

# EXPLORING THE ROOTS OF THAILAND'S ECOLOGICAL FOOD NETWORKS

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## Abstract

*Agro-researchers, rural sociologists and environmentalists speak of a food crisis based in safety, security and quality of food. Western born concepts of Alternative Agricultural Food Networks, Community Food Systems, and Community Supported Agriculture respond to this dilemma through the application of environmentally sound farming methods, reduced food processing, and shortened supply chains. These alternative forms of food production present an opportunity to implement more sustainable and healthy sources of food embedded in local ecosystems. Despite global studies which highlight the importance of agro-ecology and local food sources, these ecological food systems fail to challenge conventional food production. These new approaches to agriculture are supported by innovative organizations which strive to improve the lives of farmers and consumers through organic farming, and a greater degree of self-reliance. In Thailand, spiritually-inspired eco-agriculture movements work with small-scale producers to offer an alternative to conventional food systems. This paper investigates how ecological food entities in the Northeast of Thailand empower rural farming communities through holistic approaches rooted in self-sufficiency and spiritual practice.*

KEY WORDS: ALTERNATIVE AGRICULTURE/ EMBED/FOOD SYSTEM/ NETWORKS

## INTRODUCTION

In the 21<sup>st</sup> Century widespread concerns over food safety, food security, and food quality throw doubt on the structure and legitimacy of the agro-industry and associated food supply chain. A growing consensus of experts asserts that the current food crisis stems from a series of technological changes in our food cultivation, production and distribution systems. A drastic shift in our societal treatment of food disembeds human communities from the natural environment, reconfigures farms and degrades the quality of our dietary intake. In response, agro-researchers and civil society organizations in the West advocate the concept of Alternative Agro-food Networks as a mechanism for reconfiguring our food systems. First, this article reviews food systems in indigenous societies to uncover how they sustained themselves through deeply embedded cultural, ecological, and spiritual practices. Second, an overview of industrialized agriculture shows how this scientific worldview altered the structure of the food supply and ultimately human communities. Third, an investigation of current streams of research on Alternative Agro-food Networks (AAFNs) illustrates how ecological food organizations connect with farming communities. This paper concludes with a case study on how several entities in Thailand combine natural agriculture and spirituality to support successful community-based food systems.

## **Indigenous People and the Ecological View**

Mainstream research on ancient civilizations reveals that indigenous people were spiritually, socially and economically interconnected to the natural world. Societies lived according to a code of conduct rooted in nature and espoused through their spiritual practices (Goldsmith 1996). Indigenous religions mythologized the animal kingdom, and the services provided by Mother Earth. Spirituality emerged as a means to comprehend the mystical properties of their environment and live in harmony with Mother Earth. Indigenous belief systems entailed elaborate rituals as they depended on Mother Earth's benevolence for their basic needs (Capra 1996; Goldsmith 1996; Harding 2007, Puntasen 2006). A bountiful harvest required stewardship of the land and improper actions resulted in 'the wrath of gods'.

This intimate relationship with nature, led these communities to cherish and use their resources wisely. Goldsmith (1996) utilizes the term "vernacular" to identify these indigenous societies which demonstrated a high degree of self-organization and expressed a symbiotic relationship with the natural environment. Vernacular communities exhibited both a spiritual and physical dependence upon local ecosystems for the provision of their food and other basic needs.

*"The sustainable use of tropical forests includes not just maintaining timber and conserving biological diversity, but also maintaining the ecological balance and functions of forests, such as soil quality, hydrological cycles, climate and weather, as well as maintaining supplies of other forest products essential to the livelihood of local people"* (Santasombat 1995:18).

Moreover, vernacular societies depended on the sharing of water, food and other products collected from the forest and encircling watersheds. Early farming activities relied upon intricate food webs and local resources to sustain their crops. Conservation of water was an ingrained practice as local water sources for irrigation and drinking water were highly valued and irreplaceable. Traditional lifestyles depended upon the notion of 'the commons' as inputs were limited to the surrounding ecosystem (Hardin 1968; Santasombat 1995; Ramakrishnan 2007).

Furthermore, as vernacular societies lacked modern food storage methods, an abundant harvest or a successful hunt often resulted in communal meals and village feasts. Reciprocity and redistribution of the bounty were a necessity to the vernacular way of life and served as a social safety net, "the system creates a veritable network of mutual obligations which help knit together the members of his society and increase its cohesion and viability" (Polanyi as cited in Goldsmith 1996: 260). Food preparation and feasts served practical functions which strengthened communal bonds and ensured their survival. Stewardship of natural resources and communal responsibilities were integral to the long term success of indigenous societies.

## **Vernacular Farming Systems**

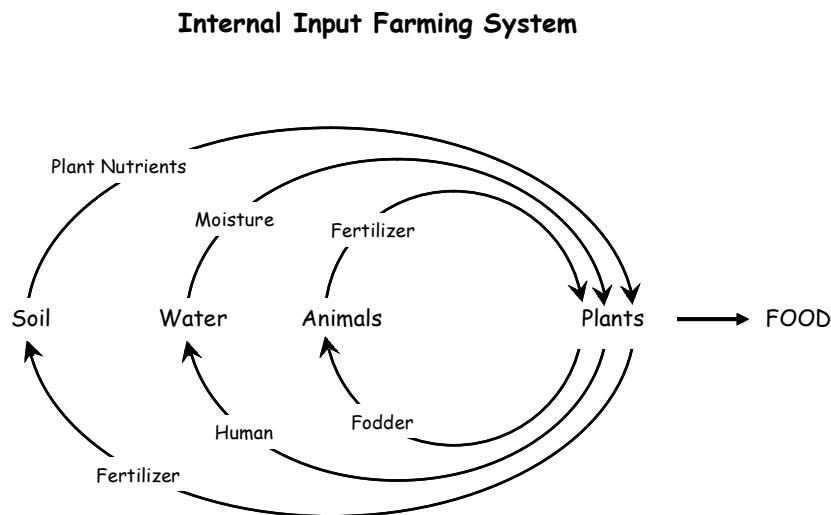
As vernacular societies grew in complexity and size, cultivated crops and domesticated livestock supplanted hunting and gathering. These early societies began to farm small plots of diverse crops in an effort to feed their families. For example, in the mountainous region of Mae Hong Sorn in Northern Thailand, the Sgaw Karen people engage in both formal cultivation and the gathering of

their basic requisites from the forest. The extraction of these goods entails the performance of elaborate rituals to show respect for the spirits.

At present, Karen farmers continue to employ indigenous knowledge to maintain complex multi-crop farming systems and successfully cultivate sugar cane, banana, tapioca, potato and maize in the highland forests of Northern Thailand (Santasombat 2006). The watersheds of the Karen people and other indigenous societies sustain the flow of resources which provide for both their physical and spiritual nourishment. For the Karen people a natural symbiosis with their environment sustains their livelihood. From a scientific perspective their way of life contributes to the flow of elements which support local and global biogeochemical cycles (Harding 2006, Tyler 2004).

In vernacular societies, fertilizers, seeds and beneficial insects form a critical role in a well-managed farm. Shiva (1991) employs the term “internal input farming systems” to describe these self-sufficient farming units which utilize so-called waste products as necessary inputs (see Figure 2.1).

Figure 2.1: Systems Perspective of Indigenous Farming



Source: Shiva 1991

Shiva depicts these indigenous farming systems as subsets of larger natural systems, sustained by the continuous circulation of nutrients. Food cultivation supports this flow and human manipulation aids the transfer of energy through natural systems. The Internal Input Farming System reflects how both products and services replenish themselves when human society works closely with Mother Nature (Shiva 1991; Miller 2005).

### **TRANSFORMATION: AN ECOLOGICAL WORLDVIEW TO A SCIENTIFIC WORLDVIEW**

In the seminal work, *The Way*, Goldsmith (1996) investigates the development path of vernacular societies, investigating the epoch at which mankind lost sight of its place in nature and community. The emergence of the new world order was born out of the scientific discoveries of leading figures

namely, Rene Descartes, Galileo Galilei and Issac Newton in the 16<sup>th</sup> and 17<sup>th</sup> Century (Goldsmith 1996). Cartesian philosophy, in particular, strived to release mankind from the bonds of nature through a new worldview or paradigm based in a separation of mind from matter. In an attempt to prove this theory through physical science, Descartes asserted that the human mind was located in the pineal gland. This new science depicted man and nature as components of a machine, capable of manipulation with the right tools (Sheldrake 1991). Cartesian or mechanistic approaches rejected man's interdependence to nature as espoused in the Eastern religions (Capra 1996). This new worldview dissected myth through empirical analysis, subsequently reducing the ecosystem to a philosophical *deus ex machina*, easily manipulated through science,

This approach has assumed that nature could be thoroughly understood and eventually brought under control by means of the systematic development of scientific knowledge through observation, experiment and rational thought (Bohm 1988:342).

Scientific developments orchestrated great technological innovations which in turn altered the mode of production and the economic system. The factory arose as a by-product of these new technologies and human labor reduced to a mechanical and spiritually bereft process within the realm of industrial development (Marx as cited in Nichols 1980). During the Industrial Revolution, rural dwellers increasingly moved to the cities in search of employment in factories. The demand for factory labor and continuous innovations drastically changed rural agricultural societies. 'Man-made machines' increasingly replaced human labor as a means to intensify production, and reap greater profit from the land (Schumacher 1973). This restructuring of the economy led to radical interventions in food production as agriculture morphed into a subset of the Industrial Revolution. As vernacular farming societies freed themselves from their mystical bonds with Mother Earth, they joined the ranks of a new world order.

### **A Scientific Worldview: The Green Revolution**

In the 1960s, advances in agro-science culminated with the Green Revolution, a technological development program designed to provide global food security through surplus food production (UNDP 1994; Pingali and Raney 2005). Through this strategic approach to farming development experts hoped to avert social upheaval (and a Communist Revolution) in the Global South through high yields and a decrease in land use (Swaminathan 2007). However, some experts remained skeptical about the widespread application of this new agricultural technology, "The Green Revolution was based on the assumption that technology is a superior substitute for nature, and hence a means of producing limitless growth, unconstrained by nature's limits" (Shiva 1991: 24). This assumption contributed to a dogma of intensive and unabated food cultivation which damaged topsoil, depleted groundwater and polluted global fresh water supplies (Miller 2004).

In contrast to the assumptions of Green Revolution proponents, research conducted in Asia shows that the main beneficiaries of these policies were commercial farmers with the capital to purchase manufactured inputs and invest in machinery (Hecht 1983; Shiva 1991; Swaminathan 2007; UNDP 1994). Programs originally designed to improve the lives of marginalized farmers consolidated large landholdings in the hands of the wealthy elite through the promotion of monocropping (UNDP 1994). This new form of agriculture based on manufactured pesticides, fertilizers and scientifically improved seeds degraded the importance of indigenous agricultural

knowledge. More importantly, studies in favor of the Green Revolution largely neglected how these scientific methods affected small-scale farm holdings or rural communities as a whole.

*“The extraordinary acceleration in peasant social stratification associated with the Green Revolution indicated immediately that this was not a scale-neutral technology, but one that could dramatically transform the basis of rural life for large numbers of people”* (UNDP 1994:17).

In an effort to join the formal economy of the 20<sup>th</sup> and 21<sup>st</sup> Century, Southeast Asian rice farmers embraced the strategy of multiple cropping systems through manufactured inputs (Panya 2003). Farmers grew cassava, maize, and other crops to sell outside their localities for cash, rather than revert to barter within their community (Kiatsuphimol 2002). The financial investments necessary for this new form of agriculture, the employment of the “Kway Lhek” (or Iron Buffalo, a Kubota tractor widely used throughout the rural North), and the allure of higher paying jobs in the Thai capital of Bangkok contributed to an ongoing migration of farmers to the cities. Thai farmers and other rural folk of the North and Northeast traveled to Bangkok in search of temporary and permanent forms of employment (Rigg 1997). In addition, many of these migrant workers maintained rice farms in their provinces and only returned home during the harvest season. This rural exodus disembedded Thai farmers from their community and reconfigured the family unit through the diversification of labor. As a consequence of the shift away from self-sufficient agricultural communities to mono-cropping, and employment in the capital, traditional livelihoods deteriorated rapidly (Panya 2003; Rigg 1997; Santasombat 1995).

### **Ecological Food Production Methods - Alternative Agriculture**

Long-term studies reveal that integrated farms which combine vernacular wisdom and appropriate technology are competitive with large scale chemical dependent agro-ventures (Setboonsang and Gilman 1999). Empirical evidence confirms that organic farms offer comparable yields, to that of commercialized farms dependent upon chemical fertilizers and pesticides (Fukuoka 1978; McNeely and Scherr 2003). These burgeoning forms of organic agriculture employ indigenous agricultural knowledge (refer back to Figure 2.1) and the latter concept of “agroecosystems” developed in the 1970s by Miguel Altieri (Hecht 1983). The agroecosystem approach involves stimulating natural pest-predator relationships, nutrient cycles, and creating farm based ecosystems that are more resilient to environmental perturbations. Agroecosystems thrive on farming endeavors which incorporate, “The integrity of processes at the ecosystem level ... the integrity of communities – the assemblage of plants, animals, and microbes that live and interact in a particular habitat” (Baskin 1997:17).

In *Ecoagriculture* (2003), McNeely and Sherr build upon the “agroecosystem” approach, through the addition of economically viable trees, shrubs, grasses and wildlife to strengthen farm ecology and deliver supplemental income. This holistic and ecological farming strategy jointly responds to the structural deficiencies of the agro-industry and the opportunity to build more sustainable food systems. Moreover, *Ecoagriculture* (2003) draws on numerous case studies of small farms raising productivity through strengthened ecosystem functions, mimicking natural systems and modern management practices.

### **The Ecological Paradigm versus Techno-scientific Paradigm**

The previous sections document a series of conflicts which result from techno-scientific approaches to farming and food distribution. Mainstream agro-science and agro-industry continue to propose ‘end of the pipe’ solutions to a growing food crisis. Advocates of the alternative agriculture movement assert that community based food systems create a more sustainable food supply. Table 2.2 captures the contrasting eco-social constructs which emerge from these two vastly differing perspectives of food systems.

Food System	Ecological Paradigm	Techno-scientific Paradigm
Agricultural Development Strategy	indigenous knowledge agro-ecology/polyculture indigenous varieties small family plots	Green Revolution crops/monoculture commodity large-scale farms
Food Economics	communal labor self-sufficiency food barter	farm workers/factory workers global food trade cash crops
Food Production	composting biodiversity/pest management polyculture rain collection local/suitable seeds appropriate technology	fertilizer pesticides herbicides irrigation Genetically Modified Organisms fossil fuel based machinery
Food Provisioning	right to food food sharing fresh markets communal feasts	food aid food stamps/coupons supermarkets restaurants
Food Supply Chains	cottage industry community supported agriculture alternative Agro-food Networks community food systems	factory global transport systems

Table 2.2 Eco-social Constructs of Alternative and Conventional Food Production

### **THE THEORETICAL FRAMEWORK FOR ALTERNATIVE AGRICULTURE**

This section further investigates the meaning, development and conceptualization of Alternative Agro-Food Networks (AAFNs) in the West and the emergence of spiritually-inspired movements in Asia (Essen 2000; Hinrichs 2000; Murdoch 2000; Petcha 2007). In Europe and North America,

AAFNs proffer a collective response to an interrelated environmental and health crisis, which many experts blame on the industrialization of food cultivation and processing (Pollan 2007). Moreover, the growth of processed foods transfers the lion share of profits to the manufacturing industry. Studies reveal that our global food supply chains are dominated by only a few large multinationals, which cover both the sale of agro-chemicals and processed foods. This corporate monopoly drives down the price of commodity crops, influences global food policy and ultimately bankrupts small family owned farms (McMichael 1999; Pollan 2006).

In addition, global agro-industrial networks significantly increase transportation, preservation, packaging, and refrigeration of food products, all of which are harmful to the natural environment. More specifically, the rising costs of petroleum and the impacts of its widespread use in food cultivation, production and transportation raise important questions about the stability of modern food systems. Hence, the negative impacts of this global trade on food safety and food quality are of great concern to civil society (McMichael 1999; Pollan 2006; Winter 2003).

Fortunately, consumer demand for better quality and organic food are starting to drive a transformation of one segment of the food industry (Gussow 2006; Pollan 2006). More recently, progressive companies embrace the organics movement to capitalize on a rapidly expanding market (for affluent consumers). Unfortunately, this new consumer class is eclipsed by poor and uneducated consumers who struggle to survive on cheaper and largely unhealthy processed foods (Pollan 2006; McMichael 1999; McCullum 2005). These deficiencies in our present food systems, point to an opportunity to better serve community needs through an alternative means of production and distribution.

### **Contemporary Food Systems Research**

Local Food Systems, Alternative Food Networks, Community Food Systems, Community Supported Agriculture, Shortened Food Chains and numerous other ecologically grounded initiatives have emerged to confront the challenges of providing fresh and nutritious foods to society (Feagan 2007). These reconfigurations of our food systems are informed by ecological principles and a holistic view of community, food and agriculture. In contrast to the modern conceptualization of food systems, as dependent upon commercial supply chains, local food systems act as nodes, which interlink and support living networks of people to grow food through organic methods (Capra 1996). This reconfiguration of food systems reflects an ecological worldview, one which harnesses the energy of an extended community of organisms (which includes human society).

There is growing recognition that current approaches to modern agricultural and food supply chain theory lack a systemic<sup>1</sup> or ecological perspective (Capra 1996; Goldsmith 1996). In the author's

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<sup>1</sup> The concept of systems was first recognized as a property of biological processes and emerged from Ludwig von Bertalanffy's observations of nature. Bertalanffy was a theoretical biologist and is considered the founder of General Systems Theory (Capra 1996). Utilizing the living system as a model, Bertalanffy saw the benefits of linking various scientific disciplines to improve our understanding of complex biological systems (Morgan 1986). Due to its biological foundations, systems thinking and modeling is widely applied by environmentalists and ecologists seeking to analyze how minute perturbations effect larger ecosystems. Systems theory is more widely known through a catch phrase, "the whole is more than the sum of it parts" (Capra 1996:25).

opinion food systems research elicits an ecological worldview which incorporates social, economic and environmental perspectives of food systems into proposed solutions. From an ecological worldview significant responses to the food crisis call for research which interlinks the health of the ecosystem and human society. Hill (2007) speaks of the importance of food systems that contribute to our “physical, mental and spiritual health”. Feenstra (1997:33) points to deficiencies in mainstream empirical studies, stating that, “Data is particularly lacking on economic and social benefits that local food systems offer to communities.”

### **Actor Network Theory**

An exhaustive review of the literature on local food systems uncovers the widespread application of Actor Network Theory (ANT) by agro-researchers conceptualizing and confronting the challenges of expanding organic food production (Goodman 2004; Hinrichs 2002; Marsden and Sonnino 2005; Selfa et al. 2007; Winter 2003). This stream of agro-research interprets food networks through a comprehensive analysis of the socio-economic and environmental concerns composite in food systems. Agro-researchers employ ANT as a tool to unravel the complex interactions between food systems, their stakeholders and their natural environment (Goodman 2003; Goodman 2005; Murdoch 2000).

Actor Network Theory (ANT) as defined by Law (1992) is a method of analyzing heterogeneous entities such as a government, a family or an information network such as the internet. ANT assists researchers in breaking down a given concept into constituent parts, whereby its components and their interrelationships are more clearly analyzed. For example, a farm is defined in Webster’s Dictionary (1997:491) as “...a piece of land (with houses, barns, etc.) on which crops or animals are raised.” If a farm is broken down into lesser components, a complex representation of itself emerges through an examination of its’ myriad stakeholders: micro-organisms, worms, soil, crops, weeds, livestock, migratory birds, plows, tractors, chemicals, the farmers and the interrelationships between family members, suppliers, and consumers. ANT helps to conceptualize the farm through an elaborate study of its stakeholders (both animate and inanimate) and their interactions.

In ANT based literature, food systems are described as vast networks whereby actors attempt to exercise power, enter into conflict and ultimately influence the direction of a particular unit or network. Although, agro-food researchers provide a comprehensive analysis of these farm-based community networks, an extensive literature review reveals only occasional references to how these alternative networks translate into social, spiritual and intrinsic benefits for human communities (Murdoch 2000; Winter 2003). Murdoch briefly touches upon the importance of nature in a comprehensive discussion of ACT and rural development strategies, stating that, “Clearly more thought is needed on how an appreciation of nature as an active entity, along with a renewed emphasis on local (rural) contingency, can be allied to the analysis of power in food networks” (2000:411).

### **Defensive Localism: ‘Terroir’**

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Penker (2006) who mentions ANT in her research emphasizes spatial considerations in a discussion of the convergence between farmer, and consumer opinion, as exhibited in conjoined protests over the impacts of the global food trade. Penker (2006) further explores divergent ideas about how to protect local and global markets for specialized products with an emphasis on European case studies. The French concept of ‘terroir’ constitutes a branding based in the specific locale and history of a product. The tensions over “terroir” and product origin led to designations such as PDO-Protective Denomination of Origin and PGI-Protected Geographical Designations (Sonnino 2007). The debate over what is Champagne (a sparkling wine from the Champagne region) or Parmigiano Reggiano (hailing from Italy and known as parmesan cheese to Americans) stems from controversy over multiple meanings of embeddedness (Goodman 2004). It is evident from these discussions that ‘terroir’ and other geographical designations of food are confusing and often difficult to prove in a court of law. This blurriness pits communities against each other as they vie for the right to a specific PDO or PGI. Agro-researchers term these conflicts ‘defensive localism’ or a deepening rift between competing locales for the right to a product embedded in place, culture and history (Hinrichs 2002; Feagan 2007).

### **Ecological Embeddedness Theory**

Writings also draw upon embeddedness theory to explain how food supply chains link with human communities and the natural environment (Penker 2006). Ecological embeddedness emerges as another overarching theme in agro-research, providing a thorough discussion of the negative environmental impacts of conventional food production and distribution (Feagan 2007; Hansson and Wackernagel 1999; Millenium Ecosystem Assessment 2005; Penker 2006; Sonnino 2007). Generally, the agro-industry rejects the notion of ecological embeddedness as their success is linked to expansive trading networks, large scale mechanized farms, and petrochemical inputs. Pundits within this field argue for a complete analysis of food systems which encompasses environmental impacts, processing, and distribution within a given bioregion. (Millenium Ecosystem Assessment 2005). More recently, ecological footprint calculations also provide individual consumers with a tool to measure the effects of their daily activities on the environment (Hansson and Wackernagel 1999). Wackernagel (1999:204) states the necessity of developing an intimate relationship with the natural world, “If we were asked to define a prime reason for the widespread ignorance of ecosystem services, our answer would be disembeddedness of society from nature”. More importantly, Wagenagel’s premise of ecological embeddedness, draws on the what the author identifies as an ecological worldview (Goldsmith 1996).

## **ECOLOGICAL FOOD NETWORKS: A THAI RESPONSE TO A GLOBAL CRISIS**

Although, Thailand successfully cultivated rice and other produce prior to the Green Revolution, farmers disregarded local knowledge in favor of the high yields promised by agro-scientists. However, research shows that government funded agriculture extension programs initiated in the 1950s failed to improve the livelihoods of rural farmers and contributed to high levels of debt (Rigg 1997). In response to this farm-based debt crisis, a number of foreign natural farming experts ventured to Thailand to assist small-scale farmers in a transition to low input farms. Collaboration between Thai farmers and foreign experts eventually generated a series of non-profit agro-entities focused on translating Westernized sustainable agriculture approaches to local conditions (Setboonsarng and Gilman 1999). These local organizations promoted agro-

development through a strategy of moderation and self-reliance, infused with a spiritually-driven dogma. The following section surveys the development of these AAFNs within the Thai arena.

### **New Theory Agriculture**

Since the 1950s, His Majesty the King of Thailand (HMK) Bhumidol Adulyadej developed and promoted a combination of organic agriculture, local wisdom, and appropriate technology for the benefit of rural farmers. In the 1970s, this strategic approach evolved into what HMK referred to as New Theory Agriculture (NTA). The program started with the initiation of an experimental farm plot of approximately 9 hectares divided as follows,

*30 percent for digging a pond to store 19,000 cubic metres of water for cultivation in the dry season and to raise fish; 30 percent for rice cultivation sufficient for year round home consumption; 30 percent for other crops and fruit; and 10 percent for housing, animal husbandry and other activities (Sathirathai and Piboolsravut 2004: 48).*

The NTA farm, at a ratio of 30/30/30/10, offers the opportunity to build a largely self-sustaining farm with minor capital investments. This model is not designed as a ‘one-size fits all’ approach and is intended for modification depending on the variables of different landscapes and bioregions. Above all, the intention of NTA is to formulate a resilient farming system immune to the fluctuation of global commodity markets (Baker 2007). The NTA approach involves a three-stage process aimed at developing self-sufficient organic farms, resilient communities and supportive regional networks.

The United Nations Sufficiency Economy<sup>2</sup> and Human Development in Thailand report documents several successful cases of NTA, under the guidance of the Thai Impaeng Network (TIN). The TIN network covers 4 provinces, and approximately 900 villages, “The network’s activities include agriculture, community enterprises, health care, environmental conservation and education” (Baker 2007:58). The UNDP report cites several relevant examples of villagers practicing the first stage of NTA. One standout case illustrates how a Thai farmer, Serm Udomna was able to recover from a cycle of debt and dependence resulting from long-term cassava cultivation by conventional methods. Under the support of TIN, Serm switched from growing cash crops to mixed cultivation. Concurrently, Serm helped to reforest the neighboring hillsides with indigenous trees. When the rich biodiversity returned to the forest, villagers were provided with a source of medicine, timber, and firewood. Moreover, Serm developed alternative and sustainable sources of food production for his family and a surplus to pay off his debts (Baker 2007).

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<sup>2</sup> These efforts to preserve local agricultural wisdom and appropriate technology were later brought under the auspices of the ‘Sufficiency Economy’ (SE) philosophy. HMK created SE to address the socio-economic and environmental impacts of the agro-industry and international trade upon rural farmers. In short, the SE philosophy aims to promote moderation, self-sufficiency and reasonable consumption patterns among Thai farmers and citizens. Furthermore, SE provides a set of guidelines for a more stable form of economic development which is resilient to fluctuations in global financial markets. SE emphasizes development which considers “human, social, economic and environmental” factors. More recently, the Thai government launched the “Sufficiency Economy” philosophy as the framework for the Tenth National Economic and Development Plan (Sathirathai and Piboolsravut 2004).

The second stage of NTA engenders the building of resilient communities through cooperation, sharing and strengthening social safety nets. “The activities usually start from community enterprises or co-op based production, including a rice bank, a cow/buffalo bank, and a biofertilizer production group.” (Sathirathai and Piboolsravut 2004:12). These so-called community-based social welfare units fill deficits in state-funded programs and build self-reliance in rural areas.

The last stage integrates a development strategy whereby established NTA communities reach out to surrounding villages. At this level NTA groups work cooperatively with provincial government offices, agricultural cooperatives and other lending structures. More importantly, NTA farms exchange knowledge and form trading alliances with other villagers in the network.

Mairiang, a village in Nakhon Sri Thammarat, embodies many of the characteristics of the second and third stages of NTA. Previously subject to a fluctuating global rubber market, this community diversified income sources and emphasized self-reliance over profits. A leadership council was established and served as a forum for participatory decision making and community learning. The community recognized the importance of valuing three core assets as a success formula: “people, knowledge and resources” (Sathirathai and Piboolsravut 2004:18). Mairiang linked with other villages as a foundation for trade and economic growth, “This provincial network consists of three-subnetworks of Para-rubber farmers, fruit planters and rice growers” (Sathirathai and Piboolsravut 2004:18). The structures created by Mairiang villagers later functioned as a model for the “Community Development Master Plan” which was adopted by the Thai government at a national level (Sathirathai and Piboolsravut 2004).

### **Santi Asoke Buddhist Reform Movement**

The Santi Asoke Group is widely known throughout the Kingdom for its eco-villages, vegetarian restaurants and its divergent form of Buddhism. Asoke religious practice is said to deviate from mainstream Thai Buddhism, “...rejecting Buddha images, practicing strict morality (including vegetarianism...) and emphasizing everyday work as meditation (Essen 2005: 17). Moreover, Asoke farmers practice natural agriculture in an effort to reduce the suffering of living organisms, as prescribed by Buddhist teachings. Farmers manufacture their own organic fertilizers, and herbal pesticides to sustain the health of the soil. Self-reliance emerges as a critical aspect of Asoke culture, community and well-being, whereby members strive to cultivate their food,

I like agriculture because...we plant vegetables ourselves, eat them ourselves, and use them ourselves. It is economical –we don’t have to buy (food) – as well as safe from polluting substances (Ruen, Asoke farmer quoted in Essen 2005:34)

Asoke communities are based upon a “trilevel development model: building the individual, community and (Thai) society” (Essen 2005:5). Approximately 2000 individuals live within these Asoke communities and there are another 7000 non-resident members (Essen 2005). The Asoke communities span the extent of the Kingdom with members in Bangkok, Phangnga, Nakhon Pathom, Nakhon Sawan, Nakhon Ratchasima, Srisaket, Ubon Ratchathani and Chiangmai.

The influence of the Asoke Group extends far beyond their eco-villages and restaurants, Asoke members cooperate closely with other alternative agriculture movements throughout the country. Furthermore, Asoke communities are open to outside visitors, and offer residential training programs in natural agriculture and self-sufficiency.

### **The Agri-Nature Foundation**

Literature from the Agri-Nature Foundation chronicles a rapidly growing organization which originated from a single project intent on demonstrating the significance of His Majesty the Kings's New Theory Agriculture methods. This innovative organization provides training in organic agriculture and permaculture methods to both farmers and civil society. The Foundation has been highly successful at developing new Centers throughout Thailand through a train-the-trainer program. After passing a rigorous certification process, trainers are encouraged to establish new centers in the surrounding areas. The Foundation is now active in over fifty Thai provinces and recently built up a Center in Cambodia.

The following is a selection of their key objectives:

1. To promote organic food production, without chemicals, for the good of humanity.
2. To support training, research and develop organic technology for agriculture, aquaculture, animal husbandry, medication, energy resources and manage the environment through Eastern wisdom.
3. To support the community to help themselves to live in a symbiotic and sustainable relationship with nature. To follow the King's philosophy of Sufficiency Economy and New Theory principles.
4. To support the farmer, community, business organizations to manage and develop organic production methods to subsidize the elimination of chemicals or toxic substances in agriculture
5. In 2008, the Agri-Nature Foundation extended its training program to civil society throughout the country with support from the Thai government. The Agri-Nature Foundation maintains linkages to Dharma Ruamjai and other organic farming communities through its centers (Agri-Nature Foundation, Center for Natural Agriculture, Mapuang 2007)

The Foundation also produces a wide variety of multi-media products and offers short courses to young students as well. In 2008, the Agri-Nature Foundation was entrusted with a contract from the Ministry of Agriculture (through the Bank of Agriculture and Cooperatives) to train several thousand farmers under a debt-restructuring program. The Foundation largely funds itself through training programs and the sale of natural products.

### **Development through Morality: A Case Study of Wat Suantham**

The Dharma Ruamjai Community at Wat Suantham (translated as Cooperation through Buddhist teachings at the Forest Temple) in Yasothorn Province, Northeastern Thailand, offers a unique model for the expansion of alternative agriculture in Thailand. The community acquired farming skills and other valuable knowledge from alliances with HMK's Sufficiency Economy projects, the Asoke group, and the Agri-Nature Foundation. Moreover, as a result of these associations Dharma

Ruamjai now exhibits many of the characteristics of the third stage of NTA. This atypical Buddhist cooperative specializes in organic food production and training for an extensive network of farmers both within the temple grounds and throughout Yasothorn province via their private radio station.

An overview of temple life was uncovered through the researcher's interviews with Poh Nikom, the Manager of the community radio station, his staff, several monks and the researcher's observations. Poh Nikom also provided several powerpoint presentations which serve to triangulate responses. Wat Suantham gained notoriety through the development of an alternative to recognized organic standards, with the creation of *Kow Khunatham* (roughly translated as ethical or moral rice). Members of this emerging group describe *Kow Khunatham* as a local organic standard which incorporates both spiritual and technical components into the cultivation of a rice product 'free from sin'.

The Dharma Ruamjai Community consists of the following entities: a temple for prayer, the Training Center for Moral Principles and Natural Agriculture, farm lands, private homes, *kutis* or quarters for spiritual practice, a store, communal kitchen, office, library, and a radio station. More importantly, there are a variety of learning centers dedicated to providing training in fertilizer manufacturing, cottage industry, earthen house building and food processing. The Monks and Community residents achieve a high degree of food self-sufficiency through a communal organic vegetable garden, fruit orchard, forest and rice field, all of which are part of the temple property. Dharma Ruamjai Community welcomes all residents and guests to regular meals (vegan only) prepared in the communal kitchen.

Dharma Ruamjai offers a series of specialized trainings throughout the year on what they term 'moral farming practice'. Dharma Ruamjai provides a social safety net, skills development, spiritual guidance and continues to develop a network of empowered farming communities throughout the region.

The following information gathered during a joint interview with Khun Songkran, a farmer/volunteer and Khun Grahehboon a regular staff member of Wat Suantham draws out key aspects of their communal structure. Khun Grahehboon formerly worked with a social service NGO and Khun Songkran, a local farmer, described himself as a past drug abuser, gang member and Bangkok taxi driver. Moreover, Khun Songkran stated that through his relationship with the temple, he achieved a complete mental and physical recovery.

Wat Suantham became an organic farming center in date in 1973. The Abbot of the Temple, Luang Poh started the center, and because of this they call him Luang Poh Thammachart. The temple community is composed of 150 rai (one rai equals hectares) in total. There are 4 regular resident volunteers, 10 monks and 121 organic farmers connected to the Temple. The monks farm 10 rai of land and provide another 10 rai to one family, who in return give half their rice production to the Temple.

The Wat serves as the Center for local wisdom of Yasothorn province and they are registered under the Ministry of Agriculture. They organize training for whoever is interested and they get a support budget from the Bank of Agriculture and Cooperatives and the Ministry of Agriculture.

Kow Khunatham was started in 2006, by Poh Vichit (a resident of Kudchum District), because he knew that people can produce safe rice, but farmers are still in debt, the reason is they are addicted to various *abayamuk* (vices - pali sanskrit). Poh Vichit wanted to introduce organic growers to a Buddhist way of farming. Kow Khunatham currently has 79 members, which are mainly in Yasothon province. Kow Khunatham has set-up a network through Nong Yoh Rice Mill, Non Koh Tung Rice Mill, Nong Phed Community Rice Mill and Wat Suantham Rice Mill. They send their products to the Mall, Siam Paragon, Thai Airways, and some other private companies.

The temple radio station, 91.5 MHz functions as the cornerstone of their community networking activities.

The radio station started in 2002 by and it serves as the center to connect Wat Suantham projects about Dharma and organic farming to local people. The station now reaches five other provinces: Ubon Ratchathani, Sisaket, Amnat Charoen, Roi Et and Mukdahan. They believe that there are at least 10,000 people listening to their radio station and 80 percent are farmers. The station has volunteers who assist with work all year round. Their objective is to deliver radio programs which cover Buddhism, art, culture, way of life, and self-reliant agriculture ventures. The radio station talks more about organic farming on weekends, and often invites local wise men to talk about their experiences.

Poh Nikom also suggested that we visit with Poh Suvit, Chairperson of Wat Suantham and President of the Nong Yoh Rice Mill. A semi-structured interview with Poh Suvit offers an insiders view of the network:

Basically, our knowledge about organic farming was learned mostly from NGOs. The Thai Government has a small amount of available trainers. Organic farming is an independent form of farming whereby participants depend on themselves. NGO have representatives who exchange knowledge with the villagers and point out to them how their production depends on the natural environment, and this is important to their production and way of life. NGOs also train them to work as a network, and to work together. The NGOs can serve as a network to help them to communicate, use technology and access the market (buyers). Finally, NGOs can add value to the products by manufacturing, and helping with marketing.

Khunatham Rice is a second stage objective of Wat Suantham, created through the Buddhist religion, and the Four Noble Truths (*Satjatham Ariyasat 4*-see appendix) and some other teachings which equate with Khunatham Rice. Khunatham rice also equals quality of food, plus the value of farmers' efforts (this was expressed as a mathematic equation). Dharma helps to shape peoples' lives, minds and as a tool to aid good people to live together in harmony, without fighting each other for their own benefit (*Kilesa*-see appendix). Most people do not look at Khunatham as having an application to farm work, because they just want to make more money, with a focus on high production only. But for me, Khunatham is the thing that one can implement in his daily life and it does not have negative effects on others in the community, the environment, and finally visible and invisible matter. Before he joined khunatham he lived in the village, but now he moved out

to live in the rice field. From the beginning, they (him and his wife) felt alone, then they realized that they were living in symbiosis with the environment, as he grows plants and trees for air and also animals, he raises the cow, the cow eat his plants and the cow manure is good for the plants and the soil. When the soil is healthy, it helps to manufacture his products (vegetables, rice, fruit etc.).

Organic farming is beneficial as one can feel that he owns everything. It is a way of learning, of life, and building knowledge. Organic farmers look at things differently from chemical farmers. This is because organics means life and life involves other lives and health. A healthy life means you exercise (as is evident in manual farm work). You know the value of food and you know how all living things can live together.

The aforementioned case study of Wat Suantham and their morality-based rice network illustrates how ecologically sound food production coupled with Buddhist teachings serve to empower farmers and builds a sense of community. New Theory Agriculture, the Santi Asoke Group and the Agri-Nature Foundation support the continued development of ecological food production through capacity building and programs which emphasis self-sufficiency. The work of these organizations exemplifies the importance of reembedding food systems in rural communities through locally-oriented economic, cultural and spiritual practices (Essen 2002; Hinrichs 2000; Murdoch 2000).

## **CONCLUSION**

Despite scientific evidence which unveils how industrialized agriculture damages human health and the natural environment, organic agriculture forms an insignificant portion of world food production. Furthermore, a decrease in the availability of fresh and nutritious food products point to deficiencies in modern food supply chains. New forms of alternative agriculture offer the potential to reconfigure consumer-retail superstructures and improve the self-sufficiency of rural farming communities. Moreover, enlightened leaders, policy makers and researchers need to reconsider how to bring an ecological worldview to the table, as a whole scale shift to community food systems clashes with the aims of big business, conservative politics and techno-scientific research organizations. This paper argues that Thailand's alternative food networks offer a better quality of life for organic grower communities through the provision of chemical-free foods, spiritual fulfillment and greater immunity from the flux in world markets.

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