN**

SAM training is held at SFS headquarters every August. The training in fall 2010 was held with former Director of Safety, Bill Frederick. He quoted Gerald Wilde in the book *Target Risk*, and said that every risk has three facets: 1) Engineering, how it is structured 2) Enforcement, or rules and 3) Education, which is how to teach it. In the longer term,
education is the only thing that works ("Personal Communication"). The SAM has the primary responsibility for maintaining safe work practices, which include health and safety training in order to educate interns and students to prevent incidents.

The Sustainability Series will follow the stringent SFS health and safety protocol. The School for Field Studies has “a comprehensive safety scheme that includes a full time Safety Director, on-site Student Affairs Manager and a Safety Advisory Committee” (SFS at a Glance, 2011).

**CRISIS MANAGEMENT PLAN**

SFS has an extensive background in dealing with crisis management and has been quite effective in having the trained personnel in place to deal with situations, which will not change with the implementation of the SS. The SFS Student Affairs Manager handbook contains the Emergency Response Plan. The plan lays out the field and headquarters response protocols, the crisis management team tasks and roles, communication tree, and the family and media response plans, as well as how to deal with specific student emergencies.

**EVALUATION AND ASSESSMENT**

**PROGRAM LEARNING ASSESSMENT**

The learning assessments for the Sustainability Series will look at the program and student outcomes. In the beginning of the program, students are asked to design a “Sustainability Contract,” where they collaborate and come up with a protocol that the entire community agrees to live by for the semester. The SAM and the community will look at the contract and discuss which initiatives that they have done well at, as well as those that they could have improved. Some of the questions in the discussion include: Which of these
practices can you continue on with at home? Do you anticipate finding resistance? What else could you do?

At the end of the program, SFS produces an online student and program evaluation. The SS program evaluation will be an additional part of the SFS evaluation, and include questions about the program, learning, and success of the Sustainability Contract initiatives and goals. SFS uses the evaluation to determine participant satisfaction, feedback, and ways to improve future programs. Please refer to appendix L.

STUDENT LEARNING ASSESSMENT

To check in with student learning practices during the SFS program, there will be a session mid semester to review the student sustainability goals written from the beginning of the semester. The note cards will be returned to the students and there will be time to talk amongst themselves about what goals that they have been striving towards and which that they need to work at.

The SAM will hold a session at the end of the semester to again review the goal note cards. The half hour session will also serve as a time for students to reflect on what they have seen and experienced, what goals they have met, and how sustainability might look in their future academic and work environment. In order to seek more specific feedback, this is the time to illicit participant responses about their learning, what they enjoyed, and how the Sustainability Series could be improved.

One way student practice can be assessed is the state of the compost pile. If the students have been doing their chore correctly, the compost should be breaking down properly and the overall pile should be increasing in size. The SAM and staff will hold a short debrief at the end of each camping trip to evaluate Leave No Trace practices; what practices were done well and which need to be reinforced for the next trip?
Student practice and habits will be harder to evaluate in the long term after they leave the program. The aim is that they will bring practices back with them, but there is no feasible way to be completely sure what they chose to practice post program. The *Sustainability Series* is a curriculum created to enhance the semester program and there will be other learning opportunities in this SFS experience, so it will be difficult to measure growth from just this series. The SFS alumni coordinator keeps in touch with a few star alumni post program, specifically those that choose to be campus representatives. A questionnaire will be sent out to those that partook in the SS a few months later, which asks about the sustainability practices used at home that they learned in Baja.

**CONCLUSION**

The SFS Academic and Research Philosophy reads, “SFS academic programs strive to provide students with a clear understanding of the value and management of natural resources within local contexts” (Dean’s Office, Jan 2008). A semester with SFS in Baja expands student’s horizons by allowing them to help in experiential, hands on field research, and data collection to help solve local problems. However, the reality is that students need and want to learn more what they can do to make a difference. The *Sustainability Series* will encourage sustainability practice through personal choices during and post semester.

The *Sustainability Series* curriculum further enhances institutional goals and mission of sustainability and keeps pace with high standards of a “green culture.” The students that come to SFS have grown up with a culture of being green and environmentally conscious, and the SS is a curriculum to help students carry out what they have learned past their semester abroad. Through the development of personal sustainability practices, the second half of the SFS Academic and Research Philosophy can be further reached: “Students are then able to transfer their experiences to other contexts in their home communities and other
environments” (Dean’s Office, Jan 2008). These additional seven sessions in the semester explore ways for students to become sustainable in their personal choices and put practices into place. With lectures, visits, discussions, and visits, SS represents a transfer of experience.

The Sustainability Series could find the challenge of finding enough time in the semester. One of the hardest aspects of an eighteen-credit program in fourteen weeks is that there never seems to be enough time to do everything (from both student and staff viewpoints). There is constant struggle in giving students as much free time as they are used to at home, but once they are engaged in the program they soon realize that is not the way this program runs. To not overwhelm students, the SAM will be considerate and flexible in the planning and implementation of these courses because they have a very good grasp of student pressures and time limitations.

I would further recommend that if the School for Field Studies wants to continue to get behind the green movement with center practices, to hire someone at least part-time to help with organizing sustainability efforts for all of the SFS centers. This past year SFS has wanted to include some of the same day-to-day activities across all centers, such as a time for reflection and announcements, so that student alumni would have something to relate to with their SFS experience. That person could write curriculum for classes, write grants for green projects, train SAM’s, and investigate new ways to make center’s more sustainable.

Even if that is not able to happen, this is a first step for CCS. The Sustainability Series is an experiential and discussion based educational program designed to answer the call of the current, green-minded culture. Many hands make little work, and with a small group of dedicated people, big ideas form. Just as Margaret Mead wrote and is painted on the kitchen wall as a daily reminder, “Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever does.”
POST SCRIPT

Mexico faces lower student numbers than in the past and in comparison to the rest of SFS programs. As safe as Baja is in comparison to the rest of Mexico and many other study abroad destinations, the State Department has issued travel warnings to some of the more dangerous cities in Mexico, such as Ciudad Juarez. Some colleges hold a strict policy to discontinue study abroad programs in countries with such warnings, and CSS loses students due to that policy. In May 2011, SFS Headquarters delivered an unfortunate piece of news. With the real and perceived violence in Mexico, state department travel warnings, and the continued drop in number of enrolled students; Summer 2011 will be the last for CCS. After seventeen years in Puerto San Carlos, the school will close permanently. Even though Mexico is a perfect location to integrate the Sustainability Series, SFS does have other worldwide locations where it might be able to take hold. I believe that some of the sessions can be taken on by the other SAM’s, tweaked and integrated into other center course curricula.
REFERENCES


Dvorak, Christiansen, et al. (February 2011). A Necessary Partnership: Study Abroad and Sustainability in Higher Education.


“Personal Communication.” (August 24, 2010). SAM Training with Bill Frederick.


Appendix B
How to Compost

How does it work?

Microorganisms such as bacteria, fungi, and actinomycetes account for most of the decomposition that takes place in a pile. They are considered chemical decomposers, because they change the chemistry of organic wastes.

The makeup of the material is a mixture that bacteria and other microorganisms can easily feed upon, breaking them down into compost. A proper C: N ratio is the goal.

**Carbon:** Carbon is found in fallen leaves or woodier wastes that serve as an energy source. Drier, older, or woody vegetable and plant tissues are usually higher in carbon. Ex: Manure, Fruit, Leaves, Hay, Straw, Dried Grass, Garden Debris

**Nitrogen:** Nitrogen in the greener materials provides microbes with the raw element of proteins to build their bodies. Fresh, juicy materials and materials of animal origin are usually higher in nitrogen. N is usually the limiting nutrient in a pile that doesn’t heat up or decay quickly enough. Too much Nitrogen results in a smelly pile and a high Ph balance. Ex: Coffee grounds, Fruit Peels, Blood Meal, Fresh grass, tea grounds and leaves, pumpkins, vegetable scraps, Manure, Hair

- Temperature plays an important role in the composting process.
  - Decomposition occurs most rapidly between 110° to 160°F. Within two weeks, a properly made compost pile will reach these temperatures

**Monitoring the temperature and turning whenever the piles temperature dips below 110°F keeps your pile active at its highest level, and you will have the fastest breakdown.**

- This means turning the pile more often.
- This can be weekly and it is more work!
- This mixes in the fresh material with the older, adds air to the pile and allows you to add water.
- Wider width helps pile retain heat better
- Multiple heaps are better than one
- General rule of thumb: material should feel damp to touch, just a drop of liquid expelled when squeezed in your hand
- Keep black tarp over the pile to keep out animals and to trap the heat

**AVOID**

- No bones, cooked food waste (contain fats that attract animals and slow to decompose).
- No dairy (smells and long time to decompose).
- No fish/meat or fatty and greasy foods.
- Too much lime can cause nitrogen loss and hurts bacteria
- Peanut Butter
- Pet wastes/human excrement (may contain pathogenic bacteria, viruses/parasites that need high temps to destroy them)
Layer 1 - The **organic materials** layer can be vegetable wastes, sod, grass clippings, leaves, hay, straw, chopped corn cobs, corn stalks, untreated sawdust, twigs less than ½ inch in diameter, or garden debris. Remember the proper Carbon: Nitrogen ratio and mix accordingly. Your bulkier organic materials do best in the first ground level layer. As your pile settles, these items tend to allow for more air spaces. Shred or chop up materials for greater surface area. The organic layers should be between 6-8 inches thick. Materials that tend to mat such as grass clippings should be either mixed in or placed in 2-3 inch layers within this 6-8 inch layer.

**Layer 2 - Animal manures, fertilizers or starters** serve as activators that accelerate the ignition or initial heating of your pile. They all provide a nitrogen source for the microbial community. Some provide proteins and enzymes. If manure from a grain eating animal is available, add 1-2 inch layer. If this is not available, add one cup of 10-10-10 or 12-12-12 commercial fertilizer per 25 square feet. If using a commercial starter, follow label directions.

Layer 3 - **Top soil** or active compost introduce microorganisms. Plain garden soil is fine. Avoid soil that has been treated with insecticides recently and sterile potting soils, which lack these necessary microbes. A one to two inch layer is enough.
Appendix C
Goals and Expectations

*Example:* I expect to see dolphins and whales this semester. I want to swim with sea turtles. I expect to get “A’s” in all my classes. I want to release baby sea turtles. I am going to get along with everyone.

**Brainstorm:** Why do we set goals?

S- Specific (What, why, how)
M- Measurable (If you can’t measure it, you can’t manage it)
A- Attainable (close to grasp)
R- Realistic (Do-able)
T- Timely (not vague)

**Goal Example:** I want to learn how to surf this semester.

**Specific:** Long or short board? What kind of waves? Why and in how long?
**Measurable:** By how to surf, I mean being able to stand up and move along the wave without falling down.
**Attainable:** Can I take lessons from anyone? How can I learn/develop skills? Do I have a board?
**Realistic:** I’m pretty busy, might only be able to go 1 weekend/month – can I really learn in that short amount of time? Maybe I can!
**Timely:** I want to learn how to stand up on a surfboard by my second session on a surfboard.

**Hand out Note-cards and write the following:**
- Personal goals
- Group goals
- Sustainability goals
Appendix D
“Corners”
Community Living & Sustainability Norms

This activity is used to show similarities and differences in living habits and backgrounds of the people that are going to be living together for the semester! Read the question out loud and point to a different location with each answer. The student must choose the most appropriate answer and go to that corner. Give each group a few minutes to discuss why they chose that answer and they think it is best! Facilitate a quick group sharing after each question. Pre-empt the faculty members and ask them to join in the activity since they are also living in this community and ask them to help lead the small group discussions when discussing contracts.

1. What time is bedtime?
   a. 9
   b. 11
   c. 12 am
   d. 2 am

2. Music should be
   a. Shared and listened to all by all
   b. Listened to as loud as possible
   c. Listened to by headphones

3. How do you prefer to spend your time?
   a. In one big group
   b. In smaller groups
   c. With 1-2 people
   d. By yourself

4. What is your biggest pet-peeve of the following:
   a. Bathroom toilet seat left up/down
   b. People leaving out dirty dishes
   c. Complainers
   d. Know-it-alls

5. What do you with your grey water?
   a. Water the plants
   b. Nothing
   c. I have a grey water system set-up or would like to use one

6. Worst Job
   a. Cooking
   b. Washing bathrooms
   c. Dishes
   d. Leading a group/giving instructions

7. Before coming to SFS, where were you living?
   a. In a dorm
b. In an apartment

8. In regards to food, I like to:
   a. Eat anything/everything
   b. Eat only things that in my mind are “sustainable”
   c. Eat what I like and sometimes look at the label

9. What is the most fun?
   a. Arts & Crafts
   b. Dancing
   c. Movie
   d. Fitness activities of sorts

10. How sustainable is your lifestyle?
    a. Highly sustainable
    b. Moderately sustainable
    c. Low sustainability
    d. Not sustainable
Appendix E
Leave No Trace History

Lesson location: Take students out to the beach “Curva” or “Mantequilla” to connect place to principles

Time: 1.5 - 2 hours

Opening Activity: Take fifteen minutes to observe what you see. Jot some notes, observe the types of human impact in the area. Ask students to chart their own examples under these headings:

<table>
<thead>
<tr>
<th>Things in Nature</th>
<th>What we have in common</th>
<th>How it helps me</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>Need it to stay fresh and happy</td>
<td>Lets me breathe and live</td>
</tr>
<tr>
<td>Ulva</td>
<td>Both need to take in fresh air</td>
<td>Produces nitrogen- but too much in the Bay</td>
</tr>
</tbody>
</table>

Share Connections: Divide into small groups and share findings, and then come back into big group

This is where commitment to land stewardship begins, with a personal connection to place.

History: The Leave No Trace concept is over 40 years old. The U.S.D.A. Forest Service formally conceived of leave No Trace in the 1960’s. However, as public land use expanded and land managers witnessed the biophysical effects of this use, the Forest Service along with the National Park Service and the Bureau of Land Management developed early wilderness ethics practices.

By the mid-1980’s, the Forest Service had a formal “No-Trace” program emphasizing the cultivation of new wilderness ethics and sustainable no-trace travel and camping practices. The success of this program lead to cooperation among the Forest Service, National Park Service and Bureau of Land Management’s authorship of a pamphlet entitled “Leave No Trace Land Ethics.”

An outdoor recreation summit was convened in 1993 including the various outdoor industry and sporting trade associations, NOLS, nonprofit organizations, outdoor manufacturer and federal land management agencies to create an independent 501-c-3, nonprofit organization called Leave No Trace, Inc. The organization, now known as the Leave No Trace Center for Outdoor Ethics (the Center), was incorporated to develop and expand Leave No Trace training (http://www.lnt.org/aboutUs/history.php).
Appendix F
Leave No Trace Principles
Taken from www.lnt.org

Plan Ahead and Prepare
- Know the regulations and special concerns for the area you'll visit.
- Prepare for extreme weather, hazards, and emergencies.
- Schedule your trip to avoid times of high use.
- Visit in small groups when possible. Consider splitting larger groups into smaller groups.
- Repackage food to minimize waste.
- Use a map and compass to eliminate the use of marking paint, rock cairns or flagging.

Travel and Camp on Durable Surfaces
- Durable surfaces include established trails and campsites, rock, gravel, dry grasses or snow.
- Protect riparian areas by camping at least 200 feet from lakes and streams.
- Good campsites are found, not made. Altering a site is not necessary.
  - **In popular areas:**
    - Concentrate use on existing trails and campsites.
    - Walk single file in the middle of the trail, even when wet or muddy.
    - Keep campsites small. Focus activity in areas where vegetation is absent.
  - **In pristine areas:**
    - Disperse use to prevent the creation of campsites and trails.
    - Avoid places where impacts are just beginning.

Dispose of Waste Properly
- Pack it in, pack it out. Inspect your campsite and rest areas for trash or spilled foods. Pack out all trash, leftover food, and litter.
- Deposit solid human waste in catholes dug 6 to 8 inches deep at least 200 feet from water, camp, and trails. Cover and disguise the cathole when finished.
- Pack out toilet paper and hygiene products.
- To wash yourself or your dishes, carry water 200 feet away from streams or lakes and use small amounts of biodegradable soap. Scatter strained dishwater.

Leave What You Find
- Preserve the past: examine, but do not touch, cultural or historic structures and artifacts.
- Leave rocks, plants and other natural objects as you find them.
- Avoid introducing or transporting non-native species.
- Do not build structures, furniture, or dig trenches.

Minimize Campfire Impacts
- Campfires can cause lasting impacts to the backcountry. Use a lightweight stove for cooking and enjoy a candle lantern for light.
- Where fires are permitted, use established fire rings, fire pans, or mound fires.
- Keep fires small. Only use sticks from the ground that can be broken by hand.
- Burn all wood and coals to ash, put out campfires completely, then scatter cool ashes.
Respect Wildlife

- Observe wildlife from a distance. Do not follow or approach them.
- Never feed animals. Feeding wildlife damages their health, alters natural behaviors, and exposes them to predators and other dangers.
- Protect wildlife and your food by storing rations and trash securely.
- Control pets at all times, or leave them at home.
- Avoid wildlife during sensitive times: mating, nesting, raising young, or winter.

Be Considerate of Other Visitors

- Respect other visitors and protect the quality of their experience.
- Be courteous. Yield to other users on the trail.
- Step to the downhill side of the trail when encountering pack stock.
- Take breaks and camp away from trails and other visitors.
- Let nature's sounds prevail. Avoid loud voices and noises.
Appendix G
El “Mundo de Plastico” – The World of Plastic

History: Can be told by SAM or guest lecture with Gustavo Hinojosa

SFS started the recycling center the spring of 2009. Former Student Affairs Manager Brady Wheatley and Director Gustavo Hinojosa worked in gathering products from the community by paying people by the kilo for their products, which they brought to the Center every Saturday. SFS students separated the paper and plastic, which was eventually picked up by an empty semi-truck that was passing on its way back from Cabo San Lucas to Tijuana. One of the nearest recycling centers is located in Tijuana, about a twenty hour drive north. Early 2010, we lost that buyer because it was not worth his while to detour to PSC and pick up our recyclables.

Earlier, a local NGO called “Vigilantes,” which is part of Grupo Tortugero, and Brady wrote a grant to the government for a recycling compactor. An industrial compactor was granted, whose electricity is incompatible with a regular, household electric current. As of Spring 2011, the generator is in the hands of Vigilantes and the electrical system has yet to be converted.

Fall of 2009 Hurricane Jimena struck Puerto San Carlos, tearing off roofs and flattening poorly constructed houses. The recycling center lost its roof, and is currently full of dirty recyclable products, which need to be clean before they can be compacted. SFS is still bringing products to the center in hope that we re-start this program and is actively looking for a buyer.
Appendix H

The “V” Words

**Brainstorm: What can you do?**

Reduce your Food Footprint

- Eat more local, organic, in-season foods.
- Plant a garden—it doesn't get more local than that.
- Shop at your local farmer’s market or natural foods store. Look for local, in-season foods that haven't traveled long distances to reach you.
- Choose foods with less packaging to reduce waste.
- Eat lower on the food chain—going meatless for just one meal a week can make a difference. Globally, it has been estimated that 18% of all greenhouse gas emissions are associated with meat consumption.

*For more facts and talking points, please see “Environmental Costs” Sheet*

**Other Dietary Changes can include:**

- Eating legumes more often, or using them to augment meat dishes. Legumes (beans) are the most energy efficient food to produce (Pimental & Pimental, 2003).
- Reduce or eliminate consumption of meat, fowl and fish.
- Reduce or eliminate consumption of dairy products and eggs.
- Make Mondays (or another day) meatless, or vegan.
- Buy only free-range animal products, produced in a sustainable manner. Buying pasture-raised beef can lower its energy consumed to energy-produced ratio by half.
- Support local food initiatives, such as urban agriculture, farmers markets and food sharing (community shared agriculture, or CSA).

**Show TED Talk: Birke Baehr**

Appendix H continued

**Food Discussion Guide**

**Sources of Info in Video**

* A gallon of oil per pound of beef

* Twenty-five hundred gallons of water per pound of steak.

* For every 10 pounds of healthy grain you put into a cow, you only get out one pound of meat.

* Worldwide, we chew down on some 400 million acres every year, to feed and fatten cattle.

* Cows crop about 65 pounds a day — that’s 32 times a year.

* Factory farms remove rainwater and speed up the destruction of 17 states and has polluted 35,000 miles of America’s rivers.

* Fifteen percent of the greenhouse gasses come from cattle.

* Monsanto grows sunflower seeds with one billion pounds of toxic pesticides a year.

* More than 100 million tons of U.S. rice, killing millions of acres and polluting waterways.

* Agricultural runoff is the leading cause of America’s rivers, killing millions of salmon and polluting our groundwater.
  SOURCE: Potlak the River Network, Illinois
  And: EPA Fact Sheet: http://www.epa.gov/northeast/factsheets/potlak.pdf
  And: www.worldwatch.org/newsreleases/2009/12/03/

* You need more and more chemicals all the time, to get the same results.
  SOURCE: Worldwatch Paper 133: Why Poison Ourselves, A Precautionary Approach to Chemicals, p. 28 (This paper mentions 2.5 billion pounds of pesticide, but that’s worldwide.)

* Monsanto gets two federal subsidies, no matter how much they produce — a total of $14 billion a year.

* In 2002, the largest 10 percent of farms collected 65 percent of the subsidies; the bottom half got 2 percent — a policy of focusing on a few large farms.
  SOURCE: Environmental Working Group:
  http://www.epw.org/farm/factsheet.php

* 7 percent of our farms are 72 percent of our food.
  SOURCE: http://www.terrestrismagazine.com/bread.html

* The average American meat travels 2000 miles from farm to table.

* More than 20 percent of America’s kids are overweight — triple the proportion in 1980.

* 30 percent of American adults are overweight.
  www.cdc.gov/nchs/nhahn/hbcdata.htm#adults

* Rising cancer rates, especially in children and especially around heavy agricultural areas, show that toxic pesticides aren’t just killing bugs and soil; they’re killing people.
  SOURCE: National Resources Defense Council
  http://www.nrdc.org/health/childonfarm.asp

* Eating local saves up to 17 times the gas costs of food you buy in the supermarket.

* The organic food market is growing at 23 percent rate.
  SOURCE: Worldwatch Paper 133, Why Poison Ourselves, p. 41

**Some Sources for General Info:**

* Center for Science in the Public Interest
  www.cspinet.org/

* Global Resource Action Center for the Environment (GRACE)
  www.sustainabilist.org

* Organic Consumers Union
  www.organicconsumersunion.org

* United States Department of Agriculture
  www.UsDA.gov

* Robin van En Community Supported Agriculture Center
  www.csacenter.org

* Local Harvest (listing of farmers’ markets)
  www.localharvest.org

* Organic Farming Research Foundation (Santa Cruz)
  www.ofr.org

* EarthSave International
  www.earthsave.com
Appendix I

“The 100th Monkey”

Ken Keyes Jr.

The Japanese monkey, Macaca fuscata, had been observed in the wild for a period of over 30 years. In 1952, on the island of Koshima, scientists were providing monkeys with sweet potatoes dropped in the sand. The monkey liked the taste of the raw sweet potatoes, but they found the dirt unpleasant.

An 18-month-old female named Imo found she could solve the problem by washing the potatoes in a nearby stream. She taught this trick to her mother. Her playmates also learned this new way and they taught their mothers too.

Various monkeys before the eyes of the scientists gradually picked up this cultural innovation. Between 1952 and 1958 all the young monkeys learned to wash the sandy sweet potatoes to make them more palatable. Only the adults who imitated their children learned this social improvement. Other adults kept eating the dirty sweet potatoes.

Then something startling took place. In the autumn of 1958, a certain number of Koshima monkeys were washing sweet potatoes — the exact number is not known. Let us suppose that when the sun rose one morning there were 99 monkeys on Koshima Island who had learned to wash their sweet potatoes. Let’s further suppose that later that morning, the hundredth monkey learned to wash potatoes.

THEN IT HAPPENED!

By that evening almost everyone in the tribe was washing sweet potatoes before eating them. The added energy of this hundredth monkey somehow created an ideological breakthrough!

But notice: A most surprising thing observed by these scientists was that the habit of washing sweet potatoes then jumped over the sea...Colonies of monkeys on other islands and the mainland troop of monkeys at Takasakiyama began washing their sweet potatoes. Thus, when a certain critical number achieves an awareness, this new awareness may be communicated from mind to mind.

Although the exact number may vary, this Hundredth Monkey Phenomenon means that when only a limited number of people know of a new way, it may remain the conscious property of these people.

But there is a point at which if only one more person tunes-in to a new awareness, a field is strengthened so that this awareness is picked up by almost everyone!

You may be the "Hundredth Monkey"
Will you accept your share of the responsibility for creating the Hundredth Monkey energy that will change the consciousness of the entire planet?

Sustainability lies in Personal Choices- it is that mass/collective effort that can and will make a difference.
Appendix J
Permaculture Visit Overview: BioSana, BCS

Location:
Base of Sierra de la Laguna
http://www.bajabiosana.org/about/bioregional-overview/

One night: Camping @ 50 pesos/pp
- Compost toilets
- Local hot springs
- Guest Lecture & Tour of property by Andrew Jones- 1,200 pesos

Food options:
With a diverse group of eater’s, the meal range needs to cover everyone’s food choices. The Mexican staff definitely wants meat in their meal, we have two vegans, and around eight people that are vegetarian, and the rest are a mix of omnivores with a sprinkling of food allergies. With this in mind and trying to maintain to a sustainable diet, which this time means eating locally, the following menu was suggested.

Dinner: 150 pesos/pp
- Quinoa w/sundried tomatoes
- Kale sauté with red onions and local herbs
- Machaca (Local dried beef that is mixed with tomato and onion)
- Root vegetables in season
- Leafy green salad
- Fresh tortillas
- Desert pie (raw) (Walnut and pecan) nut crust base with an orange cream filling

Breakfast: 80 p/pp
- Chia & Oatmeal with honey/cinnamon/bananas/raisins
- Local Milk- optional
- Cheese locally (cow)
- Local, season fruit
JOB DESCRIPTION: Student Affairs Manager, Mexico

Center Objective: To conserve the ecosystem and community sustainability of Bahía Magdalena by addressing the management of its exploited marine resources in order to sustain the socio-economic stability of the local community. The Center’s research monitors marine resources, water quality, the protection and conservation of the gray whale and the highly threatened green sea turtle, and the impact of rapid urbanization on the ecosystem. Our goal is to provide sound stock management and species conservation advice to governmental regulators and the local community, along with models for sustainable social and economic development of the human community.

Duties and Responsibilities:

Student Affairs
- Provide training to students, within the context of the Five-year Research Plan (5YRP), in the areas of community building, leadership, management, problem-solving, critical thinking, cross-cultural issues, conflict resolution, team building, self-awareness, and group skills.
- Counsel students on their program-related and personal needs.
- Facilitate communication within the student group and between staff and students.
- Monitor and address individual student and group attitudes and behavior.
- Keep Center Director informed of potential problems.
- Participate in resolving group management issues and student discipline problems.
- Facilitate establishment and support of student committees and provide appropriate training.
- Assist in the creation of special student events.
- Facilitate sustainability practices and group discussions.

Safety & Risk Management
Under the oversight of the Center Director the SAM will:
- Take responsibility, as an individual and as a member of the Center faculty/staff team, for the safety of all program participants.
- Coordinate Incident Reporting System and Safety Audits.
- Coordinate the review and revision of Center Risk Assessment and Management Plans.
- Coordinate the emergency procedures plan for the Center, including an evacuation plan.
- Recommend and review policies and procedures needed to manage risks.
- Coordinate the safety portions of the on-site orientation and conduct safety briefings for students and/or staff.
- Comply with, actively model, and enforce all SFS and Center policies and procedures.
- Ensure that first aid certifications are kept up to date via periodic courses offered by SFS between program sessions.

**Community Outreach**
- Work with CD and faculty to develop and implement community service/activities that advance the Center's 5 Year Research Plan.
- Organize student community outreach projects and special events.
- Arrange basic language training as relevant.
- Arrange recreational programming for students with local community.

**Program Support**
- Coordinate and communicate scheduling of program to students as needed.
- Participate in and lead parts of the orientation and re-entry components of the program presented to students at the beginning and end of each program period.
- Participate in training activities for new center staff prior to and during the program.
- Provide periodic reports, marketing materials, and student input to HQ and SFS Web Site.
- Participate in the preparation of Final Reports, Center Field Preparation Guide revisions and other required reports.
- In cooperation with other Center staff, provide day-to-day coordination of Interns as delegated by the Center Director.
- Participate in planning activities prior to the program start and in review/analysis following students’ departure.
- As requested by the Center Director, assist with other logistical, group management and administrative tasks.

**Daily Center Life**
- Live on-site for the duration of each program period and take meals with the students
- Coordinate student/faculty needs in the creation of the weekly center menu and lead movement towards buying more sustainable products
- On a rotating basis, take responsibility for Center-specific "staff of the day" duties
- Take part in, and occasionally lead, Center upkeep projects, social and field activities
- At the request of the Center Director, serve as caretaker for Center during program breaks and center rentals
- Drive standard transmission vehicles and boats as needed
- Adhere to, actively model and enforce all SFS and Center policies and procedures
- At all times, work to ensure good relations between the Center and local community

**Reports To:** Center Director

**Location:** Baja California Sur, Mexico
Appendix L

Student Learning & SS Assessment Questionnaire

1. Did you the SS program relevant and useful?
   a. What did you enjoy most?
   b. What would you like to see changed?

2. How did the Sustainability Series help integrate sustainability practices in your daily life?

3. How has your current environmental awareness increased since the beginning of the semester through the SS?

4. Do you think that your eating or buying habits will change at all when you go home? How?

5. Which sustainability initiatives did you practice throughout the semester?

6. How can SFS Baja continue to practice sustainability efforts for the next semesters?