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A Village National: The Transformative Potential of Fortifying the Preexisting Structures of an Organic Nepal

Alexandra Sarazen
SIT Study Abroad

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A Village National: The Transformative Potential of Fortifying the Preexisting Structures of an Organic Nepal

A view of the land surrounding the Everything Organic Nursery in Patalekhet, Kavre District, Nepal taken November 28, 2013 by Alexandra Sarazen

Sarazen, Alexandra
Senior Faculty Advisor: Onians, Isabelle

The University of Colorado at Boulder
Major: Communication, Discourse, Culture & Identities
Minor: Human Geography
Certificate: Peace & Conflict Studies

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Abstract

Nepal is in the midst of a severe food deficit as well as in the process of recovering from a 10 year civil war. Today, nearly 80 percent of the population works in the agricultural sector which accounts for 38 percent of the Gross Domestic Product. Recent declines in agricultural production have depressed rural economies, increased widespread hunger and catalyzed an influx of urban migration from outside of Kathmandu. Within its total population of 29 million people, 55% earn less than $1.25 a day, 29% of children under 5 years of age are underweight, and 41% of the same demographic suffer from subsequent stunting of growth and development[1]. Further, the overwhelming amount of Nepal's youth venturing abroad for economic and educational opportunities they feel they do not have access to at home is steadily perpetuating a detrimental Brain Drain. As a response to these symptoms of a struggling nation, many non-governmental actors are initiating agricultural programs in both urban and rural Nepal in an effort to diversify nutritional portfolios of Nepal's citizens and revitalize the deflating economy through a diversification of agricultural output. Many of these same actors hope to eradicate chemical farming and instead reintegrate organic aspects of traditional farming with modern, sustainable methods of intensifying crop yields to meet national food needs as well as market demands.

Acknowledgements

To each and every one of the people I interviewed for the purposes of this research: I would like to thank you for your time. Words cannot describe how much I appreciate your willingness to work with me. Thank you for your enthusiasm, encouragement and honesty. Thank you for caring enough about Nepal, its residents and the future of our planet to live in this country and work towards what we all know are important goals. Thank you for your warmth and hospitality, for inviting me into your homes, offices and the fields of your farms. Thank you for bottomless cups of organic green tea and the most delicious milk tea I've ever had in my life. Thank you for parading me through the streets of Kathmandu during the Newari Ganesh festival in Chabahil – tikka, the resonance of the drums and flower petals raining from the roofs of the city will forever be one of my fondest memories. Thank you for answering all of my questions, letting me glimpse into your lives, hearts and minds and bearing with me during my feeble attempts at speaking Nepali. Thank you for inspiring me to come back to this country; I absolutely promise you that by the next time I step foot in Nepal I will have learned how to say more than "mitho cha".

You have collectively re-established my faith in humanity; you are inspiration for not only the future of Nepal but the future of the world.

[1] The United States Agency for International Development. Feed The Future: The U.S. Government's Global Hunger and Food Security Initiative. http://www.feedthefuture.gov/country/nepal

ACRONYMS DEFINED

AAA – Appropriate Agriculture Alternatives

AFs – Associate Farmers of the Everything Organic Nursery

DADO – District Agricultural Development Office

dZi – foreign funded NGO

EIJ - Earth in Justice (known as Nyayik Sansar in Nepali and Tevel B'tzedek in Hebrew)

EU – European Union

EVON – Everything Organic Nursery

FTF – Feed the Future

HDI – Human Development Index

IPM – Integrated Pest Management

NGO – Non Governmental Organization

RAV – Revitalize a Village, dZi Initiative

USAID – United States Agency for International Development

WHO – World Health Organization

ZORO - dZi/EVON Organic Research and Outreach Project

TABLE OF CONTENTS

Introductory Comments

Although there is no word for "organic" in Nepali, Nepal is "organic" by default, a country firmly rooted in pastoral traditions of subsistence farming until the introduction of pesticides and agrochemicals in the early 60s. Pesticide use has since increased rapidly in Nepal under the pretext of larger crop yields to meet escalating food demand[2]. Today, almost half a decade later, the United States Agency for International Development (USAID) cites the underlying causes of crippling levels of hunger, poverty and malnutrition in Nepal as "low agricultural productivity, limited livelihood opportunities, weak market linkages and inadequate production and [subsequent] consumption of nutritious, locally available foods".[3] Although the semantics of language make it all too easy for modern buzzwords like "sustainable" to be manipulated by their speaker's agenda, a United Nations definition of the concept circa 1987 proves logically neutral: "sustainability is meeting the goals of the present without compromising the ability of future generations to meet their own needs".[4] When this definition of sustainability accompanies a consideration of Nepal's current economic depressions and dire consequences of food-deficits it becomes clear that Nepal's current agricultural systems are not efficient enough to meet even the present needs of its population and cannot be considered sustainable.

Many scholars and activists allow themselves to become obsessed with only one approach to sustainability, from either an environmental or economical perspective for example. Too often does this polar fixation stifle consideration of a social sustainability, ignoring the connectedness of healthy human beings as integral aspects of what could ideally be an economically viable, ecologically sound and socially stabilizing global system of sustainability. Although Nepal is considered one of the financially poorest countries in the world, it has been argued by many that its ecological diversity is a source of rich potential. In recent years, many non-governmental actors in Nepal have begun utilizing holistic models of community development in an effort to develop long-term goals of social welfare while stimulating the country's economic productivity and advocating for less environmentally damaging agricultural practices than chemical farming. Many of the organizations working in Nepal, foreign and

[2] Palikhe, B.R. "Challenges and options of pesticide use: In the context of Nepal". Landshaftsokologie und Umweltforschung 38 p.130-141. Braunschweig 2002.

[3] The United States Agency for International Development. Feed The Future: The U.S. Government's Global Hunger and Food Security Initiative. http://www.feedthefuture.gov/country/nepal

[4] United Nations. 1987. "Report of the World Commission on Environment and Development". General Assembly Resolution 42/187, retrieved 11.15.2013.

domestic, fledgling and established, approach development within the country as a fortification of its preexisting structures of organic farming. They believe that through the propagation of more sustainable agricultural practices via extension programmes, access to agricultural education and awareness campaigns, more responsible farming can have the power to transform Nepal's crippling food-shortages into surpluses, revitalize a floundering economy through crop diversification, incentivize domestic participation for Nepal's youth to decrease trends of out-migration and enhance the nutritional portfolios of Nepal's citizens.

Everything Organic Nursery: An Eden of Intention

In Nepal's Kavre district and a world away from the characteristic chaos of Kathmandu there lies what many would consider a genuine Garden of Eden[5]. Tucked away in the hilly land of Patalekhet and surrounded by a breathtaking panorama of Himalayan glory, the Everything Organic Nursery (EVON) is a beacon of inspiration for many involved in the emerging organic community of Nepal. Upon arrival, a muddy path through damp, green forest leads you to the home of American-born expatriates Jim Danisch and Judith Chase, the founders of the EVON dynasty. Walking through the grounds surrounding their home one is exposed to a mecca of bio-variety; EVON's land boasts strawberry plants, apple trees, almond trees, avocado plants, kale, cauliflower, spinach, thyme, basil, grapes, quinoa and broccoli - altogether equating to over a thousand different varieties of fruits, vegetables, legumes and herbs. Although much of the produce from these plants is eaten by Chase and Danisch, the growing of such a diverse agricultural portfolio is also intended as research for how best to sustain varied types of crops in Nepal's unique ecological environment in an organic way.

Although it would indeed be easy to allow oneself to be consumed by the romance of the world of vibrant abundance that is EVON, Chase and Danisch are not interested in containing EVON's productive charm within itself. In 2010 the Everything Organic Nursery Private Limited company was established "with the overall aim of recognizing the wealth and health of traditional Nepali rural life and enhancing this way of life using new approaches and materials for organic farming". The founders of EVON have been heavily involved with the country of their present resident since 1975 and they see immense potential in Nepal's "intricately complex arrangement of ridges, canyons, hillocks, and knolls…each with its own special ecology." This diversity of the land enhanced by monsoon rains "is reflected in extraordinary varieties of flora and fauna". Chase remembers "wandering through the countryside of Tuscany, Italy, with its fruit orchards, vineyards, berry patches and gardens of vibrant, diverse vegetables and thinking that Nepal could look like that".[6]

As the name of their private limited company explicitly suggests, EVON is an entirely organic institution and Chase believes that a Shangri-La similar to the picturesque *il paesaggio di abondanza* [7] of Tuscany can be achieved in Nepal via sustainable farming practices. EVON is committed to organic agriculture because Chase and Danisch both believe that organic practices can eliminate what they consider to be the dependent and destructive habits of farming with

[5] 'The Garden of Eden' is a concept discussed in The Bible as the locale of the divine origination of humanity; famously known as a lush, thriving environment of perfection until Eve infamously gave in to the corruption of the Devil, manifested as a serpent, and 'ate the forbidden fruit'.

[6] Everything Organic Nursery: "Why Nepal?". Web. http://everythingorganicnursery.com/why_nepal.html

[7] "il paesaggio di abondanza" is Italian for "a landscape of plenty".

chemical fertilizers and pesticides. EVON is committed to the use of open pollinated, non-genetically modified seeds, home-grown soil input production and the development and research of bio-pesticides. These self-reliant practices act as an insurance of purity by mitigating the influence of outside suppliers who may or may not uphold EVON's high standards of 'sustainable'.

Although showing by example can often be an effective educational model through which to generate change, EVON has taken it a step further by conducting monthly organic farming trainings since January 2013 as a transfer of their organic practices out into the minds of Nepali farmers beyond the boundaries of the EVON farm. 10 AM to 5 PM for a span of three days, these trainings are offered to individual Nepali farmers for free and for 500 rupees per day for non-Nepalese people. EVON is specifically developing a system of farming and subsequent education they have coined "Nepali bio-intensive". This system encourages movement away from traditional farming techniques and toward what researchers at EVON consider a more sustainable, efficient and healthy system of agricultural production.

Chase says the bio-intensive movement began in Europe and famously moved to California, where she and Danisch spent much time before settling in Nepal. It is an agricultural system largely concerned with soil fertility and accredited with maximum yields for small amounts of land. Correctly implemented bio-intensive farming practices have been proven to require 67-88% less water and 50-100% less purchased fertilizer than conventional agricultural practices. "Bio-intensive methods can enable small-scale farms and farmers to significantly increase food production and incomes, utilizing predominantly local, renewable resources… decreasing expense and energy inputs while building fertile topsoil at a rate 60 times faster than in nature". Further, bio-intensive methods are celebrated for their capability to reduce by up to 50% the amount of land required to grow the same amount of food non-bio-intensively.[8]

Chase believes in "the system of life enhancement" that strongly aligns with the founding concepts of bio-intensive farming. Within the framework of Nepal-specific bio-intensive methods, EVON places a particular emphasis on sheet composting as a way of increasing nutrients in the soil as well as whatever is grown in it. One of EVON's outreach coordinators and a member of their research team, Roshan Shrestha comments that "sheet-composting is a labor efficient planting system that closely mimics patterns of nature".[9] Sheet composting is a no-dig concept achieved through strategic layering of dry matter like sticks or straw, green matter like leaves and other supplemental natural elements like mustard seed cake, known as *pina* in Nepali or wood ashes for potassium. Chase's idea of soil- vitality can also be achieved through organic practices like composting or the strategic planting of crops. Specifically, EVON teaches its trainees that a legume known as the Fava Bean[10] is beneficial as it attracts nitrogen to its roots, thus enriching the soil as an entirely organic green manure. Judith comments "you can let them grow until they bloom, then cut them down to the roots… you can even plant them thickly so as to grow some and eat some." The latter demonstrates a symbiosis between decisive crop use and diet diversification. As fava beans best grow in the winter months, soy beans are touted as a summertime alternative. [11]

Roshan says that "organic is animal husbandry" in reference to the efficient use of substances like cow and chicken manure as good sources of natural compost or fertilizer. EVON

[8] Jeavons, J.C., 2001. *Biointensive Mini-Farming* Journal of Sustainable Agriculture (Vol. 19 (2), 2001, p. 81–83

[9] Shrestha, Roshan. Interview with Alexandra Sarazen. Personal Interview. Patlekhet, Nepal. 8 November 2013.

[10] 'Vicia Faba' is the scientific name of the Fava Bean

[11] Shrestha, Roshan. Interview with Alexandra Sarazen. Personal Interview. Patlekhet, Nepal. 26 November 2013.

also encourages the use of animal bone that has been boiled and ground down to generate healthy levels of phosphorous. Chase comments that this ground bone "is not easy to find". These days, EVON sources this ground animal bone from an area known as Patan in Kathmandu, however she comments that the ground bone business could be a good opportunity for entrepreneurs in Baudhanath, an area of Kathmandu largely populated by Tibetans who are known to maintain a diet heavily comprised of meat. This demonstrates that organic farming does not generate economic opportunity exclusively for farmers. An increase in market needs of Nepalis for organic soil inputs could also generate income for other members of society because it encourages a holistic utilization of resources in other sectors of the economy as well.[12]

Attendees of EVONs monthly organic farming trainings are given an in depth understanding about how to compost correctly, an integral aspect of bio-intensive farming. Composting is rejuvenating for soil as it provides essential micro- and macro-nutrients, "something that traditional farmers don't often pay attention to" comments Roshan. He continues in saying "the average farmer is not composting properly, if at all, which is a waste of natural fertilizing material". Teaching at a recent EVON training, Roshan stresses that to compost correctly the farmer must combine carbon materials like dry branches or straw as well as nitrogenous materials like grasses or leaves in equal amounts. He says "if there is too much carbon, the composting process can be delayed…too much nitrogen and it decays too quickly and gets watery". With both a Bachelor's and Master's Degree in biotechnology, Roshan discusses the importance of optimal soil pH levels of 5.8-6.5 that composting helps to achieve: "when the pH is too low, plants cannot grow". Roshan's extensive background in science combined with his experience in rural Nepal helps him to make the subtle, scientific nuances of agriculture relatable to farmers without any formal education.[13]

EVON believes that the practice of composting, while beneficial for its status as an essential organic input, can also decrease reliance of Nepali farmers on foreign fertilizer companies for it helps them to develop habits of local resource utilization. EVON believes composting could generate formative economic change for the country as well as a rejuvenation of land rapidly deteriorating under the influence of chemical farming.[14]

At the culmination of these 3-day intensive sessions, EVON rewards trainees with a certificate of completion in biointensive farming practices and offers farmers the option of joining EVON's Associate Farmers (AF) program. Chase says the AF incentive is "a way of keeping up", providing farmers with organic systems advice should they need it as well as supplying them with seeds and trees. As of now, EVON is associated with about 150 farmers in Kavre district and has donated 2 rupanis of land to 10 different *kendras*[15] in the

[12] Everything Organic Nursery Training. November 8-10, 2013. Patlekhet, Nepal.
[13] Everything Organic Nursery Training. November 8-10, 2013. Patlekhet, Nepal.
[14] Everything Organic Nursery Training. November 8-10, 2013. Patlekhet, Nepal.

area intended as organic farming demonstration centers. Within 3 years of these extension programs, EVON hopes to be involved with at least 400 people in Kavre district, helping to provide their AFs with market linkages in the Kathmandu area through the founding of a cooperative marketing system.[16]

In January of 2013, EVON entered a partnership with the dZi Foundation, another NGO working in Nepal. The 3-year research project, titled dZi/EVON Organic Research and Outreach (ZORO) was begun with the intentions of comparing yields of 5 different planting systems to determine the best way to increase crop production in Nepal amongst which are chemical, Nepali-bio-intensive and sheet composting. ZORO wishes to explore the transferability of the most productive method by providing extension services to EVON's AFs. ZORO is also testing the performance of new vegetable, berry, fruit and nut varieties to introduce to these farmers, exploring the potentials of crop-diversification for Nepal's agricultural sector. [17]

Since the official inception of the project, EVON has begun recognizing a trend that systems of sheet composting seem to be the most productive technique, which EVONs team of researchers measures by the weight of each research bed's output. Through the development of extension services to EVON's AFs with ZORO, EVON hopes to help Nepali farmers improve their own health and the health of the environment by breaking traditional or chemical farming habits via organic systems education.

Bio Pesticides and Vedic Gardens

Kira ko Tiri Miri

Before moving to the current EVON location, Chase and her husband owned a farm in Gamcha, Nepal. Chase's previous gardening experience until that point was minor, so when she started an organic farming women's cooperative[18] in Gamcha in 1987 she looked to infamous permaculture extraordinaire John Jeavins for inspiration. "I had confidence in him and his ideas because of all of his research", she says, suggesting the enhanced relevance of ideology supported by real-world experience, a concept she personally believes is an integral piece of truly understanding most anything. Although she had minor experience with organic farming in the past, she had even less experience with using botanical pesticides. Chase was concerned she would introduce vegetables to trainees of her then-fledgling project and would not know what to recommend if pests became a problem. Chase began to consider her previous experience with Ayer Vedic[19] medicine concepts, developing the idea that if human beings could be treated through Ayer Vedic philosophies, these same principles could similarly be applied to plant protection. In 1990, Chase went to visit a friend who was an Ayer Vedic medicine practitioner. Chase vividly remembers a woman listening from the corner of the room as she discussed her

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[15] A Nepali word meaning "center"

[16] Everything Organic Nursery Training. November 8-10, 2013. Patlekhet, Nepal.

[17] Everything Organic Nursery. Website. http://everythingorganicnursery.com/research.html

[18] To be further discussed in chapter titled "AAA: Then & Now"

[19] In Sanskrit 'ayer' means 'life' and 'veda' means 'knowledge'; a traditional system of medicine native to the Indian subcontinent

desire to alleviate future pest problems with her friend. "She [the woman in the corner] leaped up, said 'I'm Kamini Bidya and I can do this". And so she did.[20]

Kamini, then in her late 30s, was teaching Zoology at Tribhuvan University in Kathmandu. She was academically trained as a zoologist with a focus on entomology[21] and had first-hand experience with Ayer Vedic practices by association with her father, the doctor Chase had originally meant to enlist the help of. Chase says they "were destined to work together". Almost immediately after their paths crossed, Kamini began visiting Chase's farm in Gamcha once a week to observe insect problems. After what Chase describes as a "thorough examination", Kamini would then make pest-management recommendations based on Ayer Vedic principles. "The first thing she did involved dark basil" Chase recalls. Kamini observed that dark basil, also known as Krishna Tulsi [22] repelled mosquitos. She also knew from her background in entomology that mosquitos were like aphids[23]. From these facts she extrapolated that plants with dark colors like purple or red with a strong odor could also deter aphids from the crops they were known to destroy. From the starting point of Krishna Tulsi the discussion of color and odor as pest-deterrents was begun; soon, she began prescribing fennel, leeks, purple mustards and purple beets. Kamini eventually devised a complex planting system that took not only color and odor but also leaf texture and leaf shape into consideration.[24]

Chase says that in the days of Kamini "we just did it, without testing… I am convinced it was 80% effective". Even after Chase and Danisch's days in Gamcha, Kamini's innovations continued to manifest. In one unintentional example of this Chase recalls planting fava beans during her first winter in Kavre at the EVON location; one plot of beans was inter-planted with purple mustard however the second only had the seeds of fava beans, "we just forgot". The plot without the purple mustard ended up being affected by aphids, but the other was not.[25]

Chase discusses that EVON's current farming projects are no longer implemented in Kamini's exact scheme however for "the system became too complex". Although Chase has since moved away from the calculated intricacy of Kamini's carefully mapped out plans, EVON propagates planting concepts based off of Kamini's more rigid model. EVON refers to this system as "kira ko tiri miri", which in Nepali can be translated to mean "confusion of the insects", an integral aspect of balancing the delicate systems of ecology with human needs of food production. In a nod to one fundamental concept of Ayer Vedic medicine, Chase says that "diversity is health…We know this from our food. In the same way that we must eat a varied diet in order to attain optimal nutrition, we must vary the [plant] beds" to achieve the highest degree of organic functionality." [26]

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[20] Chase, Judith. Interview with Alexandra Sarazen. Personal Interview. Patalekhet, Nepal. 27 November 2013.

[21] Entomology is the scientific study of insects; a branch of anthropodology included in the overarching category of zoology

[22] Tulsi, or 'holy basil', is considered by Hindus to be an earthly manifestation of the goddess Tulsi; the offering of its leaves is a ritual for worshipping the Hindu god Vishnu and his other forms

[23] Aphids are small bugs that feed by sucking the sap from plants; they reproduces rapidly, produce live young without mating and tend to live in large colonies that can generate excessive damage to crops in short periods of time

[24] Chase, Judith. Interview with Alexandra Sarazen. Personal Interview. Patlekhet, Nepal. 8 November 2013.

[25] Chase, Judith. Personal Interview. 8 November 2013.

[26] Chase, Judith. Personal Interview. 8 November 2013.

A Bullet or a Bite: The Potentially Incongruent Association of 'Natural' as Inherently 'Good'

"*A thing is good because it's good, not because it's natural.*
A thing is bad because it's bad, not because it's artificial.
It's not a damn iota better to be bitten by a rattlesnake
than shot by a gun."[27]
- Tom Robinson

Some critics of organic pesticides claim that even substances deemed as "natural" can have a damaging effect on the environment and the health of the human body and in some cases this is true. Rotenone for example is a pesticide widely used in the United States for decades. It was considered to be an ideal, organic substitute to non-organic agrochemicals as it is derived from the roots and stems of subtropical plants. Rotenone is effective because it kills pests by attacking mitochondria, the energy powerhouses of all living cells. These days, the use of Rotenone is being phased out in countries like the United States and Canada as the World Health Organization (WHO) now classifies Rotenone as a "moderately hazardous". When research was done on the effects of Rotenone use, it was discovered that exposure to this naturally-sourced pesticide caused Parkinson's Disease-like symptoms in rats[28]. Rotenone breaks down within a span of 6 days. Further, products like Rotenone are commercially produced and chastised for their indiscriminate killing of not only harmful pests like aphids but also beneficial natural predators of pests like the grasshopper.[29]

Conversely, the types of bio-pesticides used by EVON and taught during their trainings break down within 24 hours. They are locally sourced from nature and locally produced. This formulates a self-reliance of farmers when it comes to pest-management which in turn eradicates the dependence on foreign producers of processed chemical inputs. Roshan says that rudimentary pest-control concoctions like neem, cow urine and water breaking down within such a short time, especially upon extended exposure to sunlight, do less damage to the environment than their more processed, even natural counterparts like Rotenone.[30]

The sourcing of Rotenone from natural origins is a potent example of how the term 'natural' cannot always be synonymous with healthy farming practices. Rotenone is harmful because of its chemical properties, not because it is inorganic or organic. Examples like Rotenone stress the importance for farmers to understand the intricacies of genuinely safe and sustainable maintenance of their farms; they should be aware enough of these not to fall for market schemes cashing in on the appeal of organic concepts without actually adhering to safe agricultural standards.

[27] Quoted from American author Tom Robinson's novel *Even Cowgirls Get the Blues*

[28] Caboni, P., Sherer, T., Zhang, N., Taylor, G., Na, H., Greenamyre, J., & Casida, J. (2004). Rotenone, Deguelin, Their Metabolites, and the Rat Model of Parkinson's Disease *Chemical Research in Toxicology, 17* (11), 1540-1548 DOI: 10.1021/tx049867r

[29] Rotenone: Resource Guide for Organic and Disease Management. Cornell University. Available at www.nysaes.cornell.edu/pp/resourceguide/mfs/11rotenone.php (Viewed 19 Nov, 2013).

[30] Shrestha, Roshan. Interview with Alexandra Sarazen. Personal Interview. Patlekhet, Nepal. 26 November 2013.

AAA Then and Now

Although Chase and Danisch have moved on to EVON, this was not the beginning of their organic farming initiatives in Nepal. In the 80s the two started a farm in Gamcha, Nepal, the very birth place of Kamini's Ayer Vedic concept of plant protection. Although that farm began as an experimental organic farming cooperative it quickly bloomed into all of its potential, transforming the soil of Gamcha as well as the nutritional rand economic ealities of more than 40 local women.

When Chase was still in Gamcha, so was a young Ramesh Khadka, who these days says he learned everything he knows about organic farming from Judith Chase. 10 years ago, Ramesh took over the lead role of AAA. "Out of 7 brothers, I am the only one that stuck with farming" he explains. Ramesh's family is a prominent presence in Gamcha; amongst the rest of his kin are lawyers, Olympic volley ball champions, politicians and one world-renowned and well-traveled law enforcement official. Ramesh is not only the Managing Director of AAA cooperative, but also the self-described "receptionist, marketing specialist, and delivery boy". Despite being somewhat being personally overstretched, Ramesh is still not satisfied with the size of the cooperative and is incessantly working on ways to improve the efficiency of the farm and expand its production for a growing market.

28 year old Guarav Khadka, the nephew of AAA's Ramesh Khadka is Nepal born, however not unlike many other young Nepali people Guarav ventured abroad for an education. He initially went to Troy State University in Alabama, U.S.A. and transferred to a University in Texas. When he first got his visa to go to America it was for environmental studies but he then switched to physics. He was forced to leave the United States in 2010, interrupting his studies as he could no longer afford University in America. When asked why he is choosing to work with his uncle Ramesh in the farming business, he says even with his experience with official education "it [farming] is the more profitable" choice. He says that working with AAA allows him to help with running the farm while saving money for himself and his wife to live. Guarav is involved mostly with marketing and home delivery for the AAA farm, and is occasionally involved in fixing technical problems on the 40+ personal plots that make up the AAA cooperative, owned and run by women of Gamcha with many still involved with the project from the days of Judith.[31]

Unlike EVON, AAA's farmland is less hilly and more plain-like. AAA does not have to deal as heavily with Kumre, a grubby bug infamous in the hills of EVON, for AAA's soil is saturated with clay, an environment Guarav claims to "make it hard for the kumre to grow". Although this bio-environment does impede the growth of the kumre, Guarav says the basic problem with AAA's land is the texture of the soil as it is very acidic; "The PH is too high, and we have to deal with lots of acid"[32]. In a response to these unideal pH levels, AAA has decided to implement the routine use of calcium carbonate to neutralize the soil. Guarav attributes this imbalanced PH level to AAA's close proximity to the city of Kathmandu, well known for its relatively high levels of air pollution. He comments that "extreme air pollution is affecting our farming as well as other farms around Kathmandu in a negative way…acidity from all of this carbon dioxide is a major soil problem". AAA's calculated use of lime is important in that it exemplifies the rejuvenating productivity of organic solutions to possibly inorganic problems by breaking the cycle of chemical pollution that would only be perpetuated if the use of chemical

[31] Khadka, Guarav. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 10 November 2013.
[32] In chemistry, the pH scale measures how acidic or basic a substance is and ranges from 0 to 14.

fertilizers was chosen as the solution for AAA's imbalanced pH. The variance of Nepal's diverse ecology shows that one organic solution will not work for everyone; organic farmers across the country must work to develop an experiential understanding of their own land so as to address their respective agricultural issues in the most efficient way.[33]

Ramesh says he continues to work with AAA for the social development aspect as it does not generate enough income for money to be an incentive.[34] Guarav notes that organic farming can prove to be more expensive for the processes of fertilizer usages to labor requirements are much different, requiring more thought and consideration of the agricultural process than the "quick-fixes" peddled with chemical farming. Guarav says from experience that it is cheaper for local farmers to use their own compost. He says AAA farmers do use compost, utilizing natural inputs like cow and chicken manure, cow urine, pina and wood chips not unlike EVON. Guarav knows that healthy soil is integral in the equation for a healthy plant, and AAA is also a proponent of organic pest management. For example, Guarav discusses fly traps that utilize pheromones to capture pests by luring them in with a smell a certain insect is known to be sensitive to. In another noninvasive pest control method that showcases AAA's understanding of the symbiotic elements of nature, Guarav discusses the "flipping of leaves" of the cauliflower plants as this provides easy access for hungry birds to control levels of plant-eating bugs.[35]

Shundhara Khadka on her 1 rupani of organic garden as part of the Appropriate Agricultural Alternatives cooperative

Gender and caste relationships play an important role in food security in Nepal as a majority of women work in agriculture but they do not have access to property ownership or cash.[36] AAA has been a revolutionary concept from the beginning in that for over 20 years it has provided women with a cooperative source of income. Shundhara Khadka, one of AAA's female land-owners and organic farmers has been involved with AAA farms since the program's inception. She says that previously, she had to buy all her vegetables in the market but now she grows everything she needs in her own garden. In her 1 rupani of land she grows 50 varieties of vegetables, which is a living example of how AAA has transformed farming in Gamcha from monocropping to more productive, sustainable methods that align with bio-intensive. When there is a surplus, she is able to give some of her vegetables to friends and family who are used to a less varied diet than she and her family have regular access to through her organic garden. She says the main reason for her continued involvement with AAA is for the extra source of income,

[33] Khadka, Guarav. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 10 November 2013.
[34] Shrestha, Roshan. Interview with Alexandra Sarazen. Personal Interview. Patlekhet, Nepal. 26 November 2013.
[35] Khadka, Shundhara. Interview with Alexandra Sarazen. Personal Interview. Translated by Ramesh Khadka. 25 November 2013.
[36] The United States Agency for International Development. Feed The Future: The U.S. Government's Global Hunger and Food Security Initiative. http://www.feedthefuture.gov/country/nepal

although she is quite obviously conscious of the dangers of chemical farming by association with AAA and agrees that organic practices are important for health. She also cites what she perceives as the better taste of organic vegetables as an inspiration for her agricultural involvement. She says farming with AAA has made her life very different; she now has money to purchase wares for household needs and the diet of her family consists largely of vegetables where it did not before AAA. Shundhara works on her plot of land for 3-4 hours every day, and when she cannot do so AAA helps her to hire a "worker-for-a-day" to help her meet her labor needs.[37]

Inspiration from Abroad: How a Foreign Presence Dictates Development in Nepal

Currently ranking at 157 of 187 countries on the global scale of the Human Development Index[38] and maintaining its place as the financially poorest country in South Asia, Nepal is calculated to earn a modest Gross Domestic Product (GDP) per capita of $470[39]. As a result of this, there is an inarguably large presence of development organizations in the country of Nepal. Their already overwhelming numbers are further enhanced by the fact that Nepal is currently in the process of recovering from a 10-year civil war with the added pressure of a severe food deficit[40]. Roughly two out of every three Nepalese suffer from food insecurity each year, most likely due to recent declines in the country's agricultural production[41].

The dZi Foundation

The dZi Foundation is a foreign funded NGO based in Kathmandu well known for their alternative yet effective concepts of development. Ben Ayers, dZi's Nepal director says "usually, NGO's become slaves to donors and they aren't directly in touch with what's happening within the communities they are trying to help". With dZi, he continues, "the poor are involved in the process of deciding how to utilize the funds that dZi gives them access to, using the money the way the community itself sees fit". [42]

The Revitalize a Village (RAV) program is a dominant project of dZi's development agendas in Nepal. The dZi website states "As one of the most innovative and efficient programs in the Himalayan region, RAV encourages poor communities to discover their own abilities and skills to create permanent solutions". Specifically, the RAV program works in 5 Village

[37] Khadka, Shundhara. Interview with Alexandra Sarazen. Personal Interview. Translated by Ramesh Khadka. 25 November 2013.

[38] The Human Development Index is a composite statistic of education, life expectancy, and income indices developed by Pakistani economist Mahbub ul Haq and Indian economist Amartya Sen in 1990, eventually published by the United Nations Development Program; "The Human Development Concept". UNDP. Retrieved 1 December 2013.

[39] The United States Agency for International Development. Feed The Future: The U.S. Government's Global Hunger and Food Security Initiative. http://www.feedthefuture.gov/country/nepal

[40] The United States Agency for International Development.

[41] The United States Agency for International Development.

[42] Ayers, Ben. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 19 November 2013.

Development Communities (VDCs)[43] in Eastern Nepal: Gudel, Sotang, Rakha, Dipsung, Sundel and Cheskam.[44]

dZi works through the concept of 'Teach, Build and Grow' in the implementation of their RAV programs. In teaching, dZi works to build up the various skills of community members, helping them to form non-profit organizations to support their respective communities after dZi has left. Under the concept of "Build", dZi acknowledges the fact that the basic infrastructure of these remote villages is usually in shambles or completely non-existent. Addressing this, dZi first prioritizes providing safe schools, clean drinking water, sanitary toilets and safe bridges for community members. Ayers comments that throughout his many years of experience with development work[45] it becomes evident that "in the beginning, they [communities] usually want a school built, or a hospital. But as you begin to meet the basic needs of structure, the development moves to other things like complex systems of agriculture"[46].

In their third objective of both literal and figurative Growth, dZi works to provide a sustainable method of generating income in a direct assessment of the perceived root causes of poverty in the aforementioned regions. The farming projects that dZi money is helping to fund in Nepal are mostly occurring in very rural locations where subsistence farming is the norm, "a concept of sustainability that does not exist in the West" Ayers says. He continues, "these communities are entirely sustainable, and if peak oil were to be reached tomorrow they would have agriculture and food security – the only thing they wouldn't have is kerosene and Wai Wai[47]". dZi also provides the training required to manage donor and community needs such as accounting, report writing, project development and evaluation. dZi encourages "village residents to build ownership in the projects through contributing locally available materials and volunteer labor- this amount is often equal to over 60% of the total budget" of infrastructure projects, for example.[48]

When it comes to "organic" within the context of these farming projects, Ayers comments "these communities are so remote that it has never been cost effective or feasible to rely on pesticides or chemicals for farming, so they have been organic forever". Although staying organic is not a problem as these communities have been doing it for so long, Ayers mentions "it is difficult to find organic pest control". dZi went to USAID in the past for help with this problem, and Ayers says the organization was an effective contact in that they helped to provide farmers working with dZi with industrial organic pesticides. Ayers says "USAID can also supply these farmers with what they claim to be organic pest control imported from India, but this solution doesn't work for such isolated communities at the level of supply chain".[49] DZI was forced to find a new way to tackle the organic pest control problem, and the previously discussed EVON-dZi relationship was born.

"Our connection with EVON is integral in moving forward with these projects because dZi needs to learn what to teach", says Ben. Since the beginning of this partnership in January 2013, dZi has now shifted to sheet composting and organic pest control methods as taught during

[43] The US equivalent to 'counties'
[44] "The dZi Foundation". www.dzifoundation.org
[45] Ayers takes issue with this term, however has yet to find an appropriate alternative.
[46] Ayers, Ben. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 19 November 2013.
[47] WaiWai is nutritionally sparse yet popular instant-noodle product in Nepal, eaten either dry or as a soup
[48] "The dZi Foundation". www.dzifoundation.org
[49] Ayers, Ben. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 19 November 2013.

EVON's organic farming training programs. dZi and EVON's collaboration illustrates a practical application of EVON's organic research projects.

In early 2013 DZI started implementing Systems of Rice Intensification (SRI) as well as introducing cash crops like tomatoes or cauliflower to the farming communities they're working with; these rural communities have never had these seeds before so they did not know how to grow these crops. Ayers comments on these changes in saying "they [the farmers] want to change the system" from subsistence to more of a commercial model. So, dZi's whole approach to this agricultural development is now a production of cash for the communities they are working with. The generation of new levels of income in these still largely traditional communities could be considered controversial by some, for money can often mean modernization. On this, Ayers comments "As westerners we see the concept of bartering as the Holy Grail, but the people aren't into that. We can look on longingly to the past but if they want [to be able to buy] iPhones and televisions it is not our place to judge that". He says that development work has to be a dialogue and often times it's a shouting match. In this way the dZi model of development puts the importance of the community's desires over the agency's own preferences.

The concept of failure aligns with dZi's development philosophy almost as much as the prioritization of community-decided goals. Ayers recalls an incident when the introduction of tomato seeds was met with such over-zealous planting that farmers quickly encountered a severely detrimental blight of the red crop. Commenting on this blight, Ayers says "we have to let them fail, it is good that they failed, it fosters a sustainability".[50] dZi understands that failure is certainly an effective teacher; when the community learns from experience it lays the framework of self-reliance for the future. This sort of failure also serves as a model of education for other communities who could follow in similar methods of agricultural development.

When it comes to the teaching of more sustainable farming practices, Ayers says "variety is not something we have to advocate, as the traditional form of agriculture for them is often times very sophisticated". Ayers is alluding to the fact that traditionally these systems utilize intercropping and a complicated rotation pattern for a variety of reasons. For example, as corn grows it is accompanied by beans and millet, which then generates a form of green manure. Ayers comments there are often two crops growing simultaneously in these fields, as the farmers have understood through generations of working with the land that this is the most productive agricultural practice for both yield as well as the maintenance of a healthy soil, suggesting that aforementioned concepts like "kira ko tiri miri" or "systems of life intensification" may not be so alien to Nepal farmers who are still channeling ancient agricultural wisdoms.

Ayers says "life is hard and short in these places, and it's a demanding way of life…but it could be where we all need to be in the future as humans as it creates a certain type of sustainable society…in these places, you cannot do it alone". The collaborative spirit of these communities is demonstrated when considering the small window of time to plant seedlings of particular crops to make for the healthiest products. He says "When it's time to plant these seedlings, they transplant them all together. One family will have everyone over, feed them and they'll complete the task of transplanting the seedlings as a group in the host-family's fields. It takes them all day to complete, and the next day they'll move on to the next family's land".[51]

Ayers says that "when it comes to concepts of innovation and change that we foster in America…you just don't see that when you're scared of starving". Food security is such an issue

[50] Ayers, Ben. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 19 November 2013.
[51] Ayers, Ben. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 19 November 2013.

in Nepal that often times change is not easy and people can be reluctant to move away from familiar farming practices toward newer systems. Ayers also comments on how there is often a sentiment of cultural dominance over places like Nepal of America, and that "development work will never be successful if you've never tried to put yourself in the place of a recipient of support". He continues "you have to learn how to learn and learn how to listen". dZi judges itself on a holistic measure of success, taking many aspects of society like economy, education and agricultural productivity into consideration throughout the course of RAV initiatives. The heavy dependence upon subsistence farming in these rural communities combined with growing populations and few cash-generating options are together infamous catalysts known to generate food shortages, forced migration and child labor.[52] dZi seeks to support local farmers as they learn to enhance organic practices for future participation in cooperative groups to ensure fair pricing and the development of new markets. A presence of programs like RAV in rural areas of Nepal will hopefully squeeze out opportunities for chemical farming to ever take hold, hindering the successes of agrochemical peddlers in these regions if intensified organic practices of the past develop as the norm moving in to the future.[53]

USAID: Further Insight into Nepali Agriculture Realities

The United States Agency for International Development (USAID) is yet another organization that is positioning itself to play a large-scale role in changing Nepal's food security realities in the coming year. Specifically, the organization's US President-mandated Feed the Future (FTF) initiative is working to build on "global momentum to end extreme poverty and hunger, working from farms to tables"[54].

Evan Meyers, American born but stationed in Nepal, is a member of the Agriculture department of USAID. He is part of a team of 3 Americans and 1 Nepali that is currently working on this FTF project. Meyers says that specifically, FTF in Nepal is working in the western midhills and the Terai regions, attempting to "increase agricultural production with crops like lentils or high value vegetables". These regions were chosen for their high hunger indexes and levels of out migration. Similar to dZi, FTF is supporting "commercially driven agricultural transformation…with the goal of increasing smallholder farmer incomes". FTF wants to generate this increase of income "through sustainable intensification of high value vegetables…under a farming systems approach". Meyers says the farmers FTF is working with in Nepal are also being taught how to practice Integrated Pest Management (IPM).[55]

When prompted on organic agriculture potentials in the country, Meyers first mentions the importance of separating the aspects of inorganic farming into two distinct pieces. He advises to pointedly avoid overgeneralizing inorganic practices – too often are the terms "chemical fertilizers" and "chemical pesticides" used interchangeably. Clarifying this conventional wisdom Meyers notes "the issue in Nepal is this: There is indeed an overuse and potential under-education when it comes to harmful pesticides, but where chemical fertilizers are concerned they

[52] "The dZi Foundation". www.dzifoundation.org

[53] Ayers, Ben. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 19 November 2013.

[54] The United States Agency for International Development. Feed The Future: The U.S. Government's Global Hunger and Food Security Initiative. http://www.feedthefuture.gov/country/nepal

[55] Meyers, Evan. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 25 November 2013.

[the Nepali farmers] can't buy enough because demand is so high, so actually acquiring chemical fertilizers is hard for them". Unlike chemical fertilizers, it is not difficult for farmers to have access to pesticides here in Nepal. "It's as easy as going to the market', Meyers says.[56]

Meyers does agree that chemical pesticides can be harmful to the farmers who use them, their families, as well as the consumers of pesticide treated produce. The potentially harmful effects of pesticides appear to be the driving factor behind the IPM education FTF is conducting. USAID's FTF program is obviously not entirely organic, as pesticide usages are encouraged where they are thought to be needed. Although he does not speak for himself, he mentioned the concepts of "not polarizing ourselves to one ideology". He continues to say that FTF is concerned with intensification of the agricultural process, suggesting that entirely organic practices may not align with FTF's food production goals. Meyers continues in saying there may not be enough biomass in Nepal to maintain an entirely organic system across the country that is capable of meeting needs. He also notes that organic soil-fertilization practices are incredibly labor-intensive with "nominal amounts of nutrition going back into the soil". Meyers wants to clarify that "we're [USAID] is not saying organic is bad, however there are lots of issues with maintaining it when you're considering large-scale farming".

USAID's FTF webpage makes the claim that "Ecologically, Nepal has the potential to be a food surplus country and has an excellent track record in piloting ground-breaking development programs". As an agent of USAID, Meyers believes that NGO's in Nepal "have their hearts in the right place – they think they can change things, and while they're here they usually do". Not unlike Ben Ayers of the DZI foundation Meyers thinks a folly of NGOs is often that they "do not generate change beyond the period of intervention". In other words, these NGOs do not "change the way the system works". Meyers himself comments that the ideal future of a changed system of agriculture in Nepal would include the presence of "small scale mechanization, high quality imputs, and large-scale use of IPM practices." He says that successful agricultural development leaves families eating better, which in turn renders children more capable of success in life due to adequate nutrition. Further, what he considers successful agricultural progress for this country has proven to and will continue to allow women more say in family decisions through the liberation of earning money and participating in the work force.[57]

"Ultimately," Meyers says, "successful agricultural development will contribute to a better quality of life overall…more commercial agriculture will get people out of poverty". In speaking with Meyers as a representative of USAID, it is clear that organic farming practices are not a priority for the FTF program in Nepal however the implementation of IPM is in itself a recognition that moving away from heavy chemical farming practices is ideal. Ganga Ram of EVON says that "if you don't know IPM then you cannot grow organic", so USAID's IPM trainings could be an essential first-step.[58]

Earth in Justice: Reclaiming the Urban Environment

Although projects like FTF and RAV are focused on rural development through agriculture, the recent influx of rural to urban migration in Nepal cannot be ignored. Roshan of EVON comments "people are moving to the city for education and for jobs…there's more junk

[56] Meyers, Evan. Personal Interview. Kathmandu, Nepal. 25 November 2013.
[57] Meyers, Evan. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 25 November 2013.
[58] Yadav, Ganga Ram. Interview with Alexandra Sarazen. Personal Interview. Patlekhet, Nepal. 26 November 2013.

food there, people want to eat cheese balls, not saag"[59]. He continues "in the city as a child you don't eat well, and you continue these habits until you're old... that's why you're seeing more migraines, heart attacks, high blood pressure, things like that", alluding to the potential health complications of a diet overwhelmingly comprised of processed foods like Wai Wai. Yet another foreign funded NGO known as Earth in Justice[60] is working against the malnutrition that can often go hand-in-hand with urban life.

Specifically, EIJ is working to achieve nutritional goals through agriculture education youth programs in Kathmandu . Onri, an EIJ volunteer from Israel and the main coordinator for the EIJ roof garden project in the neighborhood of Kalimati, describes the driving factors for this project as creating an example and learning environment that will teach students to implement similar gardening tactics at home with their own families[61]. This in turn will extend the variety of fruits and vegetables that these students' families have access to. He says "we can't all afford to buy them [a variety of fruits and vegetables] but we can certainly all grow them". Project coordinators have chosen to grow vegetables like lettuce, garlic, spinach and coriander that are known to be particularly pest resistant on their own, sans-chemicals. These plants were also chosen for the particularly short timespan between planting and harvest, as it may be beneficial for the program's teenage students to see the results of their efforts quickly in the beginning.

During EIJ's flagship rooftop gardening youth training and after around an hour of lecture on the reasons for the project, students asked if they would be able to eat the fruits of the seeds they were planting. Even after such an explicit introduction to the project, their confusion is particularly indicative of the difficulties facing even the best-planned development initiatives in general. This anecdote highlights the difficulties of development, especially where youth are involved, showcasing the importance of an explicit dialogue between development agencies and the people they are trying to help.

EIJ wants their community house in Kalamati to be a space for the community to meet together, learning from the rooftop gardening project to generate inspiration for similar projects at home. Although a small-scale project merely in its fledgling stages, it could serve as a model for future programs looking to reclaim more rural dietary standards of nutrition in an urban environment.

Toward an Organic from Within

"*If the nature of work is properly appreciated and applied, it will stand in the same relation to the higher faculties as food is to the physical body. It nourishes and enlivens the higher man and urges him to produce the best he is capable of. It directs his free will along the proper course and disciplines the animal in him into progressive channels. It furnishes an excellent background for man to display his scale of values and develop his personality.*"

- E.F. Schumacher[62]

[59] Shrestha, Roshan. Interview with Alexandra Sarazen. Personal Interview. Patlekhet, Nepal. 8 November 2013.
[60] Earth in Justice in English; Nyayik Sansar in Nepali; Tevel B'tzedek in Hebrew
[61] Everything Organic Nursery Training. November 8-10
[62] Schumacher, E. F.; *Small Is Beautiful: Economics As If People Mattered : 25 Years Later...With Commentaries* (1999). Hartley & Marks Publishers ISBN 0-88179-169-5

Himalayan Eco-friendly Agriculture Co-Operative Ltd.

The movement toward an economically and agriculturally sustainable Nepal is inarguably coming from foreign agents like dZi and EVON however this headway is not exclusively driven by foreigners. The Himalayan Eco-friendly Agriculture Co-Operative Ltd. (HEACOP) is an organization entirely founded by Nepali citizens that is working toward sustainability and community development through organic agricultural education and practices. The founders of HEACOP are yoga instructor and former computer engineer Kapil Prajapati, former internet service provider Dorje Tshering Lama and former New York City taxi driver Lopsang Lama. Although their backgrounds qualify them as what some could consider a "motley crew", the partners have their birthplace in common as they all hail from Helumbu[63]. They founded HEACOP in 2011 with sky-high dreams of making Helumbu the first ever entirely organic Village Development Community (VDC) of Nepal.[64]

They say that Helumbu is a village of 42 families and 350+ people, "all of whom are farmers" comments Kapil. He adds "20 of our villagers are currently abroad in the United States working restaurant jobs as chefs, driving taxis, babysitting children, or as store keepers". Kapil says this out-migration of rural community members is something that is happening all over Nepal, and it is a major driving factor of the development they are working toward within Helumbu. At HEACOP, they want to use organic farming as an incentive to bring Nepal's youth back to their home country, "getting them back into nature and working with their motherland".

Lopsang Lama, one of the aforementioned founding members of HEACOP and the former NYC taxi driver of the bunch is himself evidence of the out-migration from Nepal to destinations abroad. Lopsang lived in America for 16 years and has recently returned to Nepal to join the organic movement through HEACOP's initiatives. In returning to his home country, he is seeking to prove that although there is indeed a financial incentive to move abroad "it is also possible to generate that money here at home". He says "We're demonstrating that you can make even more money in Nepal than you would in America… all while developing one's own country through sustainable agriculture". They realize they have to prove this to the youth by example in order to establish a viable argument, changing popular conceptions of farming as an undesirable career in the face of the appealing financial incentives of going abroad. HEACOP believes that teaching organic farming to the youth of Nepal will enable them to inspire "a love of the natural world and a consideration of our ecological environment" all while "generating an awareness of the importance of consuming healthy foods".[65]

HEACOP's founders all graduated from the Hasera Research and Training Center of Kavre district in December of 2012 where they were educated about organic practices like the Internal Control System (ICS) method, an intensive programme of plant bed management. Recently, they began organizing hands-on trainings and seminars for local farmers in Helumbu with the intention of sharing ideas and teaching Helumbu's farmers more sustainable agro-practices like permaculture. "These techniques are new, but they are quite interested", Kapil says. Not unlike dZi's experience with agricultural development in other remote areas of Nepal, the founders of HEACOP say there is not much challenging push back from community

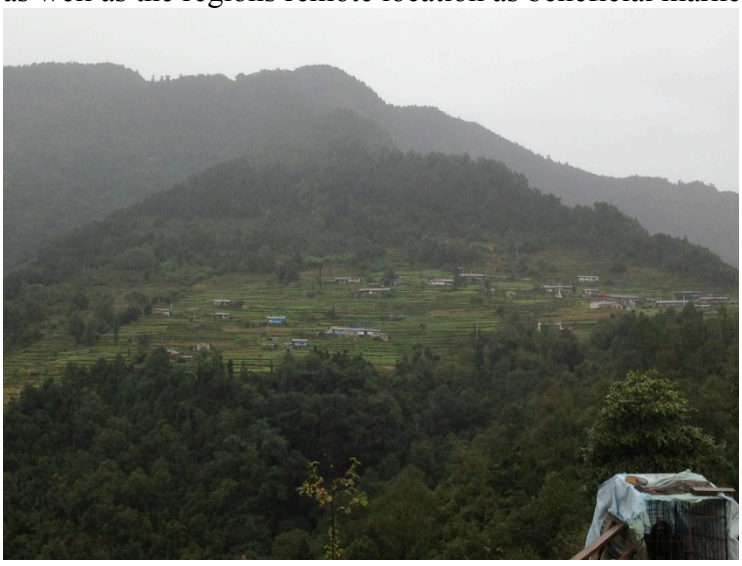
[63] A rural region of Central Nepal located in Sindhupalchok district

[64] Prajapati, Kapil, Lopsang Lama and Dorje Tshering Lama. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 20 November 2013.

[65] Prajapati, Kapil, Lopsang Lama and Dorje Tshering Lama. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 20 November 2013.

members being trained to farm organically because they have always been organic, "they just did not know what that meant yet" says Kapil. He continues "Really what we are doing is teaching them how to maintain the already organic system in a more sustainable way". Helumbu's residents have always grown crops like potatoes, beans, radish, maize, barley and mustard greens, however HEACOP is planning on organizing trainings for kiwi farming in an attempt to increase Helumbu produce's market potentials. Kapil says "Now that they know the value of organic, they get to make more money", once again proving the potential of organic farming to generate more income for traditionally subsistence communities.

One issue HEACOP claims to face with their development initiatives in Helumbu is the "unstable political climate" of Nepal. For example, one of their organic farming partners recently had harvested about 400 kilos of fresh radishes to be brought to the Kathmandu markets, however because of the "bunda"[66] he was forced to leave the crop in a pile on the side of the road for 10 days. Kapil comments "our radishes are probably spongy now, and this is a big financial loss". Although the remoteness of the village can be a hindrance in the way of accessibility to and from Kathmandu markets, it is in asset in that Helumbu has "not yet been tainted by subsidized chemical farming practices because it is so far off the grid". Further, since the farm land of Helumbu is 2500 meters above sea level, "the purity of organic agriculture is enhanced by the pristine air of the Himalayas". HEACOP sees Helumbu's long-standing organic traditions as well as the regions remote location as beneficial marketing tools.



The Hills of Helumbu - *In the beginning stages of their project, the founders of HEACOP would have to walk the majority of the way to their home village from the city as there was not yet a road. These days, the journey from Kathmandu to Helumbu takes about 5 hours by private Jeep, 7-8 hours on a local bus, and 4 hours on a motor bike, the new road bringing travelers to the base of the very hilly village.* Photo Courtesy of HEACOP

HEACOP's founders can be said to maintain an open, creative and eager entrepreneurial spirit. On top of their goals to incentivize organic farming as a mitigation of out-migration urban migration and enhance the quality of produce for the health of consumers, they also wish to establish Helumbu as an agro-eco-tourism destination in the future; they are in the process of developing an accessible trailhead. Cashing in on Nepal's infamous status as a widely sought tourist destination, HEACOP wants to market Helumbu as an adventure destination where travelers can trek, work on local organic farms and immerse themselves in the traditional community way of life.

The Virtues of Smallness: More Inspiration from Within

[66] Definition of bunda: strikes of November 2013 which impede vehicular traffic in the entire country of Nepal

"Today, we suffer from a universal idolatry of giantism. It is therefore necessary to insist on the virtues of smallness… many small units are quite prosperous and provide society with most of the really fruitful new developments."

- E.B. Schumacher[67]

Larger-scale, established Nepali founded organic farming initiatives like HEACOP are essential sources of momentum for the organic movement in Nepal, but the presence of small organic farms and an aversion to pesticides of independent Nepali farmers is also important. The inclinations of individual farmers who are choosing to "go organic" on a commercial level or even a household level quietly yet powerfully signifies the potential for an "organic Nepal" movement to unify in the future.

One such farmer is Sushil Khanal, the owner of a commercial organic farm just outside of Kathmandu. Before he started his organic farming project, he had worked in the booming tourist industry of Nepal for over 10 years. In 2004 and after what he calculates as "20 years of dreaming about starting a farm…the situation, time and atmosphere were finally right" for him to realize these long-held dreams of working with the land. Although he cannot cite a specific source of his strong aversion to chemical farming, Sushil says his experiences traveling abroad "to the Western world" as well as working with foreigners visiting Nepal prompted him to develop an understanding of the importance of organic. Now, almost 10 years in to his agriculture dreams he says "it feels good to feed people organic. In life, you have to do good things for people and this is my good deed of choice – feed the people well, don't feed them poison". Sushil, his wife and his son try to eat organic all the time, however the market demands for their products are so high that they often have no extra produce left for themselves. Sushil's son says "When this happens we have to go into the market for our food, but we usually eat non veg in these cases-we'd rather eat no vegetables at all than [eat] the chemically treated stuff". [68]

Sushil Khanal and his wife Urmita selling vegetables at the Saturday Kathmandu farmer's markets at 1905 restaurant in Kantipath

It is clear that Sushil maintains humanitarian incentives for organic farming, but when prompted on what it means to be organic as a business however, he says "organic farming can certainly be more expensive." He continues "organic produce can take more time and energy to grow than when pesticides are used", citing the fact that organic carrots take about twice as long as carrots grown in a chemical environment. When they are growing for this much longer it takes more…water and labor which increases the cost" of maintaining organic practices. Sushil does comment that sometimes organic produce maintains a 20-25% difference in market price compared to

[67] Schumacher, E. F.; *Small Is Beautiful: Economics As If People Mattered : 25 Years Later…With Commentaries* (1999). Hartley & Marks Publishers ISBN 0-88179-169-5

[68] Khanal, Sushil. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 20 November 2013.

inorganic produce. If his agricultural morality is not enough to sustain his organic practices, he claims there is a slight economic incentive.[69]

Nepal native Pemba Sangam Sherpa balances a small-scale organic farming initiative along with the responsibilities as the CEO of Himalayan Legend Trekking Company (HLTC). The HLTC promotes "domestic, organic tourism for rural area development" along the lines of HEACOP's agro-eco-tourism goals. Sangam's propagation of the organic ideal also translates over to the running of The Organic Farm House (OFH). Located in Kathmandu in an area known as Kapan, OFH is an urban, organic farm that dually serves as a guest house for travelers. Rural areas of Nepal are organic by default, but closer to Kathmandu more chemical use is being heavily advocated because of the high density of the population. The urban agriculture initiatives of organizations like EIJ or Sangam's OFH are demonstrative of the attainability of safe food production systems even in nontraditional environments like city centers and their rooftops.

Evidently maintaining a distinct entrepreneurial spirit, Sangam personally strives to "spread organic all over the country, rescuing poor farmers who have no choice but to use pesticides and poisonous chemicals. This problem is very serious". Sangam says that along with his Green City dreams "in the future, I'll work to spread organic farming practices back to his home village in the far east of Nepal". Currently, he is in the process of proposing business plans to Nepal banks in an attempt to generate funding for his extension intentions.[70]

Sangam says he "used to go to Europe for work… I can earn a handsome salary there to support myself and my family…but we have to encourage the Nepali people not to migrate away from their country, we have to build our nation ourselves". He continues "everybody wants to go abroad, especially the youth. But if you invest as much money as it takes for you to travel to-and-from the West as well as living expenses while you're there into farming here [in Nepal] or domestic entrepreneurship in general, you can absolutely set yourself up for a future of success". He believes that Nepali youth have to be active and involved in the process of determining their country's farming future.[71]

Sangam, recently interviewed on a telecast program, recalls being asked about whether or not he "had confidence that organic farming could actually feed everyone". His controversial yet effective response: "Most farmers in Nepal right now are not doing organic… even with chemical farming practices and the billions of rupees we spend each year importing food from India, we are still not feeding everyone that needs to be fed. We must consider that it may not be our duty to feed everyone, however it is imperative to make The People self-sufficient when it comes to their food needs. We should work to decrease our imports as well as alleviate the day-by-day, chemically induced reduction of Nepal's agricultural production through organic farming…In the beginning, organic production may not be so much, but in the long run we'll all have a lot more food and a lot more sustainability". [72]

Guarav Khadka of AAA brings an interesting perspective as to why Nepal needs organic farms as he is a scientist by nature as well as education. He says "As long as you're human, you must be conscious of health. That's what I believe in." Not unlike many proponents of Greek philosopher Hippocrates's Food As Medicine concept Guarav agrees that "food is an essential

[69] Khanal, Sushil. 20 November 2013.
[70] Sherpa, Pemba Sangam. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 30 November 2013.
[71] Sherpa, Pemba Sangam. 30 November 2013.
[72] Sherpa, Pemba Sangam. 30 November 2013.

source of health…the quality of your food matters". He has spent much time looking into the effects of pesticides and genetically modified foods. "Although a lot of the concerned experiments' conclusions maintain that certain levels of chemicals and inorganic substances on the bodies of rats are healthy, I do not trust them". He cites the reasons for this mistrust as the "undeniable fact" that we as human beings have "a more complex anatomy than rodents". He maintains that "the mere molecules" of the substances being tested on these rats and small animals do not quantify relatively to the levels that human beings are being exposed to through routine consumption of chemically farmed foods. He further illustrates his opinion of the importance of organic with the mention of an article he read recently that discussed the brain development of children in relation to the quality of their diet. According to Guarav this article communicated proof of the nervous system and brain growing and subsequently developing more productively in children who ate organic foods, juxtaposing the stunted development of these imperative anatomical functions in children who were not consuming organic foods. He agrees that there is certainly a "social work" aspect to the establishment of AAA farm, but the nutritional incentives of organic farming are largely important to AAA's administration too.[73]

It is important to note that Sushil, Gangam and Guarav are all formally educated. Further, they have all been exposed to Western culture, either by traveling themselves, attaining education abroad or interaction with foreigners in their own country. Whether the reasons of individual farmers for promoting organic farming in Nepal are inspired by foreign influence, morality, science or a desire to strategically reclaim the development potential of their nation, the fact that independent members of society are stepping up as concerned citizens in a rapidly changing society is imperative for the future of their country's potentials for a sustainable agricultural sector that prioritizes an ethical approach to food production.

Short-term Yield and Long-term Damage

> "*Only when the last tree is cut, the last fish is caught, and the last river polluted; when to breathe the air is sickening, we will realize, too late, that we cannot eat money*."
>
> - Alanis Obomsawin[74]

Many organic farmers in Nepal agree that the chemical endpoint is money. Sushil Khanal and his son believe chemical farming is appealing to people in Nepal first because pesticides are often free due to government subsidies and second because synthetic fertilizers are marketed with ideas like "short-term yield, high quantities, and fast cash"[75]. Their opinion of money as a main source of attraction for farmers to agrochemicals is not far from the truth as conventionally known "benefits of pesticides are usually based only on direct crop returns."[76] Although

[73] The actual study Guarav references was not consulted for the purpose of this paper and the claims here are solely demonstrative of what Guarav himself perceives as fact

[74] From Alanis Obomsawin's 1972 book "*Who is the Chairman of this Meeting?: Conversations with North American Indians*", based on fieldwork in Canada conducted in 1972

[75] "Environmental and Economic Costs of Pesticide Use" Bioscience, Vol. 42, No. 10, David Pimentel

[76] "Environmental and Economic Costs of Pesticide Use"

chemical inputs have been known to improve output on a short-term level, assessments that conclude pesticide usages will generate profitable crop returns do not include the indirect environmental and economic costs associated with pesticides.[77] To facilitate the development and implementation of a sound policy of pesticide use, these costs must be examined. The indirect environmental and economic repercussions of pesticide usages include but are not limited to losses from increased pest resistance, loss of natural pollinators like bees or butterflies as well as pest predators like the grasshopper. Further, crop, fish and bird losses as well as near irreversible ground water contamination are all heavily attributed to chemical pesticide usages.[78]

Guarav Khadka of AAA farm notes that inadequate education poses a major problem where the farmers are concerned. He comments that "most farmers in Nepal are not educated in a holistic manner, or even at all". He draws a connection between this lack of education and pesticide abuse in Nepal, saying "nobody really teaches them [Nepali farmers] how to use pesticides appropriately, how long to use them, when to use them or when to stop. All the farmers see when they think about the pesticides is the money that could come from their crop". He says most farmers in Nepal come from the countryside where they have accumulated their knowledge of farming through the observation of their fathers and grandfathers; they can effectively dig, sow, harvest and store but they have primitive knowledge of the larger ecological systems within which they work. He continues, "Chemicals disturb the biomechanical mechanisms of the natural world, and they [farmers] can see the adverse effects of these chemicals in their crops and soil over time, but if you do not have a basic understanding of science then how are you to understand what this means, why this is happening or how to fix it?". He thinks a lack of education is further problematic because "pesticide use is pushed from the government" and along with subsidized bags of foreign chemical fertilizer comes "a very short and incomplete training on how to use them." [79]

Sushil Khanal believes that ideally, an integral aspect of agricultural training in Nepal should be choice. Similar to Guarav's impressions of the government's hand in inadequate agrochemical education, Sushil says "The government provides subsidies for chemical farming, then they [Nepali farmers] get an indecent training only using chemical products. They should really be teaching these farmers both organic and chemical side-by-side. This is important so farmers can choose".[80]

Not only is the government widely blamed for inadequate pesticide trainings, but its inability to effectively regulate imports against the largely open borders of India feeds the toxicity of Nepal's soil. For example, Roshan of AAA says that infamously destructive "DDT is totally banned by the Nepali government on an official level, however you can still find it easily in the market".[81] The registration of 107 different pesticides under 650 different trade names has been made permissible by Nepal's loose market regulation standards.[82] This in turn generates even more confusion amongst Nepal's farmers on how to use these substances properly for they do not always known which rules of application, which may or may not be correctly understood in the first place, align with which pesticide name. In a further discussion of import issues

[77] Environmental and Economic Costs of Pesticide Use"
[78] "Environmental and Economic Costs of Pesticide Use"
[79] Khadka, Guarav. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 10 November 2013.
[80] Khanal, Sushil. Interview by Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 20 November 2013.
[81] Shrestha, Roshan. Interview with Alexandra Sarazen. Personal Interview. Patlekhet, Nepal. 8 November 2013.
[82] Sharma, D.R. and H.K. Manandhar, R.B. Thapa, and S.B. Pradhan. "Use of Pesticides in Nepal and Impacts on Human Health and Environment". The Journal of Agriculture and ENviornment Vol: 13. June 2012.

Roshan says "there is no chemical fertilizer company in Nepal, but the use of agrochemicals is high…they're all coming from India, China, Japan… as farmers begin to use more and more of them the dependence on foreign companies becomes dangerous".[83]

Although farmers in Nepal are often provided with subsidies to purchase these chemical inputs this is not always the case. The potential cessation of subsidy programs combined with the fact that routine pesticide use generates exponential dependency on chemical substances can be especially problematic as these very conditions have been shown to manifest almost inescapable issues of debt. In India for example, many farmers have developed such a heavy dependency on pesticides as they become increasingly more expensive to acquire. As a result of this, many Indian farmers are spiraling so far down into the cultural shame and financial paralysis of debt that shocking amounts have been known to actually end up ingesting these toxic pesticides to end their own lives.[84] This is a depressing yet poetic example of the Samsaric systems perpetuated by routine use of synthetic substances.

In a further perpetuation of farmers' routine abuse of chemical pesticides, Evan Meyers of USAID comments on how "farmers are often getting pesticide education from pesticide dealers, sellers or even other farmers who have been educated by similar sources"[85]. These dealers and sellers, popularly referred to as "Agrovets" are an inadequate authority. "Some 7028 resellers [of agrochemicals] are trained on safe use of pesticides and storage management, of which 6660 are licensed".[86] Roshan of EVON recalls a particularly potent example of the corruption of Agrovets. He remembers witnessing a reselling agent tell a farmer to dilute a pesticide with 32 litres of water before spraying his field, "when it really should have been 96 [litres]". He continues "they get a commission…so they [pesticide dealers] do it like that".[87] In this way, the market itself poses problems as well as opportunity for the organic movement in Nepal as agrochemical resellers are not always educated on the proper usage of pesticides, often feigning knowledge that aligns with the maximizing of financial gain. Meyers believes that one effective way to "change the way the system works" would be to get these pesticide dealers and sellers to also sell biological inputs that that are less detrimental to the environment or the health of farmers, their families and consumers than chemical pesticides. "But you have to make a market for them in order to convince them to start selling them".[88] In this way, agricultural education that stresses the detriments of pesticides and exemplifies the viability of alternative systems could manipulate the laws of demand to generate food safety from an economic level.

Another way that both farmers and consumers can move toward agricultural system sans-agrochemicals is by eating varied by season, as some plants do not grow in the winter without pesticides. Naturally, this type of shift will require an adaptability of the consumer as well as the producer; customers have grown to rely on the year-round availability of season-specific vegetables while farmers have subsequently grown to rely on this income.

Pesticides are relatively new to Nepal, but since their introduction into the country they have become a large part of the food production landscape. It will certainly take work to move them away from something they have been taught to depend on, and Pemba Sangam Sherpa of the OFH says that the transition to organic practices will surely be difficult in areas where

[83] Shrestha, Roshan. Interview with Alexandra Sarazen. Personal Interview. Patlekhet, Nepal. 8 November 2013.
[84] Menon, Ramesh. *The Slow Poisoning of India*. Documentary. New Delhi Energy and Resources Institute (TERI).
[85] Meyers, Evan. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 25 November 2013.
[86] Sharma, D.R. and H.K. Manandhar, R.B. Thapa, and S.B. Pradhan.
[87] Shrestha, Roshan. Interview with Alexandra Sarazen. Personal Interview. Patlekhet, Nepal. 8 November 2013.
[88] Meyers, Evan. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 25 November 2013.

pesticide usages and chemical fertilizers have been heavily propagated. He comments "chemical fertilizers are as easy as going to the market… the process for paying once for a 'bag of magic' can be much more appealing than caring for cows, goats and chickens for a whole year in order to nourish your crop", alluding to the labor-intensive aspects of agricultural self-reliance as a potential impediment for reestablishing organic traditions.[89]

Roshan of EVON says that in the world of organic pest-management, "prevention is always better than prescription".[90] A shift toward more intensive, less ecologically disruptive farming techniques could prove difficult in the face of complex, corrupt market conventions however sustainability education and the cultivation of self-reliance of Nepal's farms could prove to achieve a multitude of food-safety and economic benefits alike.

To Market, To Market: The Lopsided Consumer Portfolio of Nepal's Organic Produce

"*When we demand organic, we are demanding poison-free food. We are demanding clean air. We are demanding pure, fresh water. We are demanding soil that is free to do its job and seeds that are free of toxins. We are demanding that our children be protected from harm. We must insist on organic…and work to make it the norm. We must make organic the conventional choice and not the exception available only to the rich and educated*."

- Maria Rodale [91]

Walking up to any one of Kathmandu's farmer's markets on the weekends also means walking away from the world that most fernweh[92] victims conjure in their Kathmandu day dreams. Hosted at 1905 restaurant in Kantipath on Saturday and The Yellow House near Patan on Sunday, these events are equally social as product-focused and well known amongst Nepal's substantial expatriate community. It only takes one look at the sea of shoppers at either these weekly locales to understand it is almost entirely comprised of foreigners. Piles of organic vegetables grace the tables of what some consider bourgeois bazaars next to products like Himalayan French Cheese, made-to-order Belgian waffles and gourmet "deli-food".

Sushil Khanal vends his organic vegetables at these locations. When asked about the demographic of people he is nourishing through his organic career he says that foreigners are indeed his most major customers. However, he comments that "within the last year" he has noticed Nepali people are beginning to make up a bigger part of his purchasing demographic. He cites the phenomena of Nepali citizens going abroad as the catalyst of their recognition of the importance of organic. "It's not so easy for people to learn about the dangers of pesticides here in Nepal, but abroad it seems like it's starting to become common knowledge [of the public]".[93]

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[89] Sherpa, Pemba Sangam. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 30 November 2013.

[90] Shrestha, Roshan. Interview with Alexandra Sarazen. Personal Interview. Patlekhet, Nepal. 8 November 2013.

[91] Taken from Maria Rodale's book "Organic Manifesto: How Organic Farming can Heal Our Planet, Feed the World and Keep Us Safe"

[92] 'Fernweh' – a german word; concept of being homesick for a place one has never been.

[93] Khanal, Sushil. Interview by Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 20 November 2013.

Pemba Sangam Sherpa of OFH wants to spread food-safety awareness through grassroots initiatives in urban Nepal. He wants to utilize what he considers modest yet powerful organic institutions to spread awareness among "normal people, not only to diplomats and the rich".[94]

AAA farm also maintains a presence amongst the rows of 1905 and The Yellow House. When prompted on the ideal marketing intentions of AAA, Guarav Khadka says "There is not that much awareness of organic foods among Nepalis, so sadly our target customers are restricted to foreigners".[95] AAA also delivers fresh produce weekly to restaurants like Fire & Ice, Chez-Carolinne or The Yak & Yeti, locales most frequented by expatriates, tourists or wealthy Nepalis. On Wednesday afternoons, AAA vends vegetables out of the cooperative's van in the neighborhood of Bauddhanath behind a Buddhist institution known popularly as "The White Gompa"[96]. Not surprisingly, this Buddhist teaching center is attended by a significant amount of non-native seekers-of-Buddha-truth from places like the United States and Europe and these make up almost all of AAA's Wednesday customers. There seems to be a consensus among many Nepali farmers who are involved in the marketing of organic products that an overwhelming majority of Nepal's organic produce is being delivered to the homes of expatriates, wealthy Nepalis or Nepali citizens married to foreigners and to the doors of restaurants and hotels that the average citizen of Nepal does not have access to.

Education is not only a problem on the level of production when it comes to organic farming but also when it comes to marketing organic products to consumers because of what Guarav Khadka of AAA describes as "a lack of awareness". In Guarav's opinion, the folly of the Nepalese educational system feeds an ignorance of nutrition and agricultural health standards. "It encourages students to only focus on one field of study which they choose while they are still in high school." For example, "a student who has chosen to focus on sociology will not learn anything about science after grade 10. A student trained in science will likewise not learn of sociology". Considering Guarav's own educational background and continued interest in science it is no surprise that he is disapproving of this system. He goes on to say that "Studying the arts is a very common decision amongst Nepali students, but to understand the importance of organic and the dangers of chemical farming you must have a basic understanding of science, and there's the major problem". He thinks "the system of education in this country is too focused", hindering a broad understanding of the world which in turn facilitates a narrow comprehension of everything other than a student's chosen field. This makes it hard for students to attain the knowledge they need to determine "what is appropriate and what they will put up with as citizens". As of now, there are no large-scale, government mandated programs in Nepal to educate consumers about food safety or the potential dangers of chemical farming.

Although there appears to be an overwhelming consensus that the majority of organic produce consumers in Nepal are in fact foreigners there are deviations from this generalization. Ganga Ram Yadav of EVON's organic farming project staff says that "any research on Nepal and organic consumerism will not be complete without a visit to Banepa", a town located in the same district as EVON. Yadav believes "it is the wrong thinking to say that foreigners care more about organic than Nepali [people]". He explains that in Banepa there is a rapidly growing consciousness among locals of the dangers of pesticide consumption. When prompted on what is driving this deviation from what he perceives as the conventional wisdom of foreigners as the

[94] Sherpa, Pemba Sangam. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 30 November 2013.

[95] Khadka, Guarav. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 10 November 2013.

[96] A term coined most obviously due to the monastery's white façade

only organic market, Yadav says that the District Agricultural Development Offices (DADO) of Kavre have recently started implementing education programs through the Banepa school system, showing informative documentaries like "The Slow Poisoning of India"[97] and distributing pamphlets on the dangers of pesticides to students that they then bring home to their families. This serves as proof that the utilization of preexisting systems of social organization like education and agricultural offices could work together to implement large-scale awareness campaigns. The 75 districts of Nepal equates to 75 DADOs, suggesting the potentially massive influence that nationally collaborative efforts could generate.

Organic Certification in Nepal

In many parts of the world, globalization and industrialization of the food sector have created a need for traceability.[98] "Organic certification systems are important when it comes to regaining trust between the producer and the consumer…for them, Green, domestic and civic conventions are as important as market and industrial conventions".[99] Although organic farming is regulated by the law in places like Europe, Nepal as a country lacks any formal governmentally mandated certifying body. European Union (EU) regulations define organic production as "an overall system of farm management and food production that combines best environmental practices, a high level of biodiversity, the preservation of natural resources, the application of high animal welfare standards and a production method in line with the preference of certain consumers for products produced using natural substances and processes"[100]. This same regulation goes on to emphasize the societal role of organic production to satisfy consumer needs as well as facilitate rural development. Organic certification as part of the EU's legal regulations is exemplary of the potential Nepal's government could provide to its farmers with a similar system.

"Organic certification is a procedure by which an independent third party gives a written assurance that a clearly identified process has been methodically assessed…and that products comply with certain standards".[101] Certification is largely needed in places where the producer and consumer are not in direct contact. For instance "In international markets where consumers cannot be easily assured of the quality of a product or its production process because they never see how or where the products are grown or prepared".[102] This is demonstrated in a place like America that relies heavily on imported food and recent cultural fads have put a premium on the market value of a product that has been 'Certified Organic'. In contrast, Meyers of USAID comments that "when it comes to way people are going to markets here [in Nepal]" a personal relationship and first-hand understanding of the way a farmer does his or her job may prove to be

[97] Yadav, Ganga Ram. Interview with Alexandra Sarazen. Personal Interview. Patlekhet, Nepal. 26 November 2013.
[98] Erdelyi, Orsolya. "Sustainability and organic farming in the light of conventions theory; The example of the Hungarian organic sector." Masters Thesis. Stockholm Resilience Centre: Research for Governance of Social-Ecological Systems. Stockholm University. 2010.
[99] Erdelyi, Orsolya.
[100] Erdelyi, Orsolya.
[101] Bhat, Basanta Rana. "Opportunity and Challenge of Organic Certification Systems in Nepal". The Journal of Agriculture and Enviornment Vol: 10. June 2009.
[102] Bhat, Basanta Rana. "Opportunity and Challenge of Organic Certification Systems in Nepal".

more important than a certification from a third party[103]. Aligning with Meyer's sentiment, one can understand that before certification systems for domestic consumers in Nepal become important on a large scale, the real work should be put in to creating a market for organic produce through potentially government mandated food safety awareness campaigns.

One way that national standards of organic farming and reliable certification in Nepal could be beneficial is when it comes to export potential. Judith Chase of EVON is hopeful about the potential of organic nuts like almonds in Nepal. She says that "nuts are high in nutritional value as well as market value and they are easily transportable". She discusses how currently, Nepal is importing nuts from India that are heavily coated in pesticides. Specifically, cashews imported from India are bathed in a highly toxic chemical known as endosulfin.[104] Not only would organic almond growing help to alleviate a dependency on toxic imports from India, but as almonds already maintain a high price of export she believes they would prove to be a good source of income for Nepali farmers especially because with a label like organic, "the value goes up". Further, in the case of almonds that are not considered suitable for market, families would get to eat them, generating a "trickle down" effect of nutritional benefits.[105]

Farmers like Sushil Khanal are undoubtedly committed to entirely organic practices on their land, however Sushil discusses how independent third-party certifications have been largely unattainable to him for financial reasons as international certification programs usually require substantial funds. Without the legitimation of any formal recognition of his adherence to organic standards he considers himself "self-certified", stressing the importance of genuine implementation over a costly certification. Organic certification programs in Nepal could help farmers like Sushil to legitimize their sustainable businesses and potentially alleviate the high costs associated with international certifications as deterrents of official recognition.

Conclusive Statements

"*In the affairs of men, there always appears to be a need for at least two things simultaneously, which on the face of it, seem to be incompatible and to exclude one another. We always need both freedom and order…the freedom of lots and lots of small, autonomous units, and at the same time the orderliness of large-scale, possibly global unity and coordination…when it comes to Action we need these small units, but when it comes to the world of ideas, to principles or to ethics, to the indivisibility of peace and also of ecology, we need to recognize the unity of mankind and base our actions upon this recognition."*

- E.B. Schumacher[106]

On the stigma of agricultural professions in Nepal, Guarav of AAA says that "nobody actually wants to be a farmer here, getting their hands all dirty in soil. The government doesn't put any major incentives out there for farmers other than maybe some agrochemical subsidies…

[103] Meyers, Evan. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 25 November 2013.
[104] Menon, Ramesh. *The Slow Poisoning of India*. Documentary. New Delhi Energy and Resources Institute (TERI).
[105] Cite first oma interview
[106] Schumacher, E. F.; *Small Is Beautiful: Economics As If People Mattered : 25 Years Later...With Commentaries* (1999). Hartley & Marks Publishers ISBN 0-88179-169-5

and everybody wants to get rich quick. Culturally, we all aspire to a white collar job, an office, and the perceived prestige and power that come with it. They [Nepalis] run after it". Similarly, Chase of EVON recalls that even during her childhood in America, teachers used to make comments along the lines of "focus or you'll have to be a farmer". Guarav does admit that "these days, people are turning, we can see a subtle change in people's mentality". Specifically, Guarav says "the youth is forced to go abroad for economic progress in life, then they go to a place like the Qatar, see how awful it is to work for someone else in those conditions, and finally see that it might be better to work on your own land for yourself". He says this demographic is especially turning to farming as they may already have "one foot in" the agricultural world with default ownership of ancestral land. Meyers of USAID says "If the [Nepali] people demand these types of alternatives [to chemical farming], if people can show them how to do it well, and if the most successful farmers are doing these things… it could take off. In 3-4 years we will see a different system".[107]

Foreign influence as a trailblazing agent toward a socially, economically and ecologically sustainable Nepal is undeniable. In an examination of the country's rapidly changing agricultural sector it is evident that much inspiration does indeed come from the expatriate community living in Nepal, Western tourists visiting Nepal, foreign funded NGOs or even Nepalis returning from abroad. Although it can be argued that progress that does not rely on foreign actors is more effective in the long-run than the often blind imposition of development ideas from outside of a country, in the case of Nepal it may be ineffective to demonize international collaboration. Instead, one could applaud enterprises like EVON, HEACOP and dZi for helping Nepal to close the gap between ideal organic farming concepts and their actual implementation. Organizations like these should be celebrated for respecting the autonomy of individual farmers and developing cooperative educational and marketing mechanisms. Through innovative models like these, they are building on the preexisting structures of organic agriculture in Nepal while simultaneously generating an understanding of the market value, nutritional potentials and sustainability of organic agricultural practices.

(Wo)Man must eat. This biological need is not regionally specific. These will remain true for as long as the innovation of science does not surpass the basic building blocks of survival. As human beings we all have the earth in common and there is no planet B; we should absolutely modify our relationship with this Earth that all of our experiential truth has been lived upon, symbiotically existing with our environment and balancing our needs, ways and means to sustain the health of our planet. This can be achieved through the reintegration of the traditionally organic aspects of farming with modern systems of intensification.

In *Economics as if People Mattered*, E.B. Schumacher writes on the duality of the human experience when it comes to the question of size: "there is no single answer. For his [or her] different purposes [wo]man needs many different structures, both small ones and large ones, some exclusive and some comprehensive. Yet people find it most difficult to keep two seemingly opposite necessities of truth in their minds at the same time", wasting time clamoring for a final solution of polarity that will never manifest.[108] Moving forward, developing long-term solutions that address Nepal's food needs within the context of economic and environmental sustainability will require collaboration between larger institutions like the government with the smaller models of Nepal's traditional culture of agriculture. Nepal is a nation on the brink of

[107] Meyers, Evan. Interview with Alexandra Sarazen. Personal Interview. Kathmandu, Nepal. 25 November 2013.

[108] Schumacher, E. F.; *Small Is Beautiful: Economics As If People Mattered : 25 Years Later...With Commentaries* (1999). Hartley & Marks Publishers ISBN 0-88179-169-5

transformation and could prove to be a model of holistic sustainability in the future if initiatives like that of dZi, HEACOP and EVON prove to be successful in the coming years.

Methodologies

My research was initiated during a visit to Everything Organic Nursery in Kavre district. Through a discussion of my research intentions, Judith Chase and Jim Danisch generously gave me access to the contact information of people they believed would be relevant to my studies; this proved to be a gold mine as the pair is so obviously well-connected in the organic agriculture scene of Nepal. I also spent much time at the Kathmandu Farmer's Markets of 1905 and The Yellow House every weekend throughout the Independent Study Period to meet and establish relationships with farmers in Nepal. Essentially, I would introduce myself, make my research intentions transparent and ask if they were willing to talk with me. At the conclusion of often very informal interviews I would ask them if they knew of anyone else that might be interested in meeting with me; from there I established yet another set of influential contacts. This research period was a potent reminder to me that networking skills are invaluable when it comes to conducting resourceful fieldwork. I also found that the most positive fieldwork experiences resulted from the ability to just say "yes" when opportunities presented themselves – without a willingness to be fluid I would not have found myself receiving a certification from one of EVON's organic farming trainings or at the EIJ flagship urban gardening training.

Only on two occasions did I need a translator to conduct my research as most of the people I spoke with were fluent English speakers; either multi-lingual citizens of Nepal or native English speakers. I tried to speak my nowhere-near-proficient Nepali at any chance that I could in an attempt to display a respect for their culture and systems of communication, but a genuine fluency in the language of these incredible people I was trying to learn from would have broadened my networking potentials and enriched the content of my data greatly.

I did not come into this project with any formal experience with agriculture – the closest I have ever been to working on a farm is my mother or grandmother's personal gardens – and I believe I could have done a better job at asking "the right questions" if I had more experience with the scientific aspects of chemical farming vs. organic farming. I feel as though someone with a background in Environmental Studies could have approached this research in a much more conclusive way.

I distinctly remember when my Academic Director, Isabelle Onians, introduced me to the concept of "The Fox and the Hedgehog", juxtaposing the phenomena of research that "surveys" and research that "burrows", respectively. Throughout this Independent Study period I have come to a further awareness of myself as A Fox: I value a comprehensive survey of situations over a focused understanding - I think this is just the way my mind has subconsciously chosen to interpret the world up until this point in my life. Moving forward however I think I will begin to appreciate the relevance of concentrated insight as well; I feel an element of that could have heightened the relevance of me as a "researcher" of this very complex topic.

Suggestions for Future Research

As this Independent Study Project was conducted in the midst of Nepal's 2013 elections it would be interesting in the future to investigate what kinds of agricultural practices are incentivized by the new government moving forward; similarly, will the new government prioritize food safety or implement any large-scale nutrition programs? I spent most of my time interviewing farmers and community organizers directly, but I know it would have been beneficial to meet with more representatives of the agricultural sector of Nepal's government. I did meet with a DADO officer of Kavre district, but that interview was not as fruitful as I had hoped it would be.

Which brings me to another point: Not everything will work out. Whether or not you relish in the beauty of unmet expectations or stagnate in a somber interpretation of disappointment is up to you. I think it's quite obvious which option is more constructive and keeping this in mind will undoubtedly make the duration of the independent study period (and probably life) even more enjoyable.

One could also gain further insight into this topic by seeking out farmers who have long-term, direct experience with synthetic fertilizers or chemical pesticides; are there any farmers in Nepal who are strong advocates of chemical farming? If I were to come back and do this over I would have traveled to the rural regions of the country where projects like that of dZi, USAID, and HEACOP are being implemented to talk with the farmers they involve instead of just the leaders of the organizing body. I suggest that if anyone is to explore a similar topic in the future, (s)he should certainly spend time in Banepa where the awareness programs from Kavre's District Agricultural Development Office are said to be making significant headway when it comes to food safety and nutrition awareness (discussed in the chapter entitled "To Market, To Market: The Lopsided Consumer Portfolio of Nepal's Organic Produce) among a more diverse demographic.

The author, direct center, at the culmination of a November 8-10 2013 organic farming training at Everything Organic Nursery in Pathlekhet, Nepal

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