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Forgotten Foods: The Impact Of Western Development On Eating Habits Among Women In Dehradun, India

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**FORGOTTEN FOODS:
THE IMPACT OF WESTERN DEVELOPMENT ON EATING HABITS
AMONG WOMEN IN DEHRADUN, INDIA**

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PIM 69

A Capstone Paper submitted in partial fulfillment of the requirements for a
Master of Conflict Transformation at
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ABSTRACT

This paper investigates the impact that Western development has had on eating habits among women living in the greater Dehradun area of India over the last century. Research was undertaken while working at *Bija Vidyapeeth*, an organic farm and educational center operated by the Indian-based Non-Governmental Organization, *Navdanya*.

Primary data was collected by interviewing twelve women from four families, spanning three generations and ranging in age from 106 to 20. Two of the four families live in the urban center of Dehradun, while the other two families practice farming outside the city limits. Interviews revealed a generational change in eating habits among families living in the city of Dehradun, while agrarian families were more resistant to broad incorporation of Western influences into their diets and lifestyles. Data was analyzed within the framework of the Basic Human Needs development strategy, and the structural violence that has resulted from the imposition of this development model by Western powers.

Introduction & Personal Interest in Topic

In 1968, a young American man by the name of Robert Wilks stepped on an airplane headed to India. Wilks had been accepted to the new volunteer program the Peace Corps, proposed by President Kennedy in 1960. Stationed in the small town of Pipariya, Wilks would spend the next two years of his life traveling throughout the state of Madhya Pradesh, drilling tube wells in an effort to increase India's agricultural output.

After his two years of service, Wilks returned to the United States, got married, and started a family. I was his second daughter, born in 1978. My father attempted to keep up his Hindi by becoming a board member of the Lansing India Cultural Society, and I spent my childhood attending events hosted by this organization. Though my ancestors were from Europe, I grew up looking forward to each year's celebration of Diwali and savoring the subtle flavors of cardamom and curry leaves that made their way into my mother's cooking experiments. Many of the ingredients that found their way into my mother's dishes were grown in our backyard garden, where I spent many hours as a child hunting for tomato worms and sprinkling cayenne pepper on our crops in an effort to manage pests.

The influences of both my parents led me to develop an interest in food at an early age, learning to distinguish the spices used in *baba ghanoush* from those used in *aloo gobi* by high school. Though cooking was mostly a hobby, as I grew older I began to think about how the tomatoes stopped growing in our garden by early September, yet I could enjoy them in a restaurant salad in late January. I didn't know anyone in Michigan who grew the rice that was a staple of most of my meals – where was it coming from, and who was growing it for me?

These questions encouraged me to begin an ongoing investigation into the U.S. food system, which then led to an investigation into the world food system. I began reading about the major technological changes that were implemented in select countries after World War II, and the green revolution that brought High-Yielding Varieties (HYVs) of rice to then-called Third World countries by the U.S. with the intent of increasing their self-sufficiency in food production. My interest turned to places like Mexico and the Philippines, where early experiments in HYVs were carried out – yet my research also seemed to be taking me closer to home, as I learned of the deals made by the U.S. and India in the 1960s to escalate food production. As a result of these deals, HYVs of rice and new technologies were introduced in India, including tube wells – the very ones that my father drilled while serving in the Peace Corps. This realization urged me to embark on an inquiry into the impact that Western development has had in India, particularly on the food and eating habits that I consider to be such a central part of Indian culture.

Background & Contextual Information

In the 1930s, Sir Alfred Howard, now known as the “father of modern sustainable farming”, toured Asia to assess its agricultural practices. Upon his return to England, he wrote the following analysis: “What is happening today in the small fields of India and China took place many centuries ago. The agricultural practices of the orient have passed the supreme test, they are almost as permanent as those of the primeval forest, of the prairie, or of the ocean” (Shiva, 2001, p. 25). Indian agriculture developed over thousands of years and maintained crop productivity over this time by working with nature to develop a biodiverse system that took natural processes and patterns into account. The variety of crops that were planted together allowed a corresponding, intricate cuisine to evolve, which included an *mélange* of spices, legumes and vegetables that fed both the soil and the people who produced the food.

In the 1600s, the British capitalized on the paradise they found in Indian soil, where everything from cotton to opium to spices, to tea and sugar flourished. The production of these crops for export to Britain required a shift in agricultural practices, and the large plantations created for monoculture production of cash crops, i.e., crops grown specifically for profit instead of consumption by their producers, were the first steps in the demise of India’s fertile soil. After nearly two centuries of this monoculture system, plus the added impact of the global economic depression caused by World War II, India found itself with a looming food crisis when independence was achieved in 1947 (Shiva, 2001).

As the newly sovereign India was planning to restore soil fertility and increase food security with the natural methods used prior to British colonization, a parallel plan

for increasing Indian food production was being developed by U.S. institutions and government agencies (Ibid.). When India suffered a severe drought in 1966 and grain imports were requested from the U.S., President Johnson made a deal to send food aid in exchange for an agreement, signed by the Indian agriculture minister, to adopt new agricultural technologies developed in the U.S. (Doel & Harper, 2004). These technologies, which included HYVs of staple crops like wheat and rice, as well as the intensive use of artificial fertilizers and pesticides, are now collectively known as the *green revolution*. Today, technology has advanced to a level beyond HYVs, which crossed different strains of the same crop (e.g., wheat type A crossed with wheat type B). This new movement, which crosses two species that would not naturally cross-pollinate or reproduce in nature, is known in the scientific community as the *gene revolution* (Steinbrecher, 1996).

In India, since 1966, once productive farmlands have become abandoned due to over-use of herbicides and pesticides; HYVs demanding more water have disrupted traditional irrigation systems in exchange for large-scale dam projects; farmer debt has increased due to higher input costs required by transgenic crop species; thousands of native seed varieties have become extinct or survive only in seed banks; and hunger pangs are still a daily occurrence for millions of Indians (Shiva, 2001).

The purpose of this research is to investigate:

- the impact that Western development models, which stress the use of biotechnology, have had on the variety and types of foods eaten;
- the manner in which food is produced and sourced to Indian families;
- the nutritional value of the foods that Indians consume;
- and the cultural practices surrounding food consumption in India.

Research Questions

My investigation into the history of agriculture and food in India brought me to study on an organic farm, *Bija Vidyapeeth*, which was started by the non-profit organization *Navdanya* in 1994. Working and studying outside of Dehradun in the state of Uttarakhand, my time with *Navdanya* led me to a central question:

How has Western development impacted the diet and food culture in Dehradun, India?

Specific developments of this main question were:

- What has been the direct impact of Western development specifically on women, who are the primary caretakers of families in Dehradun?
- What are the consequences of this impact, for women, their families and their environment?

These questions inspired me to deepen my research on farming and food in India, both through extensive reading and through a series of interviews conducted with women living in and around the city of Dehradun.

Literature Review

I studied and worked at *Navdanya* from September 2010 - January 2011. The organization was started by Indian physicist and ecologist, Vandana Shiva, and much of my literature review was conducted while living at *Navdanya*. As a result, my sources are heavily influenced by resources available at *Navdanya* and written by Dr. Shiva.

What conjuncture gave birth to the Green Revolution?

According to Ivan Illich, “The idea of development entered western political discourse” during Harry Truman’s inaugural address in 1949:

Truman sounded altogether credible when he advocated the need to intervene in foreign nations with ‘industrial progress’ in order ‘to raise the standard of living’ in the ‘underdeveloped areas’ (1977, p. 6).

Erik Thorbecke’s chronological documentation of development trends also begins with Truman. Like Illich, Thorbecke uses World War II to mark the commencement of economic and social development efforts of the third world, as well as the “beginning of serious interest among scholars and policymakers in studying and understanding better the development process as a basis for designing appropriate development policies and strategies” (2005, p. 1).

Initially, Thorbecke points out that industrialization was seen as the “engine of growth” that would “pull the rest of the economy along behind it” (Ibid., p. 7). As a result, development funds and projects were concentrated in urban areas that “would offer alternative employment opportunities to the agricultural population, would provide a growing demand for foodstuffs and raw materials, and would begin to

supply industrial inputs to agriculture” (Ibid.). The focus was intentionally on urban development; the purpose was to keep food prices low, so factory workers in the cities could eat, and farmers would remain poor and be lured into the cities to provide labor (Thorbecke).

After World War II and India’s independence in 1947, India was a major focus of American foreign policy, as stated by Robert Komer, U.S. deputy assistant to the president for national security affairs: “If India falls apart we are the losers. If India goes Communist, it will be a disaster comparable only to the loss of China. Even if India reverts to pro-Soviet neutralism, our policy in Asia will be compromised” (Ahlberg, 2008, p. 107). Ahlberg observes that the American desire to prevent India from gravitating towards communism “reflected both a long- standing American apprehension and U.S. assumption that India and China were in competition as models of development, and that Indian success would demonstrate that democracy, development, and U.S. policy were compatible” (Ibid.).

To demonstrate this compatibility, U.S. Public Law 480 was signed in 1954 by President Eisenhower. Ahlberg deeply examines PL-480 and looks critically at the link between the development trends that Thorbecke documents and their links with American foreign policy agendas. According to Ahlberg, the Public Law 480, “known as Food for Peace, served as the backbone for a permanent American food aid program, as it legally permitted the United States to use agricultural commodities as a form of foreign assistance” (Ibid., p. 6). Raj Patel concludes that PL-480 was a “cunning and powerful foreign policy tool” (2007, p. 123). He explains, “Any US-aligned government that found itself battling worker-led organizing or, indeed, any plausibly left-wing political opposition could gain access to the US strategic grain reserve” and, like India,

“Those countries abutted by socialist ones were bumped to the front of the queue”
(Ibid.).

By 1956, food aid accounted for over half of U.S. economic aid. This strategic use of food was purposeful, as strategized by Earl Butz, Secretary of State for Agriculture under Nixon and Ford:

“Hungry men listen only to those who have a piece of bread. Food is a tool. It is a weapon in the US negotiating kit” (In: Patel, 2007, p. 91).

Overall, by the 1960s, development started to take a turn as it became apparent that urban industrialization was not alleviating poverty in the Third World (Thorbecke, 2005). As a result,

by the late sixties agriculture was assigned a much more active role in the development process. The provision of a greater level of public resources to that sector – combined with less discriminatory price policies – were expected to result in a growth of output and productivity which would facilitate a net transfer back to the rest of the economy” (Ibid., p. 13).

It was in this climate that the green revolution was developed, and the U.S.’s ongoing interest in India made the subcontinent the perfect testing ground for newly developed agricultural technology.

How did the Green Revolution beget a Gene Revolution?

Vandana Shiva has written extensively on what happened to Indian agriculture after independence in 1947, in her book *The Violence of the Green Revolution*. According to Shiva, India’s first minister of agriculture, KM Munshi, began working on a plan to regenerate Indian agriculture that took into account India’s diverse climates, crops and soil types (2001). Simultaneously, however, Shiva points out that “another vision of

agricultural development was taking shape in American foundations and aid agencies” (Ibid., p. 29). Shiva describes the vision as

based not on cooperation with nature, but on its conquest. It was based not on the intensification of nature’s processes, but on the intensification of credit and purchased inputs like chemical fertilizers and pesticides. It was based not on self-reliance, but on dependence. It was based not on diversity but uniformity (Ibid.).

To implement this vision, the U.S. began providing travel grants to Indian leaders in 1956 so they could attend American agricultural institutes working on the development of HYVs of rice and wheat (Ibid.). The mass distribution of these HYVs and accompanying agricultural inputs like chemical fertilizers and irrigation systems would later become known as the Green Revolution.

The opportunity to begin implementing new technologies on a large scale happened in the mid-1960s. India had been receiving food aid from the U.S. since 1954 when PL-480 was signed; but, in 1966, a famine in India caused the U.S. to begin transferring the responsibility of food production to India. Shiva explains the impetus for this shift:

The occurrence of drought in 1966 caused a severe drop in food production in India, and an unprecedented increase in food grain supply from the US. Food dependency was used to set new policy conditions on India. The US president, Lyndon Johnson, put wheat supplies on a short tether. He refused to commit food aid beyond one month in advance until an agreement to adopt the Green Revolution package was signed between Indian agriculture minister, CS Subramaniam, and US Secretary of agriculture, Orville Freeman (Ibid., p. 32).

Raj Patel, an outspoken critic of the Green Revolution and its policies, explains that the agreement signed by India and other nations “shifted the dependency of countries in the Global South away from food itself to a growing dependence on the agricultural technologies, such as fertilizer, necessary to grow enough to keep a lid on

politicized hunger” (2007, p. 92). Used in the right combination and under the right circumstances, the HYV “miracle” seeds undoubtedly increased farmers’ yields, sometimes as much as five times. The problem, says Patel, is that the perfect combination of circumstances was “almost never right” and Green Revolution technologies had a heavy environmental impact:

The seed required irrigation, leading to competition for water, which has resulted in groundwater levels dropping at over a foot a year in some areas. Irrigation led to increased salt deposits in the soil, rendering increasing areas of land unusable. Green Revolution monocultures also expunged indigenous biodiversity. The range of crops, developed over millennia to fit the ecological profile of Punjab, not only provided nutrients unavailable in wheat but also provided ecological harbour for non-Green Revolution varieties of wheat (Ibid., p. 124-5).

Fowler and Mooney confirm that, “the new seeds were not ‘neutral’”, exploring the economic stratification that resulted from the Green Revolution: “Fertilizer and irrigation nourished weeds as well as crops, creating the need for herbicides. And pests found the uniformity of new varieties appetizing, which necessitated the use of insecticides as well. Farmers lacking access to capital to buy these items were simply left in the dust” (1990, p. 58). Yet, HYVs were planted at an astonishing rate – by 1976, Fowler and Mooney estimate that the new, miracle varieties comprised 44% of all land in wheat and 27% of the land in rice in the Third World (Ibid, p. 60):

The green revolution answered the problem of hunger and rural unrest with increased production, not with land reform or employment projects; essentially it offered a technological solution to a social and political problem (Ibid., p. 59).

The technologies developed in the 1950s to create HYVs have not stopped advancing. While HYVs were developed by crossing different varieties of the same plant species, now genes can be transferred across species, in order to create genetically

modified organisms (GMOs). This genetic engineering results in “previously unheard-of combinations of traits across species” that can be created “to achieve pre-specified objectives” (Butz & Wu, 2004, p. xviii). In 1994, the first genetically-modified tomato hit the market and, since then, numerous other crops have been developed. Several of these crops have been developed specifically for cultivation in India, such as the *Bacillus thuringiensis* (Bt) *brinjal* (eggplant). Indian activists have fought hard to prevent the introduction of such GMOs to Indian soil and succeeded in some cases, but this is an ongoing battle.

Are Basic Human Needs Universal?

In 1943, psychologist Abraham Maslow identified a hierarchy of Basic Human Needs (BHN). Maslow argued that humans must to fulfill foundational physiological needs like food, water and shelter before progressing to the obtainment of psychological needs like safety, love, self-esteem and personal fulfillment (Marker, 2003). Maslow’s hierarchy has since served as a reference for others exploring the idea of *basic needs*, many of who argue that Maslow’s model is too ethnocentric, and that needs must be met simultaneously instead of sequentially.

Building on Maslow, Paul Sites (1973) identified eight essential needs, including “primary needs for consistency of response, stimulation, security and recognition, and derivative needs for justice, meaning, rationality, and control” (Rubenstein, p. 1). John Burton, in turn, built on Sites, adapting BHN to conflict theory; he believed that the “needs most salient to an understanding of destructive social conflicts were those for identity, recognition, security and personal development (Ibid., p. 2).

Echoing one of the needs recognized by Sites, Mary E. Clark expanded on the BHN theory in her book *Ariadne's Thread*, emphasizing the human need for *meaning*:

What comprises true 'meaning'? Surely it requires something beyond mere hedonism or sheer power; it requires participating in a shared social vision... The sense of participating in a grand social experiment, even at great personal cost, meets one of the deepest needs of the human soul, one of personal transcendence that neither absolute 'freedom' nor untrammelled 'consumption' can fulfill. There is a need to belong to and live for a great social idea, an idea so majestic that it lends meaning to the most ordinary life. The pervasive alienation among affluent Western peoples is an indication of how little individualism and materialism satisfy this most important of all human needs (1989, p. 328).

Synthesizing all the BHN theories of his time, Johan Galtung critically pointed out the challenges of identifying common needs among diverse peoples, who themselves may be unclear of their own needs: "it is well known that we may want, wish, desire, demand something that is not really needed in the sense of being necessary. Necessary for what? For the person to be a human person, and this is, of course, where the difficulties start" (1978, p. 5). Galtung also identified the difference between *needs* and *satisfiers*, saying that the satisfiers "may vary even more than the needs" (Ibid.).

Beyond conflict theorists, BHN concepts were also adopted by development strategists. By the 1970s, it was clear that economic growth as measured solely by the GNP was not a successful development strategy; the focus instead turned to rural development and attempting to meet the basic needs of those living in extreme poverty, including food, shelter, clothing, water, and sanitation (Thorbecke, 2005). Within the development arena, BHN meant a focus on two objectives: 1) adequate access to food, shelter and clothing; and 2) access to "essential services" provided by the community, like drinking water, sanitation and health facilities (Ibid., p. 18).

The BHN adopted by development strategists did not take into account the psychological needs addressed by Clark, Burton and Galtung. In addition, Galtung's point that BHN *satisfiers* vary from person to person has been largely overlooked by development strategists – and is thus a major shortcoming of the strategic appropriation of the theory. My own research revealed that BHN satisfiers are culturally dependent and thus non-universal: the need to satisfy hunger may be met by wheat or sorghum for one person, but *must* be satisfied by rice for another.

Vandana Shiva expands on these views, taking a systemic approach to BHN theory. She recognizes that humans cannot meet their needs if the needs of the earth are not met, because nature ultimately produces all human needs satisfiers. To exploit environmental resources at will and increase food production at any price in an effort to meet the needs of a growing population does not imply that more people are satisfied; nor does it mean that the earth is more able to support this increasing production:

It does not mean that you have more food per acre; it does not mean that you have more food per unit of water; it does not mean that you have more food for all the species that need food, because our earthworms need the food, our cows need the food, because our earthworms need the food, our cows and cattle that give us organic manure and renewable energies need the food. All of these diverse needs are getting erased as we define productivity on the basis of how much labour we can displace from the land, in the fastest way (Ibid., p. 7-8).

Maude Barlow, Canadian activist and co-founder of the *Blue Planet Project*, concurs that human needs cannot be met without meeting the needs of other species. She calls for a collective mindshift among Western leaders and citizens:

The mindshift is that we are a species like any other, and that we will not survive unless we place our rights in tandem with the rights of the earth and we understand that we come from the earth and everything we have, everything we wear, everything we eat, everything we touch comes from the earth and if we don't change our minds, if we don't change the way that we

see the world, if we don't stop thinking of ourselves as superior... we're not going to survive (Barlow, 2011).

Thus, the focus on basic *human* needs fails to recognize the needs of other species, which supply human needs satisfiers. This shortsightedness, in sum, has caused basic human needs to increase while satisfiers decrease.

What structures "starve" Basic Human Needs?

In conflict studies, a distinction is made between personal and structural violence. Structural violence can be defined as "Situations where unfair access to political, economic, and other kinds of resources and power is sustained or exacerbated because of one's involuntary membership in certain socio-economic, ethnic, racial, religious, and/or other groups – in other words, because of repressive structures (Arai, 2010).

The distinction between personal and structural violence is attributed to Galtung, who points out that "personal violence *shows*" [emphasis added] and, thus, "it is not strange that attention has been focused more on personal than structural violence" (1969, p. 173). Structural violence "is silent, it does not show – it is essentially static, it is the tranquil waters (Ibid.):

In a *static* society, personal violence will be registered, whereas structural violence may be seen as about as natural as the air around us" (Ibid.).

The changes in agricultural policy that took place in India, starting in the 1960s, created a centralized, top-down system bent on modernization, which subsidized the use of chemical fertilizers and pesticides, as well as HYVs developed in American laboratories. Using the above definitions from Galtung, one may consider that this

government-led campaign of subsidies rejected what were deemed 'primitive' and 'outdated' farming techniques and created a system of *structural violence* that disempowered farmers – generating a shift in cultural norms related to agriculture.

This 'modern' system has become progressively more repressive, as public institutions and suppliers of agricultural inputs have been replaced by privately owned industries and foreign companies – which have sought increased control and profits from Indian agriculture.

Dr. Shiva would see a literal dimension in this structural violence, identifying the industrialization of agriculture with violence against the earth, and with feeding humans at the price of literally starving the environment:

Now, usually this is happening underground and we are not seeing the violence we are doing to all the beings (...) No one has ever calculated how much less food the organisms are getting, how much less food the earthworm is getting, how much less food the cows are getting, how much less food the birds are getting (*Annadana*, p. 8).

In fact we are now working out very smart technologies, based on genetic engineering, which accelerate the logic of war on other beings (*Ibid.*).

Should we all get 40g of protein a day?

According to Thomas Friedman, globalization is "the interweaving of markets, technology, information systems, and telecommunications networks in a way that is shrinking the world from a size medium to a size small" (2009). With its economic impact, the modern globalization phenomenon has allowed American multinationals to enter foreign markets, and with their entry, has promoted a standardization of lifestyles, exactly as Mohandas Gandhi feared, when considering the melding of cultures in the modern world:

I do not want my house to be walled in on all sides and my windows to be stuffed. I want the cultures of all lands to be blown about my house as freely as possible. But I refuse to be blown off my feet by any. I refuse to live in other people's houses as an interloper, a beggar or a slave (Gandhi, 1921, p.170).

Western food culture is one example of globalization that has been received in many of the world's urban centers, greatly changing diets. According to Jalees and Shiva (2009), dietary transition consists of a number of interlinked shifts: change in the methods of food production, processing, storage and distribution; a shift in diet towards high-fat, refined carbohydrates and low fiber; and consolidation of agricultural and food companies into large transnational corporations.

These shifts have impacted diet as well as health, and India now has the largest number of diabetics in the world – and almost half of the adolescents in India are now obese (Ibid., p. 66). Urban areas have bared the brunt of these illnesses, which are increasing at a rapid rate. Dr. Anoop Mishra states that

Overweight and obesity among children in Delhi has increased from 16 percent in 2002 to 24 percent in 2007. Now one in every three students in private schools in Delhi, aged between 14 and 18 years is either overweight or obese (Ibid.).

While obesity increases in urban areas, malnutrition continues in rural areas:

The balance whereby the ecology of the human body renders itself sustainable has, over time, degraded. (...) Even as rural India struggles unsuccessfully to shrug off an older legacy of undernourishment, urban India – firmly in the lap of a globalised diet consisting of fats and sugar – tries to come to terms with over nourishment and the ill-health that too much of bad food has begun to lead to. Where are all the extra calories coming from? From the Americanisation of food habits... Crops grown in big farms and processed en masse lose much of their nutrient value. (...) Home-cooked *paranthas* in north India or *idlis* in south India – used to be made from whole grains, ground by hand. Now households use factory-made 'refined' flour from which grain husks have been discarded, along with nutrients like fiber and minerals (...) Processing reduces the nutritive value of food – forcing us to eat more calories without getting a corresponding dose of different nutrients (Ibid.).

This loss of nutrition is exemplified by the fact that “a person would have to eat 10 tomatoes in 1991 to obtain the same copper that one tomato would have yielded in 1940, and 3 oranges to get the same iron as 50 years ago” (Ibid., p. 67).

While in Dehradun, I asked Dr. Shiva what globalization looks like in India and how Basic Human Needs have affected development in her country. She replied:

Well, first it meant you reduce the diversity of food to just rice and wheat through the Green Revolution and now with globalization, you introduce the highly processed stuff, the GMO stuff, with the idea that, you know, let them eat stuff, it doesn't matter what it is. And what it has meant is farmer suicides, malnutrition on a scale the world has not known, and it's all happened in the last 15 years...obesity, diabetes for the poor and the rich, both (*personal communication*, December 23, 2010).

I also asked Dr. Shiva about the “loss of taste” that the younger generations are experiencing, and she replied that this is part of what she calls “the colonization of food,” where “you turn industrial food as the more evolved thing” (Ibid.). She explained that, “you look down, not just on local, but particularly on the rich grains” (Ibid.). Shiva asserted that traditional foods in India must be kept in production, and we must

bring it back through keeping them in use, through keeping them in production, and through celebrating it through food festivals. So the inferiority that has gotten associated with it...you know, they don't like the taste, well, we love the taste, and you used to love the taste, so taste is a cultural issue, you know? (Ibid.)

The loss of traditional foods that Shiva speaks of is noticeable upon arrival in her hometown of Dehradun. Driving down the main boulevard, the influence of centuries of Western intrusion is clear in the form of fast-food restaurants: one easily finds McDonald's, KFC, and Pizza Hut situated alongside generations-old, family-owned

local businesses. The presence of these foreign-owned multinational corporations constantly reminded me of my guiding questions and fueled my research design.

Research Design

My research included qualitative research methods to hear first-hand experiences from Indian women in the state of Uttarakhand, and learn how individuals have been impacted by the changes in agricultural techniques since the 1960s. The primary data collection method was interviewing, and a semi-structured interview process was used: I had an interview guide consisting of ten questions, with room for pursuing other topics as they arose. This allowed for interviewees to elaborate as needed, while still keeping consistency across interviews through common key questions.

Interviewee Selection Process

In Dehradun, India, women are the primary caretakers and prepare the majority of meals for their families. Because of this, I chose to focus my research on women only, as they would be most knowledgeable about food purchasing and preparation. Aiming to understand how the changes in eating habits have occurred across time, I chose to interview multiple members of the same family. For each of the four families I interviewed, I spoke with three generations of women.

Thus, all interviewees had to be members of families with three living generations of women, the youngest of which could not be younger than 18 years old. Originally, I wanted to interview a young woman, her mother and her grandmother, but my interpreter, who also acted as my cultural guide, informed me that most young women live with their husband's family after marriage. Therefore, in-laws and nieces were considered as the third generation, as long as they lived together with

representatives of the other two generations. Individuals who did not fit these criteria were not considered during the selection process.

During my time in India, I was based at an organic farm in a rural area outside of Dehradun. I observed noticeable differences in eating habits between people I encountered in my rural community and people living in the city of Dehradun; therefore, I decided to interview two rural families and two urban families to collect data that could be compared – and see where the impact of Western development has been more profound.

To select interviewees, I spoke with *Navdanya* staff members living in the surrounding community, and asked them to announce my research project. The interviewee criteria proved to be very limiting, and finding families with three generations of women was a challenge. Despite these limitations, I was able to find two rural families and two urban families to interview, totaling four families and twelve individual interviews. Interviewees ranged in age from 20 to 106 years old.

Each set of interviews was conducted at the family's home, with the three interviews occurring in succession. An attempt was made to separate each subject during an interview, so answers would not be influenced by other family members and each woman could speak freely... but this was difficult. The families were welcoming me into their home as a guest, and suggesting that we conduct private interviews came off as quite rude on my first attempt. As a result, most interviews were conducted with at least one other interviewee present for all or part of the interview.

Data Collection Methods

Eleven of the twelve interviews were conducted in Hindi. I worked with a local translator to interpret questions and responses, and met with her before the interviews began to go over my prepared questions and ask for her input, both for content and cultural sensitivity. I also worked with my translator to prepare a consent form that she read to each participant before the interview commenced, so every interviewee had a clear understanding of the research purpose and knew that the interview would be audio recorded on my laptop computer.

Data Analysis Methods

Each individual interview was 15-30 minutes in length, and was later transcribed and coded for overarching themes, to be discussed in the *Presentation and Analysis of Findings* section of this work. Data was analyzed both across location (rural vs. urban), and across generations. The intention was to understand how Western development has affected families based on livelihood, and how its effects have played out across time. Through coding of the interview answers, patterns and disparities across these divisions were identified.

Limitations

It is important to note that this study did not use randomized sampling, and all interviewees were contacted through some connection to *Navdanya*, which is an organization that promotes organic farming techniques. *Navdanya* has a strong position about food sourcing and eating habits in India, which could have influenced the interviewees' responses, especially if they wanted to appear favorably in the presence of

a *Navdanya* intern from the West. The sample size for this research is small, and will restrict any conclusions that can be drawn from the collected data through inductive reasoning. Nevertheless, the collected data seems to reinforce the Westernization trends discussed within the literature review – a finding we will analyze later in this work.

With these factors in mind, my purpose is not to generalize conclusions, but to study the experiences and identities of individual women, who are often forgotten behind numbers and statistics. I believe that restoring identity could be possible through remembering the forgotten foods, knowledge and practices that have been displaced through the influence of Western development and modernization.

Discussion of Findings

Interviews were conducted with 12 individuals, ranging in age from 20 to 106 years old and born between 1904-1990. Research questions were developed using Western development and Basic Human Needs theory as a framework to approach my main research question, as well as sub-questions specifically about women and the environment. Data in this section is presented by looking at themes across generations in each family, and by looking for themes among rural vs urban dwellers. All participants gave consent to use their real names, and are identified as such.

Brief Culinary Vocabulary

Dhal: a common Indian dish made with lentils.

Maggi: a brand of packaged instant noodles available in various flavors.

Roti: bread, esp. a flat round bread cooked on a griddle.

Chapatti: a thin pancake of unleavened whole-grain bread cooked on a griddle

Ghee: clarified butter made from cow or buffalo milk, used in Indian cooking.

Family Profiles

For this section, each individual is placed into one of three categories: Grandmothers (aged 75-106); Mothers (aged 38-50); and Daughters (aged 20-26). Each family is profiled, and data is analyzed across each generation.

Family 1: Devi Family

The Devi family practices organic farming about 1 hour outside the city of Dehradun. Three generations were interviewed: Santi Devi, 106; her daughter-in-law, Sri Naro Devi, 50; and Sri Naro Devi's daughter-in-law, Reena Kotiyal, 26. They were interviewed just outside their house on December 20, 2010. All interviews were conducted in Hindi, with the help of an interpreter.

Santi Devi, 106 years old, has been an organic farmer her whole life. A typical meal for her includes dhal, rice and curry made with fresh curd – if she “eats only dhal or only rice, it is not called food.” She has “completely denied” Western food. When she was young, her family was totally dependant on farming. Even if they did have to purchase food from the market, one could be sure that it was organic, but now she says “you cannot be sure” if the food coming from the market is organic or not. Her family grows what they can on their land, but now their tube well doesn’t give sufficient water to produce enough to feed the whole family.

Santi Devi’s daughter-in-law, Sri Naro Devi, attributes her mother-in-law’s old age to eating a purely organic diet. She says:

it is very difficult for our generation to live 80, 90 years... This is all dependant on our diet. They [the older generation] eat a totally organic diet, but we don’t eat that much organic. We do organic farming, but it is not sure that we are eating organic food. So it is very different now, it is very different from that time [when her mother-in-law was young].

Growing up, Sri Naro Devi used to eat *chapatti* made from maize and barley, but the younger generations don’t like the taste, so she doesn’t prepare them anymore. When she was young, markets and transportation were not very developed, so one grew everything oneself. If one had to go to the market, there was little variety, but now everything the family grows in their fields can also be purchased from the market. Because transportation is more developed, one can even purchase goods from outside the region.

Sri Naro Devi’s family never knew what a tractor was when she was young, but now many people use tractors. She prefers organic farming to using the chemicals like urea that have been introduced throughout her lifetime; because of these chemicals,

when she has to purchase something from the market, she doesn't know anymore if it's organic or not. This has affected the taste of food – when she was young, she would eat *roti* and just add a little salt, but now “it doesn't have that taste.” When asked why, she responds: “because the seed is not totally organic.” If she purchases from the market, the food is tasteless, but if she grows everything on her farm it tastes better. Despite the tastelessness of food, Sri Naro Devi thinks development is good because, when she was young, “women didn't come out from the house, but nowadays women come out and they're doing work.”

Reena Kotiyal came to live with the Devi family three years ago, when she married Sri Naro Devi's son, Rajesh. She is 26 now and her mother-in-law decides what she and the rest of the family will eat each day. Reena doesn't like the maize *chapattis* that her mother-in-law sometimes prepares, but is happy eating their typical daily meal of rice, *dhal*, vegetables and, occasionally, *chapattis*. When she was young, her family was totally dependant on their fields, but “nowadays it is not compulsory that you are totally dependant. If you have money, you can purchase from the market.” As a child, she always ate seasonally, but now in the winter “if you want to eat a summer food or a summer vegetable, you can, because everything is stored.” She believes that organic farming is better than non-organic, since “nowadays, when children are too young, they get different types of diseases due to chemical farming.” Aside from an increase in illness among children, Reena has also noticed a difference in the quality of seeds. Now, “the seed is not that healthy.” Yet, when she was young, “the seeds were too healthy and good.” If the seeds are not healthy, it affects the yield. Her family saves seeds and doesn't purchase them from the market. She thinks development is good, and says that now her children will go to school and there are hospitals they can go to

as well. Reena enjoys the traditional Indian diet and says that if she doesn't eat rice and *dhal*, then "I didn't take a meal."

Family 2: Baegam Family

The Baegam family lives about 20 minutes from the Devi family by foot. They are a farming family and purchase some seeds and fertilizers from the market with the intention of increasing yields. Three generations were interviewed: Manire, 80; Manire's daughter-in-law, Sanjita Baegam, 50; and Sanjita's daughter-in-law, Mashrufa, 25. They were interviewed just outside their home on December 23, 2010. All interviews were conducted in Hindi, with the help of an interpreter.

Manire was married at age 10, when she came to live at the farm where she currently resides. Her family's typical midday meal includes maize *chapatti*, *ghee* and milk, all of which they produce on their land. They purchase spices and oil from the market, but most other ingredients they grow themselves. She grew up farming and, when she was young, they "didn't use any type of chemical in their field"; nevertheless, now some "chemicals" were introduced, which they use in their fields. When she was doing organic farming, "the yield was not that much," but nowadays "the yield is so much, but the taste is not... like it's gone away." The taste seems to depend on where the seed is from: if she sows seed from her own field, the seed and the taste are good, but if she buys the same thing from the market, the taste is not good.

Manire's family follows a "traditional" diet. When she was young, she didn't know anything about packaged foods. Now that she has tried food from a package, she still prefers homemade food – she doesn't like the taste of packaged food. Her family is not influenced by advertisements, but she knows people who are: "if they don't know

what's in the package, but if the advertisement's going very fast or it's very exciting, everyone wants to purchase that thing." She doesn't eat packaged food and isn't concerned by whether the food she eats is organic or non-organic. Conscious of the fact that her family uses chemical fertilizers, she said: "we're in the habit of eating that type of food, so it doesn't matter how it's grown." She admits she has some gastric problems, which are aggravated when she eats rice and *roti*, and adds: "because we're doing chemical farming, maybe it causes a gastric problem."

New agricultural technologies have been introduced throughout Manire's lifetime, and her family has taken advantage of some of them in order to increase yields. The seeds she buys from the market have increased yields, but "the energy is not that much in the food" these seeds produce. "Nutrition has decreased but yield has increased."

Sanjita Baegam came to live with Manire when she was 15. When speaking of her mother-in-law, she says that although Manire is decades older,

I have lots more problems than her. She ate organic food, like, that's why she has a lot of energy but I didn't eat the proper organic food, so I have so many types of, like, back pain and body pain... and so many problems.

Sanjita is in charge of the household now and purchases from the market only what they cannot grow on their farm. She notices a difference in taste when they purchase from the market: "the vegetable that we sow from the field, it is tasteful, but when we bought the same type of vegetable from the market, it is tasteless." When asked why, she explains: "the vegetable is not a fresh one. What we brought from the market, they are not fresh ones. They are one or two months old. That's why all the vitamins and proteins... they went away." When she was young, she didn't know about packaged food, but now there is a variety of these foods in the market. She also

mentions that, when traveling by train, one could never find restaurants and had to cook for oneself to bring it on the train, while now one finds a restaurant at every stop.

Sanjita knows that organically grown food is healthy because of its taste; at the same time, she has tried planting new varieties of wheat that require chemical fertilizers. She mentions three specific ones: R20, R21 and R308, explaining that, “so far, the R308 has the best taste and gives more straw, so it is beneficial”, since they can use its straw for their cattle. At the same time, R21 has a greater yield, which is more important to her: “it doesn’t matter how the taste is, the yield is most important.” She adds that they are “totally dependant on their fields.”

Sanjita’s daughter-in-law is Mashrufa, who has lived with the family for 10 years. At this point, she is dependant on Sanjita, who decides what to prepare for the daily meals. Growing up, she didn’t know any other vegetables besides those her family grew in their fields, but now she knows more vegetables because of the market. Packaged foods were introduced when she was a child, but she doesn’t like them. Like her mother-in-law, she can taste the difference between organic and non-organic food and, based on her comparisons, she believes organic food is healthier. She has problems with her teeth and they are often painful, but she does not attribute this to any particular food.

Family 3: Bhatt Family

The Bhatt family lives on the edge of Dehradun’s city limits. Three generations were interviewed: Subodni Devi, 75; Manju Bhatt, 38; and Shikha Bhatt, 20. They were interviewed inside their house, on January 3, 2011. All interviews were conducted in Hindi, with the help of an interpreter.

Subodni Devi lives in Dehradun, but grew up on a farm in Garhwal, another region in Uttarakhand state. She notes a significant difference in taste between the food she gets in Garhwal and the food she purchases from Dehradun markets. She finds food from the market to be “tasteless,” but “for survival we must eat as we do here.” Valuing the physical work needed to grow one’s own food, she says “it’s very healthy and it tastes good.” Purchasing food from the market removes her from the process and knowledge of how food is produced, as she admits that: “I don’t know what the shopkeepers are doing to produce those kinds of vegetables”; regarding food from the market, “we can’t be sure that the thing is pure, we can’t say if it’s full of vitamins or not.” In Garhwal, her family doesn’t purchase any food except for salt and sugar, whereas in Dehradun they are “totally dependant on the market”. Though living in an urban area, Subodni Devi sees a connection among humans, food and the Earth:

In our culture, we have 3 mothers: The Earth, The Cow, and our [biological] Mother. We call Earth ‘our mother’ because Earth gives us a lot of things, like food – everything. And the cow, we call her ‘our mother’ because she gives us waste for compost and fertilizer. And our [biological] Mother looks after us.

While Subodni Devi doesn’t have any health problems herself, she has noticed “lots of problems around India.” Recently, she has heard about babies with appendix problems – a very new issue, according to her – as well as people with gastric illnesses. She attributes these health problems to food.

Manju Bhatt was also born in Garhwal and has lived with Subodni Devi for 15 years. She prepares food for her family based on what is protein-rich, and also tries to please her children, who like “junk food.” Manju admits she also eats junk food such as *Maggi* noodles, and quickly adds that it’s not all the time, just when she wants to “change her taste.” When she was young, she didn’t know anything about *Maggi* or

McDonald's, but when she moved to Dehradun she learned about these brands. She recognizes that organic food is healthy because “we find a lot of vitamins, protein in it... it is full of nutrition” and she can detect a difference in taste between organic and non-organic food.

Manju feels there are a lot of international influences in India, and when a new thing is introduced, her “children like that thing more.” They don’t like what she cooks, such as rice, *chapatti* and *roti*; “they like the junk food” because they prefer its taste. When asked if *Maggi* can be considered food, she says “No... in junk food, the children can’t find the proper nutrition” and they do not develop mentally or physically.

Shikha Bhatt is Manju’s 20-year-old niece. Shikha eats curd with the family when it is prepared for her, but sometimes she eats *Maggi* for lunch. When with her family, she has to eat *dhal*, rice and *chapatti*, but otherwise, when alone, she “likes to eat *Maggi*, toast, butter and things like that.” If she doesn’t want to cook, she eats at a restaurant. She feels different influences affect her decisions, “sometimes from advertisements and sometimes I ask from my friends what to buy.” When questioned if she has noticed any change in the food available for purchase throughout her life, she replies that there’s some flavor changes in *Maggi* soup, and doesn’t know if there is any difference between organic and non-organic food. Her food decisions are based on taste, and she doesn’t know of any health problems in her family related to food.

Family 4: Kapur Family

The Kapur family lives in the city of Dehradun, next to one of its main markets. Three generations were interviewed: Ram Prakash Kapur, 85; Raman Kapur, 47; and Sima Kapur, 25. They were interviewed inside their house on January 5, 2011. Ram Prakash Kapur and Raman Kapur were interviewed in Hindi, with the help of an interpreter, and Sima Kapur was interviewed in English.

Ram Prakash Kapur was born in what is now Pakistan, before the 1947 partition. Before moving to Rajasthan state at age 18, her family grew all the food they needed, especially wheat and vegetables. They worked hard and did not have any modern technology such as the washing machines and blenders they have in Dehradun – everything was done by hand. They never used chemicals to “keep pests away”, and used cow and buffalo dung as organic pesticide and fertilizer: “that was the only way.” She knows chemicals have been introduced in farming now, which she thinks are bad, but she doesn’t know anything about them since she no longer lives on a farm. There were no tractors and they only used bullock carts to do the work.

Ram Prakash thinks people fall sick more now because “they don’t work much.” “Everyone’s falling sick these days”, she says and adds that only recently she started hearing the word ‘cancer.’ “People never fell sick earlier, but now they’re falling sick because of those chemicals.” She herself “feels more sick” and attributes this feeling to the food she eats.

Ram Prakash doesn’t eat packaged food, though she knows about it. She refers to the new “fat” eggplants and watermelons as “injected,” although she does not detect much difference in taste. The biggest thing that affects a food’s taste, she explains, is how it is cooked: when she was young, they cooked in mud ovens. Now, food is cooked on gas or in a microwave, which changes the taste. Food was always cooked

fresh and eaten immediately after it was cooked; nothing was ever saved and eaten the next day, which she refers to as “stale” food.

When she first arrived in Dehradun, the area was very different: “there were so many farms, so much greenery, and now there’s not even a place to [grow] your food, because of development and because of so many residential properties coming up, and factories.” Now food has become expensive and it does not come from Dehradun – she guesses maybe from Delhi or another city. Ram Prakash does not know of any place where she can purchase organic food in Dehradun.

Raman Kapur has lived in Dehradun with Ram Prakash Kapur for 26 years, though she was born in Kashmir. When she was four, her family moved to Uttarkashi, where her parents still live. She thinks Uttarkashi food is “more fresh, organic and [has] less chemicals – they don’t use chemicals.” Because vegetables are harvested and eaten immediately, she finds “food is fresh there and the taste is also good there. It’s very tasty. Here, most of the foods you can’t differentiate.”

She eats a staple diet of *dhal*, *chapatti* and rice, and also curd and salad. Since she is in charge cooking for all 12 members of the family, she purchases food based on what other family members like. She also considers what’s most nutritional and seasonal – in the winter, more leafy green vegetables – and prepares easily digestible foods like bottle gourd for older family members. Raman notes there are foods she enjoys but her children do not, such as mustard greens and certain types of *dhal*. She used to eat the same foods as her mother and grandmother, but now she and her children have changed their diet, because “they don’t like to eat vegetables.” Nonetheless, there is more variety and more “fancy” vegetables available in the market than when she was a

child, but she can't really make out if they are organic or not until she taste them: "When you eat it, you can taste the difference", she concludes.

When she goes back to Uttarkashi, Raman observes lots of new water pumps and facilities, which were not there when she was a child; they used to fill buckets with water and bring them to their farm. Nowadays, everyone has water taps in their homes. According to Raman, this is "development". Earlier, the "vegetables used to grow on their own, but now they put chemicals and then they just... grow overnight." According to her, these growing techniques are "wrong", yet "they have to serve people food and, for that, they have to grow vegetables like that." She thinks quality of food is important, but "they don't know how to feed so many people"; therefore, maybe, she considers, "they should grow all the same food on large farms", i.e., monocultures.

Raman's daughter, Sima, is not married yet and still lives at home. Sima usually eats at home or goes out to eat – and doesn't cook. She can tell if food is fresh or not by the taste, and though her typical meal consists of vegetables and *chapatti*, sometimes she also eats *Maggi* and pizza. She doesn't eat at the *Kentucky Fried Chicken* in Dehradun, because she is vegetarian and there are no options for her there, but she does eat at *McDonald's* and *Pizza Hut* occasionally. Though she is only 25, she thinks food tastes different now than when she was a child:

When I was a child, I think we used to get more fresh food that was available in the market; now we get... you know... those 'injected' vegetables and bottle gourd... There's a huge bottle gourd you get. In summer we get watermelons, and, sometimes, when you go to eat those watermelons, you taste something very bad, like the petrol that is used... It tastes like that. The injected vegetables, they are not good for us, they are not healthy for us; when you get to eat them, they're not good for your body; you catch so many diseases, so they're not good for us.

Sima thinks that eating these “injected” vegetables can cause illnesses, such as stomach infections, food poisoning and “other digestive problems” – but she doesn’t personally know of anyone with these maladies. She’s conscious of international influences in India and says: “you know Indian people; sometimes even I get influenced by the foreigners and how fast their life is moving... and how big they are, so sometimes you get influenced by the taste, maybe by the food they eat.” Sometimes she leaves the city and visits her grandmother in Uttarkashi, yet she does not know how to grow her own food.

Notable Generational Themes

In this section, findings are grouped and analyzed by generation. Four themes arise: *Food Sourcing, Taste, Health and Commitment to Traditional Diet.*

Grandmothers

FOOD SOURCING: Of the four individuals interviewed in this generation, two live on farms approximately one hour outside of Dehradun, and two in the city – although all four individuals were born on farms and raised on organically-grown food. All of them still prefer organic food, with the sole exception of Manire, who uses chemical fertilizers and store-bought seeds, sacrificing taste for a yield big enough to continue supporting her family on the limited land they have. The other three grandmothers either still practice organic farming or (for those living in Dehradun) have relatives who do. Subodni Devi and Ram Prakash Kapur now purchase food from the market now, but Subodni Devi expresses suspicion by saying “We can’t really be sure that the thing is pure.”

TASTE: For two of the grandmothers, there is a noticeable difference between food that is grown and picked in the field to be eaten immediately and food that is purchased in the market. Subodni Devi refers to market vegetables as “tasteless”, and Manire observes that if she grows a vegetable in her field and buys that same kind of vegetable at the market, the one from her field tastes better. Ram Prakash Kapur calls some of the purchased vegetables “fat” and used the word “injected” to refer to the large new watermelons and eggplants. Even though she doesn’t notice much difference in taste related to sourcing, Ram Prakash points out that food never used to be saved

and eaten a second day, calling it “stale” when reheated. Avoiding re-heating is a principle of *Ayurvedic* cooking – an ancient medical-culinary science practiced in India.

HEALTH: Regarding health, Santi Devi’s family is convinced that the grandmother’s age is a testament to the benefits of eating fresh, organic food. Subodni Devi and Ram Prakash Kapur both relate the increase in digestive and appendix illnesses to non-organic food, and Ram Prakash says that, when she was young, the word “cancer” was not part of her vocabulary. Manire states that the new farming techniques have increased yields, although the increases have happened at the cost of nutrition, which she believes has decreased in the food she grows and eats.

COMMITMENT TO TRADITIONAL DIET: None of the four grandmothers eats packaged or Western food, and none had ever seen packaged food as children. Santi Devi has “completely denied” packaged food as “food”, and though Manire has tried packaged food, she “prefers homemade food.”

Mothers

FOOD SOURCING: Like the grandmothers, all four of the mothers were born in rural areas and cultivated their own food when growing up. Sri Naro Devi and Sanjita Baegam still plant almost everything they need, but they go to the market if they consider it necessary. Raman Kapur prepares food for a family of 12 based on the traditional diet, but she is also influenced by her children’s tastes. Having grown up on a farm, Raman is aware of what vegetables are in season at certain times of the year, and tries to buy accordingly.

TASTE: All four of the mothers notice a difference in taste between food from the market and food from farms such as the ones they grew in. Sri Naro Devi no longer eats plain *roti* with just salt because it doesn't have the same taste, attributing this to the fact that the seed is not totally organic anymore. Even though her family practices organic farming techniques and saves their seeds to plant the following season, this statement suggests that she is aware that not all of her neighbors practice organic farming, and her crops can cross-pollinate with theirs. Though the mothers appreciate the greater variety available at local markets, they realize that the increased selection means that the food has traveled far and been stored longer, not always tasting good as a result. Sanjita Baegam says that vegetables from the market are not fresh: after being stored for even a month or two, the vitamins and proteins have gone away. Like her mother-in-law, Sanjita is aware that the new wheat seeds they buy don't have the same taste as the wheat her family grew as a child, but the increased yield is more important to them, since they depend on their fields. Manju Bhatt can tell by the taste that organic food "is full of nutrition" and Raman Kapur notices that, when she goes to Uttarkashi, the farm fresh food is more tasteful than what she purchases from the market in Dehradun: in the latter case she is not able to differentiate the taste between various vegetables. Like Sanjita, Raman measures that taste could be a necessary sacrifice to feed "so many people" in India.

HEALTH: The rural women, Sanjita and Sri Naro, see the greatest connection between food and health among the mothers. Sri Naro doesn't believe she will live to be as old as her mother-in-law, because she doesn't eat a completely organic diet, and Sanjita admits that she has more health problems than her mother-in-law, even though she is younger. She thinks this is because she doesn't "eat the proper organic food."

Manju and Raman Kapur don't know of any health problems in their family related to food, though Manju considers that organic food is "full of nutrition."

COMMITMENT TO TRADITIONAL DIET: Three of the four mothers noticed a difference in the tastes of their children. Santi Devi no longer prepares maize and barley *chapatti* because the younger members of her family won't eat them, and Manju Bhatt is sometimes swayed by her children, who like "junk food." Manju also eats junk food sometimes, when she wants to "change her taste"; yet, she realizes that it doesn't contain "proper nutrition." Raman Kapur has also changed some of the foods she prepares due to her children, who "don't like to eat vegetables."

Daughters

FOOD SOURCING: Shikha Bhatt and Sima Kapur are the only two of the 12 interviewees who were born and raised in an urban area; they are totally dependent on the market and restaurants for food. Reena Kotiyal and Mashrufa, on the other hand, grow most of their own food, but recognize there are other options. As Reena points out, "nowadays it is not compulsory that you are totally dependant" on your fields.

TASTE: Three of the four daughters can distinguish organic from non-organic food, based on taste. Reena has noticed a decrease in seed quality from when she was a child. Sima Kapur, like her grandmother, refers to food from the market as "injected" and even thinks she can detect the "taste of petrol" used in industrial farming. Shikha does not notice any difference between organic and non-organically grown food.

HEALTH: The same three daughters attribute certain health problems to food. Reena has noticed that young children now get "different types of diseases" due to

“chemical farming”, and Mashrufa thinks that organic food is healthier because of the taste – she is only 25, but has painful problems with her teeth. Sima believes that eating “injected vegetables” can cause stomach infections and other digestive problems; Shikha is unaware of any health ailments related to food.

COMMITMENT TO TRADITIONAL DIET: Regarding packaged food and Western influences, there is a marked difference between the daughters in rural and urban areas. Reena and Mashrufa have tried packaged foods but prefer the traditional Dehradun diet, while Shikha and Sima both enjoy *Maggi* noodles and eating out. When eating alone, Shikha prefers to eat instant foods such as *Maggi* and toast, and “has to” eat *dhal*, rice and *chapatti* when with her family. Sima enjoys vegetables and *chapatti*, but sometimes eats *Maggi* noodles and pizza for lunch; as long as there are vegetarian options, she will eat at fast-food restaurants.

Conclusions

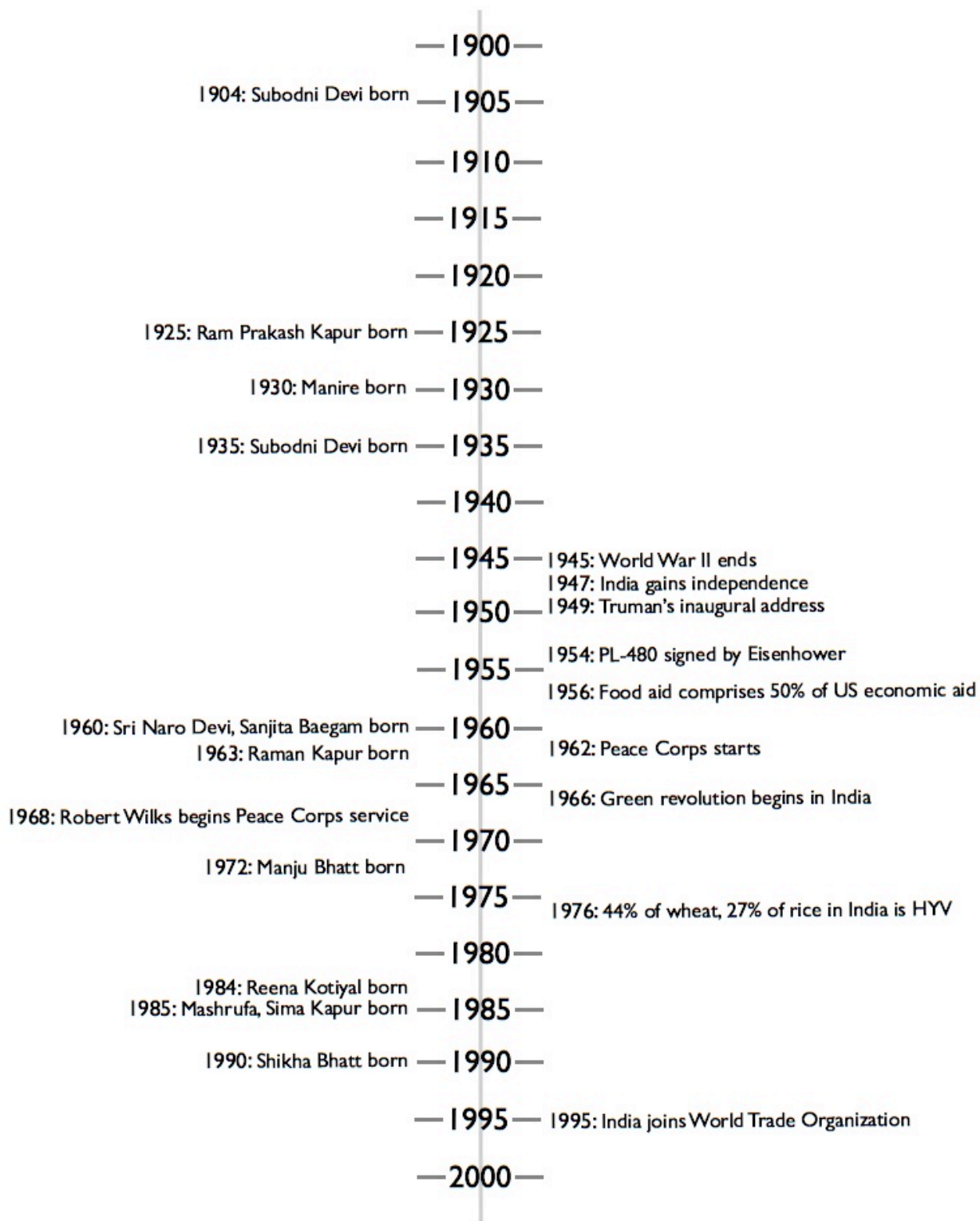
Galtung's observation that BHN satisfiers "may vary even more than the needs" (1978, p. 5) is exemplified by the varied responses collected from my interviewees: for example, we cannot simply say that *chapattis* are a need, as Santi Devi prefers *chapatti* made from maize and barley, while her daughter-in-law will only eat ones made from wheat. Though the twelve women represent a small research sample, they reveal Western development influences, especially in Dehradun's urban area. With the sample size of this project, it is not possible to attribute changes to a single specific factor, yet if we compare the interviewee's responses to a timeline of development (see *Table 1*), we can see a possible correlation between these responses and development trends.

The greatest differences in eating habits relatable to development are revealed between: grandmothers and daughters in urban areas; and rural and urban daughters.

Comparing urban grandmothers and daughters, in the Bhatt family, there is a striking difference between the eating habits of Subodni and Shikha: Shikha, the daughter, would eat pre-made foods like *Maggi* and toast for most meals if she could, being only two generations removed from Subodni, who thinks of the "three mothers" during her daily meals. Manju, the mother of this family, acts as the link between these two generations. Having grown up on a farm, she tries to feed her family nutritional food, but also is influenced by her children's urban tastes and the conveniences that city life offers, such as packaged food and restaurants.

Exemplifying the differences already noted between rural and urban daughters, Sima Kapur doesn't know how to grow food or how to cook well, while her rural counterparts are nearly self-sufficient in food production and will one day replace their mothers-in-law as primary food-suppliers for their families. The urban daughters are

Table 1: Dehradun Women and India in the Twentieth Century



comfortable eating Western and packaged food, while the two rural daughters would only eat fresh home cooked food from their farms, if it were possible.

Though diet among the daughter generation has changed less in rural areas than urban, the enticement to “modernize” is still apparent in the availability of GMO seeds and chemical pesticides to farmers. As a result, interviews with this generation suggest that a loss of knowledge is occurring: the urban daughters are losing their commitment to a traditional diet and the culinary knowledge that accompanies it, while rural daughters are losing the knowledge of traditional farming techniques. Since extended families live together, the mother generation may pass this already vanishing knowledge on to their grandchildren, but it is possible that beyond these youth, the knowledge will be lost – along with the desire to preserve it. Is this information being lost innocently, as a side effect of a natural evolution? Or is it being systematically erased in favor of profitable methods that rely on corporations to develop and market foods, which feed pockets as well as people?

Shiva only considers the latter as a serious possibility, and asserts that the taste preferences of the urban daughters are examples of the “Americanization” or “colonization” of food (2009). Based on the four families interviewed, this “Americanization” is stronger in the city of Dehradun than in the rural farming communities, where the daughter generation prefers the same diet as the grandmothers. Shiva also believes that this Americanization process is responsible for increased health problems that many interviewees cited. None of the mothers or daughters seems to expect they will live to be as old as their grandmothers, partly because of the lack of organic food in their diets. The increased variety of market vegetables mentioned by interviewees seems to have been traded for decreased

nutrition levels – which they also have noticed and which are supported by Shiva’s comparison of copper and iron levels in vegetables from 1940 to 1990.

The losses of taste and nutrition can be traced to the loss of traditional farming techniques. The Baegam family embodies this change by implementing chemical fertilizers, taking advantage of these technologies to increase yields and consciously sacrificing taste. Sanjita’s list of GMO seeds grown by her family, including R21 and R308, illustrate that the new gene revolution has reached the greater Dehradun area. Since GMO’s have also been associated with increased water use, it is worth noticing that Santi Devi’s family tries to grow enough food to feed everyone, but their tube well doesn’t provide enough water. Based only on my interview results, this cannot be directly linked to thirsty HYVs, but the correlation could lead to a further investigation into the decreasing water table levels in the area.

Beyond revealing the influence of technologies introduced during the Green Revolution, these responses bring into question the purpose of increased yields: why should one be concerned with a greater harvest, if the nutritional value is lower and taste is lost? Are these sacrifices that must be made to feed a growing population? Are we willing to make these same sacrifices in the West, where many of the new technologies are being developed?

Shiva believes that new agricultural technologies are

only brilliant to the extent that we do not see the web of life. You can only see the inter-connections to the extent that you are sensitive to them, to the extent that you are aware of them (*Annadana*, p. 8).

There is no doubt that India has a rapidly growing population, and feeding all its citizens is a challenge that puzzles scientists around the world. As solutions are

pursued, more questions arise: as appropriate agricultural strategies are developed and implemented, should yield be the only consideration? Can we disregard Basic *Earth* Needs in order to satisfy the Basic *Human* Need for food? Does it matter if women in Dehradun forget that the Earth and the Cow are also their mothers? If our quest to meet the basic physiological needs of a growing population is not supplemented by a concerted effort to nourish other species, we are only creating more work for ourselves; if we do not nourish people and ecosystems simultaneously, we are destroying resources that fulfill our basic needs, while our growing population creates a greater demand for those satisfiers.

Shiva believes

every one of us is born, as we say, in *ma*. We are born in *ma* or in debt to other beings: our very condition of being born depends on this debt (...). The gift of food, *annadana*, is merely a recognition of the need for constantly paying back that obligation, that responsibility; it is merely a matter of accepting and endeavouring to repay our debts to Creation, and to the communities of which we are a part, that we have incurred not by doing good in our lives but by just arriving in this world. It is merely being humanly responsible (*Annadana*, p. 9).

In a way, my father was repaying a debt that he felt he owed by joining the Peace Corps: as the U.S. war against Vietnam raged on, he chose not to fight and instead volunteered in India. Forty years later, I feel that my own actions are an attempt to pay back some of the debts incurred by my father's generation, and I wonder what burdens my own children will carry. As I have found, a great deal can happen over the course of three generations: we cannot equally forget the foods that fed our past and remember the future world we have to feed.

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