R.E.S.O.U.R.C.E.

Reclaiming Everyone's Soil: Opportunity to Understand Relational Cycles of Ecology

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Only connect!
That was the whole of her sermon.
Only connect the prose and the passion,
and both will be exalted,
and human love will be seen at its height.
Live in fragments no longer.
Only connect…

~E.M. Forster

I hear the ancient footsteps
like the motion of the sea
I am hanging in the balance
Of the reality of man
Like every sparrow falling
like every grain of sand

-Bob Dylan

The environmental crisis is also our spiritual catharsis.
In healing the earth, we heal ourselves.
– **Kenny Ausubel, *Restoring the Earth***

Inquisitive Person: "What do you think of Western civilization?"
Gandhi: "It would be a good idea."

There is only one war -- the war against the imagination.
-Diane DiPrima

R.E.S.O.U.R.C.E.: Through the Seven Chakras (Wheels)

Section I: Rooting Down

Acknowledgements (Endless Waves of Gratitude)

My parents, Charles and Julia Dvorak, who have been beacons of support and unconditional love throughout my lifetime.

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Indigenous communities and their allies who have remained connected to the earth throughout time, who point to the sacred river when we have lost our way.

Aho mitakuye oyasin
"All My Relations"

The Aim of Education: Acknowledgements from a soon-to-be 'Master' in Education

The aim of education should be to facilitate dynamic and transformative interrelationships between teacher and student which allow for the sustainable growth of the intellectual, the spiritual, the philosophical, the cultural, the emotional, the primitive, the corporeal, and the divinely human within each of us. I must give credence to my intellectual ancestors whose ideas have shaped this understanding: Andrea Olsen who points out the lack of attention paid to engaging the senses throughout the education process; David Orr who praises the worthy role of place in pedagogical undertakings; Nel Noddings who challenges us to care and rejects universalizability and the dehumanizing of children; Wendell Berry who reminds us of what community is and what people are for; Ron Miller who suggests that education can actually be transformative; Jean Jacques Rousseau who insisted that the teacher be open to learning from the student; John Dewey who paid careful attention to the philosophical discourse of dualism and individualism; Fritjof Capra who emphasizes systems theory; Rudolf Steiner who addressed the spiritual needs of the child; Ivan Illich who compared the appearance of education with the actual product; Angayuqaq Oscar Kawagley and Ray Barnhardt, who identify the ills of Western positivistic science and illuminate the role of education as community survival for indigenous peoples; Paolo Freire who examined the repercussions of the banking education method and explored the plight of the oppressed; Mahatma Gandhi who taught *ahimsa* (non-violence) and *swadeshi* (community, cultural identity); Michael Ableman who compares raising good children to raising good food; Marilyn Briggs who begs us to "rethink school lunch"; Dilafruz Williams who lends her guidance, her wisdom of botany and her understanding of ecological education; and last but not least, Pramod Parajuli, a

contemporary educator who is out to prove that learning can be multi-sensory, multi-cultural, intergenerational, interdisciplinary, and who is determined to prepare future educators and leaders to be dedicated to creating a world that is livable, ecologically sustainable, bio-culturally diverse and socially just.

Foreword (Forward!)

In the *Humanure Handbook*, author Joseph Jenkins suggests that learning to recycle human excreta may in fact be the key to our spiritual salvation. It's perfectly natural to laugh at this prospect, but after you've had a good chuckle, please read on.

We are more than halfway through the year 2007, and most people whom I know would find it hard to say that they are especially hopeful about the future of humanity in the years to come. War rages on, our waters are polluted, our soils are depleted, and the post-colonial globalized free-market system has wreaked havoc on indigenous communities and the earth's flora and fauna in a seemingly endless tirade of development and exploitation. Depression and obesity in the United States are at an all-time high, small farmers everywhere are being displaced, and First Nations are struggling to treat widespread alcoholism and prevent teenage suicide. Considering this sorry state of affairs, who in their right mind would suggest that human feces might be a solution to some of these problems?

The answer is, in fact, a large number of people, and that figure grows each and every day. As Margaret Mead has noted, we are for the first time at a point in human history where we are able to explain what is happening while it is happening, a phenomenon known as meta-reflection (Laszlo 2000). We are able to learn from the failures and successes of the countercultural movements of the 1960s and 70s as their composted forms experience resurgence today. More and more people each day are waking up to a new ecological imperative which emphasizes the importance of recycling, conserving resources, eating well, breathing clean air, drinking clean water, and exercising. Community food movements and organic gardening are thriving in many

rural and urban areas alike. The intentional community and ecovillage movements are regaining popularity as well. While dogmatic religious practices still exist, many people are choosing instead to embark on profound spiritual journeys, often simultaneously introspective and expansive. Although confronted with seemingly perpetual racial segregation and class division, people have still found ways to initiate dialogue across socioeconomic boundaries and open up to cultural pluralism. Entire communities are identifying with bioregions and finding ways to relocalize their material resources. While the locus of the localization issue has mostly been around food, in time it will no doubt turn to the other end of the nutrient cycle: human 'waste.'

The human being's disconnect from the earth and from one another has no doubt been a root cause of the ecological and spiritual crises mentioned above. I recently had a friend tell me that just a few years ago, he was so disgusted with people and what we had done to each other and to the earth, that he simply didn't want to be a part of it any longer. He didn't see it getting any better. To this day, he still has the physical scars as evidence of the drastic action he took to make that feeling disappear. Fortunately, this wonderful person survived his ordeal, and has since learned to sublimate his angst into creative expression and healthy relation with other people. My point is that our conversation made me think, though, about the shame it is to be human, especially without purpose or connection, a condition imposed upon us by the powers that be. This report offers much evidence of ways in which to mend these disconnects.

When we flush our excreta "away," we are also flushing away personal responsibility and true understanding of what our bodies have created. In the United States as well as in all industrialized nations, excreta are disposed of into our drinking

water, extending from our bodies into a linear stream of treatment and pollution. In contrast, throughout much of China and Japan, excreta is *collected* and immediately used for agricultural purposes, maintaining a closed loop system which renders transparent the nutrient cycle. By flushing our nutrients away, by not even realizing that our excreta are resources, we generate unconscious feelings of shame and self-loathing. Our collective unconscious is also scarred by the shame of involuntary participation in an exploitative, destructive society. This shame manifests in many ways. When we face it head on, and with the appropriate support and resources, it can bring about deep transformation. When we bottle it up and shove it aside, however, we are in for an eventual implosion.

Fortunately for us unsuspecting humans, there are pioneers of reintegration who have devoted their lives and careers to addressing this process. Naturalist Jon Young has worked on creating a model of cultural mentoring in which we can confront, and eventually heal, our historical psychic wounds. It is known as the *8 Shields Mentoring Program*, and was developed to bring humans back to their place in nature, valuing the Peacemaker's path and recognizing commonalities which exist across all heritages (Young 2007).

Spiritual ecologist Morgan Brent (2007) also sheds profound light on the human condition. He suggests that, in relation to other life on the planet, the human species is relatively young. Bacteria and plants are our elders, as they have been around far longer. The earth is our mother, who has given us life through the sacred elements. Brent proposes that we are in the adolescent stage of our collective human lifespan, the stage in which separation from and acting out against one's mother is a typical phenomenon. We all know teenagers who have selfishly turned away from their parents and elders in order

to cultivate a sense of self and independence. Later in life these adults might realize that in order to attain happiness and spiritual harmony, a large part of their adulthood might need to be spent healing those disconnects. This is especially true of Western, Anglo cultures who value individuality and competition.

If we compare the experience of the typical Anglo adult to the collective experience of humanity, then we are witness to the maturing and flowering stage. We must work to heal our wounds, and apologize to our mother for past grievances. It may sound silly, but if we look around we can see that most of humanity is still engaged in rebellion of some form against the earth. Yet slowly, we are trickling back, asking for forgiveness as only a good hearted child can do. Only after we have cultivated this kind of humility and awareness, are we truly able to move forward (Brent 2007).

One of the basic principles in Permaculture Design, a system for creating sustainable human environments, is 'mistakes are tools for learning' (Mollison 1988). Let us consider a few mistakes we have made that are relevant to this story: continuing to use the flush toilet system; perceiving human excreta as a waste product we should fear; encouraging other cultures to adopt our ways; and preventing access to alternatives such as site built composting toilets by making them illegal. These mistakes are perhaps yet additional sources of collective shame, but with a major attitude adjustment, we can overcome and learn from them. In this project, I have chosen to focus on the incredible *opportunity* we have before us as children of the earth. Rather than misuse valuable energy laying blame and deepening existing wounds, I will instead focus on the proactive leaders who are challenging the status quo. I will explore alternatives and initiatives that inspire others and instill hope in even the darkest of hours. In a recent article in Lost

Valley's *Talking Leaves* publication, Pramod Parajuli shared a favorite remark by Manfred Steger and Perle Besserman (2001), from *Grassroots Zen:* "We don't have to create waves when the ocean is flat.... Finding ourselves in the middle of a big wave itself presents us with an opportunity. All we have to do is dive right in."

Every day I watch this fair city of Portland move and shake without ever stopping, evidence that our human systems of commerce, law, education, politics, and civic engagement are in a state of constant flux. We eat and drink and plan and meet and watch and schedule and text and dial and type and speak and sing and sleep and drive and walk and ride and write and read and talk and talk and talk. Yet how often do we listen? How often do we pay reverence to our bodies and to the sacred earth which sustains us? What if we paid as much attention to the clouds moving swiftly overhead, or the world telling us to be quiet, as we did to our grocery lists or to neighborhood gossip?

If we submitted to silence, we could hear the thunder rumble in the distant mountains. We could taste the rain instead of rushing away from it. We could smell the salt of the sea as though it coursed through our very veins. We could be truer to ourselves perhaps. I know that I would not make a very effective educator or leader if I did not take the time to silence, and get to know myself. *For this I am thankful*. That for every moment in the process of creating this document in which I wanted to drown out the noise of my own thoughts, to erase my nagging voice from the pages, I had the songbirds and the night crickets to help me do so. That for every moment I have forgotten that I am alive, I have had the sun to warm my face and the moon to lift my spirit. That for every moment I have not remembered how much I am loved, I have had my heart, to beat gently, tenderly, through its cradled cage of skin and bones and remind me of its purpose. *For this I am thankful*.

About R.E.S.O.U.R.C.E.

This text is designed to be a living document, a tool of re-engagement that can be shaped to the individual or to the moment as needed. It is not intended to be a rigid, unchanging entity, gathering dust on the unattended bookshelves of the crumbling academic institution. It is an inquiry into the current state of the human condition, exploring the collective spiritual catharsis framed by the issue of human excreta as a misunderstood resource.

It is *organic:*ized according to the seven *chakras* (Sanskrit for 'wheel') model, which acts as a reminder of the Divinely Human, and connects the cosmic to the corporeal. The reason behind using the seven chakra model is partially self-indulgent; while laboring to birth this document, I needed to connect the story to a higher logic in order to understand it, and frankly, to care about it. Furthermore, I have received training in yoga and Reiki, two time-honored healing practices which both incorporate knowledge of the chakras. From my perspective, compiling an entire project on the issue of human excreta would have been an incomplete undertaking, if not for imbuing the rich hues of vibrational human energy.

R.E.S.O.U.R.C.E. is also modeled in part after Andrea Olsen's (2002) *Body and Earth: An Experiential Guide,* which explores the body in conjunction with deepening one's relationship with the earth. Olsen suggests the practice of daily activities in order to supplement the reading and create a multi-sensory experience. As our class learned in the course Ecological and Cultural Foundations of Learning, when we provide opportunities to learn through the senses we create an environment which is engaging and fosters the exchange of energy. These are experiences where individuals are accessing

information beyond mere auditory and visual processing, and the interactions invite us to expand our breadth and increase our depth.

Each human being has a unique combination of multiple intelligences (Gardner 1983) that must be nurtured, and the standard academic manuscript often falls short of its potential to appeal to more than a few. I have offered stories, songs, quotes, and exercises of various natures, to weave a different kind of learning through the text- opportunities for conscious interaction and deep reflection. *Note: Most of the songs, unless otherwise noted, have been shared by Morgan Brent (2007), and are labeled* Human Flowering Songbook. *It is with utmost appreciation and respect that I share them with you. I invite you to sing them into creation, to help me to tell our story, and the story of our ancestors and our children.*

Introduction and Overview

This culminating project, completed in partial fulfillment of the LECL (Leadership in Ecology, Culture, and Learning) Master's program at Portland State University, explores the wasted and misunderstood resource of human excreta. The research identifies efforts, both local and global, to educate and empower communities to take responsibility in closing the loop on this significant waste stream, and to better understand the ecology of our watersheds and our own bodies. The first section, corresponding to the *root* chakra, is comprised of Acknowledgements, the Aim of Education, and the Foreword, in addition to this introduction/overview, which provides concise summaries of each section and offers some insight into the context of this research. The root chakra forms our foundation, and is related to our survival instincts, and our sense of grounding and connection to the physical plane. I felt it necessary to ground my research in gratitude, and offer an explanation how I understand education as a tool for transforming consciousness. I feel that it is the duty of any responsible researcher to illuminate the readers as to the context of the work. If what we say and what we do have no strong foundation, our efforts may likely be in vain.

The second section corresponds to the *sacral* chakra. It provides a brief history of how humans have dealt with our own excrement- revisiting the advent of conventional flush toilets, and examining how they compare to composting toilets, including technological innovations and health and safety concerns. Different cultures across the globe each perceive and handle “waste” in their own way. Only recently has this issue being recognized as a fertile ground of investigation. In comparison to other ecological issues facing the global earth community, there are scarce resources (namely peer-

reviewed, scientific literature) on alternatives to flush toilets, especially from Western scientists. The lack of transparent and conscious dialogue serves only to demonstrate that composting toilets are an idea whose time has come. The sacral chakra is the source of our creativity and stability, and is connected to our relationship with food.

The third section, corresponding to the *Solar Plexus*, looks to initiatives in places like Europe, Mexico, India, Nepal, and China in order to identify common ground and cultivate inspiration for projects in Portland and elsewhere in the United States. What does appropriate technology for the global community look like? Why are some cultures, such as in the United States, so disconnected from the ecology of their own bodies, and from the devastating effects of water pollution and soil depletion? Who is taking a proactive role in the Great Turning (Korten 2006), in shifting the way we live to regenerate ourselves and the earth? How can we learn from the leaders of this movement? Section III also examines the biocultural history of composting toilets, as well as their implications. The section explores ideas from people like India's Anil Agarwal, who ponders the "Political Economy of Defacation," and Sunita Narain, who has suggested that what humans really need is a toilet mission, not a space mission. The solar plexus chakra is the source of self-definition and power, and is deeply connected to our digestion. Appropriately, then, this section celebrates the diversity of cultural practices surrounding human excreta, which are in danger of being eroded in this "age of cultural evaporation" (Sachs 1992).

The fourth section, entitled "Mapping a Course through the Sacred Waters: Diverting the Wayward Cultural Flow" corresponds to the *heart* chakra. Here I offer my own intuition, as well as the insight of others, regarding the human interrelationships with

the earth's ecology. The phrase “holy shit!” takes on a whole new meaning when we take the time to observe and interact with the earth’s cycles, and to truly understand our place in the *earth household* (Parajuli 2006). How does the nature of a culture's connection to water and soil affect decisions that impact the environment? What would it take to slow down the inertia of an entire culture shitting in their drinking water and not questioning it? Why are some cultures fecophobic (India, Africa, United States, Latin America to a lesser extent) and others fecophilic (China, Japan)? Many developments in the research suggest that the crisis is beyond just science and ethics; it is a spiritual matter as well, and must be approached with careful consideration and deep understanding. The heart chakra is the source of compassion and well-being, oriented to self-acceptance. It is the integrator of opposites in the psyche, ideas such as “the human vs. natural worlds.” I offer it as a light by which we as humans can see ourselves for whom and where we truly are, a part of nature. This awareness is often successfully cultivated at the intellectual level, but less often in the territory of the heart.

In order to better understand issues specifically relevant to Portland and the Pacific Northwest, I have taken the time to get to know two sites who are taking a proactive role in the sewage dilemma. It is all too easy to become overwhelmed by the vast nature of the problem at hand, but focusing on communities that are in a place of their own power is inspiring and generates hope for the future.

Section V features the stories of two initiatives in Portland- the Composting Toilet Initiative (CTI) at Tryon Life Community (TLC) Farm in Southwest Portland and a community composting site in Southeast Portland. Individuals from each site were interviewed about their own experience with composting toilets. The story of the Farm

corresponds to the *throat* chakra, the source of communication, expression, growth, language and synthesis. The initiative at the Farm is an expression of the community's willingness to understand and reconnect the human nutrient cycle. The story of the Southeast Portland composting site corresponds to the *third eye*, or *brow* chakra, which is the source of self-mastery and awareness. The accessibility and appropriate technology being utilized at this site illustrates above all a strong ecological imperative, carried forth by enthusiastic individuals who have overcome the fecophobia which many of us still suffer from. In this section, I reflect on the role of local policy in supporting or inhibiting efforts like these. This section also inquires: what other local issues in Portland is sanitation connected to? How can these projects initiate a ripple effect across the city to educate and motivate the populace to make different decisions?

The final section, corresponding to the *crown* chakra, looks seven generations into the future, into a world of systems that have the potential to be functional, aesthetic, and ecologically sound. This is only possible if the global community listens to what the earth is saying with her polluted waters and depleted soils. Information and resources must be made available to all people. Policy must allow for these changes to happen on a widespread scale. If made readily accessible, watershed education, whole systems design, and permaculture can act as forums from which to heal the waters of the world and regenerate our soil. This process also must include the careful facilitation of humans reconnecting. The crown chakra is the source of bliss (*ananda* in Sanskrit, or 'lack of lack') and consciousness. Since we have by now explored many of the sub-issues surrounding human excreta, we are able to move into a space of our own power and go from here into the world ready to act on our new understanding. With a comprehensive

world view and a holistic awareness, we are truly lacking nothing. I anticipate that this section will receive additional insight from those who read RESOURCE. I encourage you to take notes and share your ideas. Send them to me at estatierraverde@gmail.com. The paper concludes with resources and references, and areas of further inquiry.

Context of Research

It is worth mentioning that this document was complied over the course of several weeks. In an ideal world, I would have had several months to complete my culminating work for the LECL degree. Yet current changes in the leadership and the structure of the program represent a huge departure from the values and ideas in its foundation. This stressful situation has forced me to finish in a small amount of time. Nevertheless, the expedited journey has been an exciting one.

Why now? This topic is relevant now because of what Joanna Macy calls "The Great Turning," also the title of engaged activist David Korten's (2006) latest publication. As a human community we are realizing the interconnectedness between all things, and the process of relocalization is becoming ever more important with the post-carbon era soon to come. Composting toilets provide a perfect opportunity to educate entire communities about ecological cycles and watersheds. They are a tool for the reintegration of the human into the earth ecosystem. They offer an environmentally sound alternative to septic and sewage systems, by reducing water usage and putting nutrients back into the soil. Portland is a city at a crossroads in dealing with its human waste streams at the municipal level, having recently budgeted $1.4 billion for its Big Pipe Sewer project. This project will look at the potential of composting toilets to mitigate the need for such costly projects.

Why Portland? As the Johnson Creek Watershed Council has demonstrated, there is an ability in Portland to recover the fragile ecosystems that have been disrupted by the careless systems that accompany residential and industrial development. At TLC Farm, there has been strong support from the Friends of Tryon Creek and from the City of Portland in the efforts to protect the Tryon Creek Watershed and create a community learning center in the forest. The initiative at TLC Farm is just one example of an effort that communities can undertake to address sanitation needs.

Why me? I have a strong interest in local food systems and community food security, permaculture, indigenous cultures and knowledge, as well as earth based spirituality. The issue of composting toilets is, quite literally, just on the other end of the local food issue. This research represents a certain coming full circle- to look at entire cycles, from cradle to cradle rather than from cradle to grave, as has been the dominant paradigm for generations. I have completed a Master's in Geography, where my research focused on the role of education in Portland's community food movement and on Native fishing rights in the Pacific Northwest, two issues that are inextricably linked to the sewage scourge.

I feel that I am an appropriate person to engage with Tryon Life Community Farm, because I have lived in the Cedar Moon intentional community before, thereby establishing a positive rapport with the community, and getting to know the land over the course of about three years. I am familiar with the vision of the TLC Farm project, and how their composting toilet initiative ties into it.

Last but not least, I, like all people, poop on a regular basis. By participating in the dominant culture, I have been contributing to the problem all of my life, and therefore

I have not only a responsibility but a vested interest in being a part of the solution. Part of my reasoning in choosing to research composting toilets is in order to come to a better appreciation of my own body and its many functions, rather than listening to what the corporate media tells me my body is for and how I should treat it.

The Story
Since time began, the story's been told
The healing of the planet, is ready to unfold
Since time began, the story's been sung
The healing of the planet has just begun

Trai nai nai nai nai nai . . . .

Spirit of the woman, forgotten for so long
Spirit of the woman, stand up and sing your song
x2
of the ancient ones, forgotten for so long
x2

Trai nai nai nai nai nai . . . .

Working in our hearts, working in our souls
The ancient story, it/she must be told
x2

Trai nai nai nai nai nai . . . .

Source: The Human Flowering Songbook

Section II: Conventional and Composting Toilets: The What, the Why, and the How

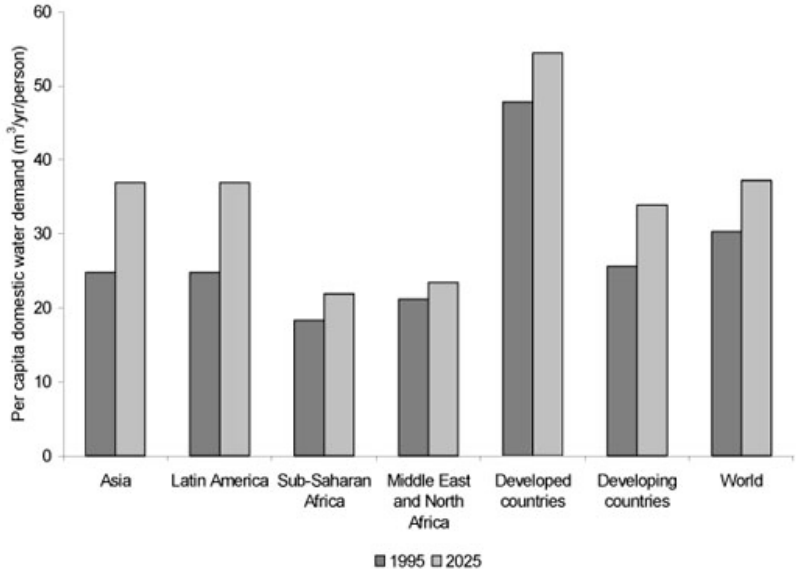
The technological innovation of the conventional flush toilet has been around for a relatively short period of time, considering the span of human history. Between 500 and 1500 AD, most of the world had to live in very unhygienic conditions (Nguyen 2006). This was especially true for Europe, where unprecedented numbers of people began to live together in the now modern cities of Paris, London, Rome, etc. Chamber pots were emptied directly onto the streets each morning, spreading disease and malodor, and polluting waterways. In 1596 in England, Sir John Harrington first published a book presenting instructions to flush toilet refuse using running water. This method was not adopted by the masses for another 200 years (*ibid*).

Water Sutra
shared with Satish Kumar (2002, p. 17) by his mother
Waste Not Water
Nor ever spill it
Water is precious
Water is sacred
The way you use water is the measure of you
Water is the witness
Water is the judge
Your reputation rests on your careful use of water.

The flush toilet, utilized today as a means of sanitation in nearly all industrialized countries and many developing countries, is creating unnecessary burdens on the environment and on human health. Bodies of fresh water are used as sinks for waste, and additionally, a large amount of purified drinking water is flushed down toilets (See figures 2a and 2b below). In the United States alone, there are 3.619 trillion gallons of water polluted by sewage released into coastal water *every single year* (Jenkins 1999). It

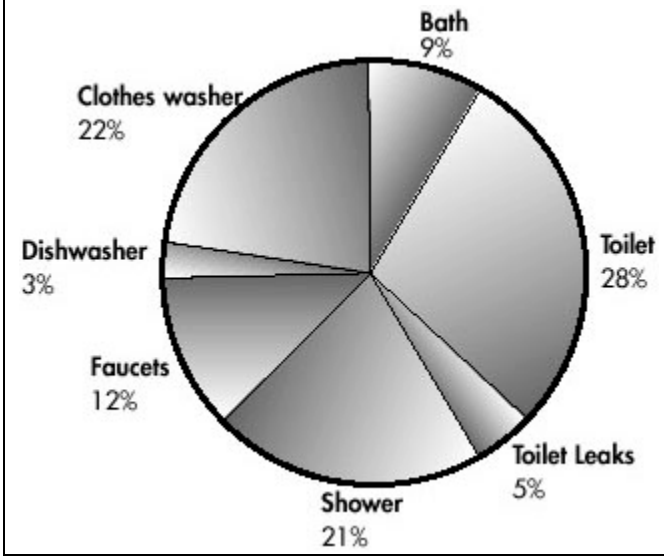
is important to remember that sewage is *pollution* only because the nutrients contained in it are not properly used, but rather combined with water and flushed away. The world's oceans and fresh waterways are become overwhelmed with nitrogen and phosphates, causing the occurrence of 150 "marine dead zones," where algae produce toxins which threaten the health of many species (Kinver 2006).

Figure 2a. Per capita domestic water demand (cubic meters/person/year)



Source: "Global Water Outlook to 2025" (2007).

Figure 2b. Average Household Water Usage.



Source: Woodwell et al, 1995.

Meanwhile, because nutrients are disposed of into the waterways, the world's soil is becoming depleted. Like water, soil is another element in the ecosystem that is a basis for plant, animal, fungi, microorganism, and human life. The sheer mass of nutrients from the soil which ends up in human waste, and then eventually fresh water systems, is astounding. For instance, in 2000, 3 billion metric tons of human manure was produced in the world, but the majority of it was not kept in the soil cycle (Jenkins 1999). These nutrients are needed to replenish the soil, and when they are not recirculated to the soil by means of a conscious closed loop system, the soil becomes depleted. Sewage contains a lot of organic matter from digestive residues, and is a source of many underutilized nutrients.

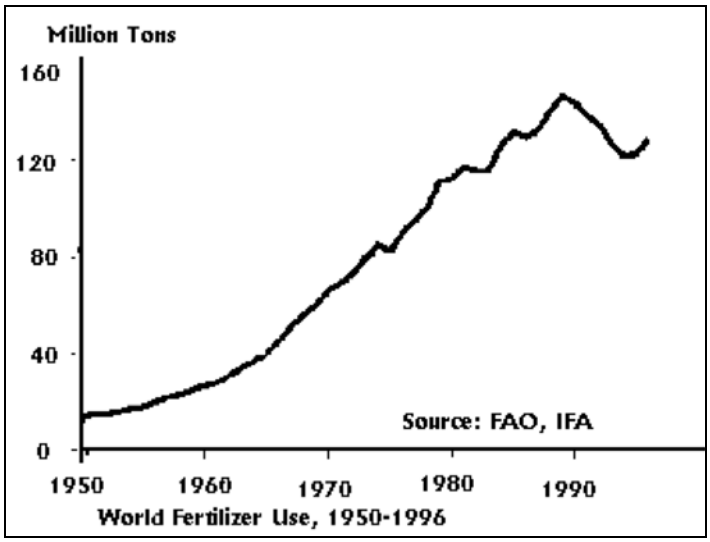
The amount of pollution that exists illustrates a lack of awareness about the natural elements which surround us. Bohn *et al* (2001) explain about a special talent that soil has for degrading 'waste' as compared to air and water.

> Chemical pollution is the diversion of chemical elements from the natural biogeochemical cycles. The carbon, nitrogen, and phosphate in municipal wastes released to streams and lakes are removed from the plant-soil cycle, which is the source of the nitrogen and much of the phosphate. If those substances were instead put back directly into the soils from whence they came, much less pollution would result. Air and water only slowly convert their wastes back into their natural sites in plants and soils. Soil, on the other hand, has enormous surface area and microbial catalytic activity plus oxygen and water with which to deactivate pollutants. Soil degrades most wastes quickly and returns the components to their natural cycles, thereby minimizing environmental disturbance (11-12).

The issue of soil depletion is related to many other ecological lessons we are now learning, including climate change. In his controversial book, "Priority One: Together We Can Beat Global Warming," Allen Yeomans suggests that if we increased the organic

matter in soil by 1.6 percent in all our cropping lands, we would sequester all the excess CO2 in the atmosphere (2005).

Figure 2d. World Fertilizer Use, 1950-1996



Source: Brown, 1997.

Composting is one way to achieve such a feat. It is an alternative to the sewage treatment method that has great potential to reduce harmful effects on the environment and human health. Composting uses biodigestion, or the breaking down of organic materials by bacteria, to process human waste and turn it into fertilizers that can safely return to the soil. This process contributes to sustainable food production for the growing human population. The city of Austin, Texas has realized the potential to turn sewage into fertilizer on a large scale with their Dillo Dirt™ initiative, the first program of its kind in the state and one of the oldest in the nation. All yard trimmings collected curbside across the City as well as treated sewage sludge are combined and composted to create Dillo Dirt™. The heat generated in composting is sufficient to virtually eliminate human

and plant pathogens. After active composting for over a month, the compost is "cured" for several months, then screened to produce finished Dillo Dirt™ (Dillo Dirt, 2007).

"In a world in which the life of the soil is everywhere under assault, building soil fertility can be a profound act of worship."~ Starhawk

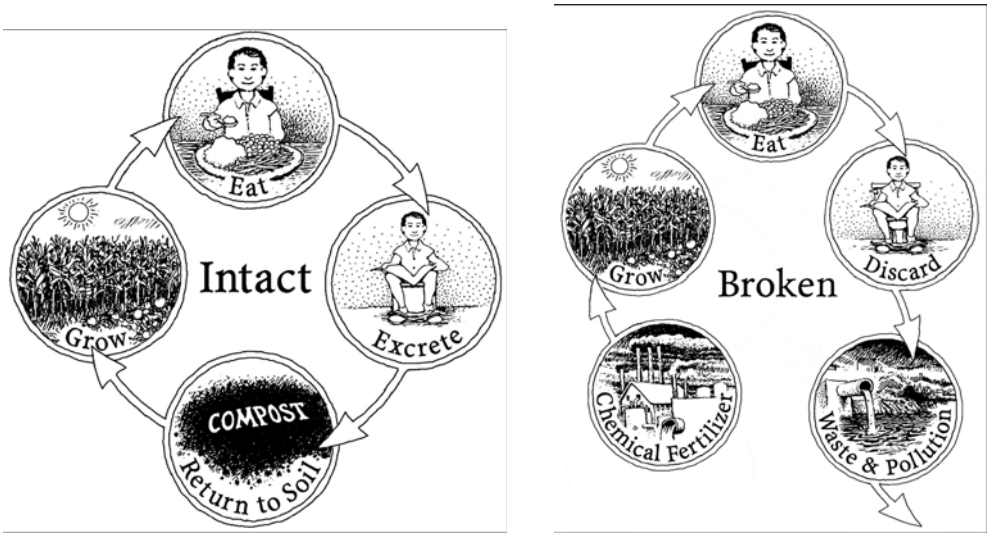
There are also systems which do not involve any sewage whatsoever, but rather compost human excreta without ever combining it with water. The first commercially designed toilet composting systems originated in Scandinavia in the 1960s, from where the idea moved to North America, where more models were designed and marketed. Canada has become a leader in manufactured composting toilet systems, and Australia followed suit in the 1970s, now proud purveyors of a multitude of brands ("FAQ"). Commercial composting toilets have passed the design phase and are now available in many countries in the world.

Site-built composting toilets are perhaps more common, and have been used for many centuries in regions like China and Japan. A site-built unit is typically constructed in place with on-site or recycled materials, rather than patented and pre-fabricated elsewhere and shipped from far away.

"It's the dark of the earth
Where we bury our bones
It's the blessing of the flesh
The child of spirit and stone
It's the only place
we can all agree is our home
it's the dark of the earth"

~Tony Edelblute, *No name thing*

Figure 2c: The Human Nutrient Cycle, Intact and Broken.



Source: Jenkins, 1999

A Practice of Awareness: For the next few meals you sit down to, take the time before you eat to meditate not only on where the food came from, but where it will wind up after it passes through you and nourishment to your cells. I have begun this regular ritual myself in order to honor the human nutrient cycle of which we are an essential element. I pray that the food I enjoy will not pollute our sacred oceans but rather will return to the earth and become food once again. I do not jest when I say that my intestines thank me when I engage in this practice. Theirs is a thankless task, too often overshadowed by the sensations in my growling stomach.

You may question this practice considering that so many of us still use flush toilets. But exercising our awareness is a practice that lends itself to change. Our intentions and prayers contain subtle (and sometimes not so subtle) vibrational energy that can ripple out and transform malign behavior.

~~~~~~~ Section III: Ecological Solutions Bridging the Local/Global Divide ~~~~~~~

The ecological and cultural implications for localizing the human waste stream are far and wide. The geographic and environmental science literature points to a number of practical alternatives to the modern, centralized system. Much of the successful dialogue regarding sustainable practices is happening at a global level, which is appropriate considering that basic human needs are similar across borders and nationalities. Here we have an opportunity to acknowledge and celebrate the diversity of cultural practices surrounding human excreta, which are in danger of being eroded in this "age of cultural evaporation" (Sachs 1992).

For many post-industrial countries, like the United States, most communities have the comfort and privilege of not having to think about sanitation issues. The infrastructure has been established, and although it is a highly flawed system considering its ecological and psychological impact, most people are content with it. North Americans see the conventional system as 'civilized' because by and large, we have eliminated water-borne diseases whereas other countries still struggle to treat widespread illness that is relatively preventable.

> The Earth was home to 6 billion people in 2000: 1.1 billion of them lacked safe water and 2.4 billion lacked adequate sanitation. As a consequence, water- and sanitation-related diseases are widespread. Nearly 250 million cases are reported every year, with more than 3 million deaths annually—about 10,000 a day. Diarrheal diseases impact children most severely, killing more than 2 million young children a year in the developing world. Many more are left underweight, stunted mentally and physically, vulnerable to other deadly diseases, and too debilitated to go to school.

> This situation in today's world is humiliating, morally wrong, and oppressive. The global community has made advances in many fields but it has failed to ensure these most basic needs of deprived people. Worse still, if unprecedented global action is not taken, the lot of the poor is expected to worsen in the foreseeable future. Water supply, sanitation and health are closely related. Poor hygiene, inadequate quantities and quality of drinking water, and lack of sanitation facilities cause millions of the world's poorest people to die from preventable diseases each year. Women and children are the main victims ("Sanitation and Environment" 2007).

In some countries, hundreds of millions of men, women, and children are without access to clean water, for instance in China, where the number is thought to be over 360 million people, or one-third of the rural population (Mackie 2005). India is another country where the question of sanitation cannot be so easily dismissed because its inhabitants are profoundly affected by the conditions described above. Nearly half of the more than one billion people live in densely populated urban environments, where only the wealthy can afford flush toilets. As necessity is so often the mother of invention, India's sanitation situation has generated some deep conversation and thoughtful initiatives from its inspired citizens. Sunita Narain and Anil Agarwal, in particular, have struggled to bring the issue to the forefront of India's eco-social dialogues, both those happening internally, and with the rest of the world. Agarwal was a journalist and environmentalist who founded the Centre for Science and Environment in 1980. Together with Narain, he published many articles and books on issues facing India and the global community, such as global warming, pesticide use, water pollution, rural development, and sanitation.

Narain and Agarwal use the Marxian concept of political economy to better understand how the existing power structure in India's caste system affects the quality of life and environmental degradation. "This is the political economy of defecation where

the rich are subsidised [sic] in the name of the poor, where the environment is discounted in the name of progress. This is the real excreta we must understand" (Narain 2007).

Agarwal explains the true nature of the Indian sewage system-

> This political economy of defecation is a topic nobody talks about. Sewage systems constitute an ecologically mindless technology. Consider first the large amount of water that is used just to carry away a small quantity of human excrete. Big dams and tubewells are needed to bring this water home leading to enormous environmental problems. Then large quantities of water that get flushed down the toilet pollute rivers and large water bodies.
>
> This…nobody talks about. But it lies at the heart of the river cleaning programme [sic] of this country. It is neither rational, just or [sic] sustainable. A proper approach would firstly demand that the polluter must pay. If the existing and planned sewer systems are only serving the rich, then the rich must pay the full costs of their ecological depredation. (Agarwal 1994).

For many in India, flush toilets are a luxury. Most of the country depends on the task of manual scavengers to take away their night soil. The social caste system in India determines that a certain group of people (Dalits) are born as scavengers, who manually transport human excreta and in doing so, are exposed to infectious diseases like Tuberculosis on a daily basis. Most scavengers are women and girls, and it is believed that there are over one million in India still performing the task, despite the fact that it was outlawed in 1993. This is both because many scavengers do not have another way to make money, and if they quit scavenging, they would be subject to physical abuse and social boycott (Kumar 2005).

The inhumane conditions of scavenging prompted Dr. Bindeshwar Pathak to establish the Sulabh International Social Service Organisation in 1970. Although scavenging is still a reality for many, the organization has succeeded in developing

> a scavenging-free twin-pit pour flush toilet (Sulabh Shauchalaya); safe and hygienic on-site human waste disposal technology; a new concept of maintenance and construction of pay-&use public toilets, popularly known as Sulabh Complexes with bath, laundry and urinal facilities being used by about ten million people every day and generation of biogas and biofertiliser produced from human excreta-based plants, low maintenance waste water treatment plants of medium capacity for institutions and industries ("Database Detail," 2007).

Scientists, activists, and educators in other countries are also taking initiatives to understand and educate the public about ecological sanitation. For instance, *gobar* technology in Nepal generates fuel from organic waste, addressing economic, social, and ecological issues simultaneously.

> The gobar gas technology is based on anaerobic fermentation of organic waste causing its decomposition, which generates 60-70 percent methane gas. The Government of Nepal launched a gobar gas plant construction programme [sic] back in 1975/1976. But because the cost of constructing the plant was too high for an ordinary farmer to bear, the government offered low interest bearing loans as incentives… [O]ne biogas plant, on average, helps to save 2 tons of fuel wood, 0.8 tons of agricultural waste, 0.45 tons of dung cake and 50 litres [sic] of kerosene per household. It also reduces the annual emission of CO2 from households. ("Bio-gas plants" 2007).

Lamichhhane (2005) compares the environmental, operational, and maintenance costs between a modern wastewater treatment plant and on-site sanitation, using Bagmati Area Sewerage Project in Nepal as an example of a municipal wastewater treatment plant. The author discusses the "ecotoilet" as an option, and identifies its advantages and disadvantages over a system with a centrally controlled modern wastewater treatment plant.

Pathogens are an obvious concern in storing human excreta on-site, so we can look to studies offered by the international scientific community to better understand actual risk. For instance Nakagawa *et al*. (2006) from Japan performed a microbial risk

assessment of a Sustainable Sanitation System. SSS is a new wastewater treatment system that incorporates an ecotoilet that converts excreta into a reusable resource (as fertilizer or humus for organic agriculture) and reduces the pollution load to environments of the rivers, the lakes, and the sea.

Nilsson (2006) explores the evolution of the piped water and sewer system in Kampala, Uganda, between 1920 and 1950. The research indicates that large-scale systems for water and sanitation are slow to adapt to new economic, social or environmental contexts. Nilsson's findings point to the importance of knowing the history of such systems in order to fully understand modern issues of sustainability. Birdsong (2007) acknowledges efforts by The Swedish International Development Agency to promote a variety of less "environmentally abusive" alternatives to sanitation. They have pulled together a network of experts, organizations and agencies across the North and South through an organization called *EcoSanRes,* which is managed by the Swedish Environment Institute. Birdsong also looks to waste as a potential source of renewable and on-site energy and cites examples in Minnesota, Sweden, Cuba, India, China, and Vietnam.

A Master's Thesis by Nguyen (2006) from Ohio State University addresses the need for composting toilets that are user-friendly as well as culturally appropriate. Broad implementation would result in "better water conservation, soil replenishment, human health and ultimately a sustainable life." The study implies that if culture and physical ability are not taken into account, then proper measures will be ignored by the mainstream.

Ecological engineer Uno Winblad (2000) is another composting toilet enthusiast who has worked for decades on projects in both Africa and China. He remarks on how the unique field of sanitation grew up in the context of capitalism and other sciences. “Well, a small group in Washington controlled the money and also influenced all bilateral donors. The field of sanitation is rather special: there is hardly any scientific thinking and little real research, except on big treatment plants [...], and no open discussion. In other fields, if someone comes up with a new theory, a new paradigm, it's published, discussed and tested” (Winblad 2000). Winblad also explains that ecological sanitation is much more than just ecological engineering, because it includes the production and food, and should ultimately be about closing the loop. “This is actually the main difference [to] conventional sanitation, which regards sanitation as an engineering exercise. Conventional sanitation is the toilet, the treatment plant and the pipe network connecting them. But when we look at sanitation as an ecological system, we realize that sanitation is a part of the biosphere. We must therefore take into consideration everything that is affected” (*ibid*). Winblad points out that the language, or discourse that is used often confuses the meaning of what communities attempt to accomplish. For instance, when ‘wastewater’ is in the title of an EcoSan conference in Europe, it creates an association. The terms that are used are very important for the ideas that people develop in their minds. “Ecological sanitation has nothing to do with wastewater. The human body does not produce sewage. Sewage is the product of a particular technology” (*ibid*).

~~~~~~~~Section IV: Mapping a Course through the Sacred Waters:~~~~~~~~
Diverting the Wayward Cultural Flow

A certain degree of physical comfort is necessary but above a certain level it becomes a hindrance instead of a help; therefore the ideal of creating an unlimited number of wants and satisfying them, seems to be a delusion and a trap. The satisfaction of one's physical needs must come at a certain point to a dead stop before it degenerates into physical decadence. Europeans will have to remodel their outlook if they are not to perish under the weight of the comforts to which they are becoming slaves.
~Mahatma Gandhi (Kumar 1996, 421)

One thing is clear from the stories we hear from the global south: although basic human needs are similar across national boundaries, experiences are as varied as snowflakes or grains of sand. Unique socio-economic variables norms require unique, culturally appropriate solutions. When asked what message she would like to give the northern countries regarding water and sanitation, Sunita Narain offered,

> I think the only message in this case is [this]: Yes, you have from all evidence been able to manage your water systems. But your answers are not particularly our answers. My message is, therefore: Please do not preach. Please do not push these as the solutions that will work in our part of the world. And do this with humility. We all need a lot more humility in advocating solutions and approaches (2005, 477).

Narain further expounds on this idea in an article in *Down to Earth*:

> Every society must understand how the excreta it produces is managed. It teaches us many things about water, about waste, about technologies to clean, economics and politics: of who is subsidised [sic] to defecate in our societies. But, most importantly, it teaches us humility. We know so little about our own world. If we knew better, we would understand why we are failing to ensure our present and why we will all need to do things differently, if we want to safeguard our future. (2007)

~~Humble Ourselves~~
Humble ourselves
In the sight of our
mothers/fathers/brothers/sisters/elders/ancestors/children
We've got to bend down low

Humble ourselves
In the sight of our brothers
We've got to know what they know

We shall lift each other up . . .
Higher and higher (x 2)

Source: The Human Flowering Songbook

Narain asks us in the northern countries to practice more humility. How can we do this? Humility is a virtue that cannot be quantified or rationalized by the scientific community, and its value cannot be measured. It has obviously not been at the center of the sensitive issue of sanitation. Yet the etymology of the word itself speaks to its intended place in our lives. In the Humanure Handbook, Joseph Jenkins (1999) relates a story about a group of nuns called the Sisters of Humility, who came to him to learn about humanure composting. They explained how the words 'human,' 'humble,' and 'humility' come from 'humus,' meaning earth. Because the nuns took a vow of humility, they wanted to learn how to work with the earth in all aspects of their lives, not just when it was convenient or obvious to do so. Jenkins shared his thoughts on this experience of speaking with the nuns.

> This was deep shit. Profound. Some people go to church on Sunday, others make compost. Still others do both. Others go to church on Sunday, then throw all their garbage out into the environment. The exercising of the human spirit can take many forms, and the simple act of cleaning up after oneself is one of them. The careless dumping of waste out into the world is a self-centered act of arrogance — or ignorance. Humanure composters can stand under the stars at night gazing at the heavens, and

> know that, when nature calls, their excretions will not foul the planet. Instead, those excretions are humbly collected, fed to microorganisms and returned to the Earth as *healing medicine for the soil*. (Jenkins 1999, 70-71)

Jenkins' story speaks to the psychological and spiritual aspects of excreta briefly explored in the foreword to this document. Morgan Brent, who received his PhD in spiritual ecology from the University of Hawaii (Manoa), further describes the process of humanity reuniting with the earth, the source of all.

> By trading metaphors across the great human-Nature divide, by humanizing Nature and *organic*izing humanity, we can do much to break down our legacy of separation. One significant step in this direction is to recognize what the vast majority of humanity has known thru the ages: that the entire planet, and in fact all the cosmos, is alive, is conscious…This has created a self-regulating, self-aware, consciously evolving planet earth. Its life is intentional, directed by a purpose, and lived towards an end (teleology). On its journey of maturation it goes thru [sic] periods of health and illness, crisis and transformation, as do we. In fact we are elementally inseparable from the earth. The human body and the earth are the same, of the same substance, of the same molecules. (Brent 2007)

Pramod Parajuli, founder of the PIIECL program (Portland International Initiative for Leadership in Ecology, Culture, and Learning) in Portland, Oregon, offers a fascinating perspective on how ecology and democracy can come to co-evolve.

> Building on the new ecological discourse of the Earth household and the aspiration for tribal self-rule, I will project a new citizenship for ecological ethnicities. The twin issues of ecology and democracy can be the locus of this emergent citizenship. I consider ecology as the site for self-organization and self creation of life. Likewise, democracy can be understood as self-governance at the level of ecosystem-based communities. A community provides both the 'hardware' and 'software' for human relationships. As software, the community provides a sense of place, and networks of connections and relations. As hardware, it facilitates arrangements for organizing units such as watersheds and foodsheds. At the same time, the promise of the community as the new organizing principle lies in the fact that community is Janus-faced. On the one hand it is a site of remembering, restoring, and regenerating what is lost from the past. On the other it is a site of constant critique, reform and transformation of existing

relations. The starting basis for the recovery of community is in preserving and restoring ecosystems. (Parajuli 2006)

The starting basis for the recovery of our place in the landscape is to reconcile our collective mistakes. As we begin to halt the existing systems which demoralize and isolate us, we begin to realize our own power. We must take a step back and realize that the recovery encompasses many layers- environmental, social, political, psychological, spiritual, cultural, etc. It requires digging deep into the collective psyche and opening our human hearts to change and possibility. It may not always be easy or pleasant; in fact, addressing our historical wounds can be a rather messy undertaking (Young 2007). Yet it is an exciting time to be alive, as Alice Walker (2007) muses-

> There's so much to do! We are so lucky. There's no shortage of work to do! There's no excuse for anyone, in my opinion, to complain that they can't change anything. For instance, there are millions and millions and millions of hungry children, people who don't have clothing, people who don't have housing, trees that are begging us to let them live, rivers that are crying out to be clean, skies that are shouting at us to let the ozone layer live. There is no end to the ways we can have full self-realization. That's what has to happen, and that's what this time is pointing out. This is the time to have full self-realization as an earthling. It's time to be responsible and take charge of that. It's also a great time because if we fail, we lose the earth.
>
> Self-realization is certainly up there, and of course true self-realization comes with a realization of the connectedness to all, the inseparability of the self and the all. That leads one to understand oneself as an earthling, not an American, Canadian, African, or Indian. Beyond that I realize myself as the cosmos, the universe, the whole thing. How can we not be the whole thing? As I sit and look out at the trees, I know clearly one day that's where I'll be. Hallelujah!

We look again to Indian activists, this time Mahatma Gandhi, for answers. For Gandhi, the self and the community could be realized together through *swadeshi*, the way to comprehensive peace. Because the global economy drives people towards high performance and materialistic success, a loss of meaning and inner peace is lost.

Space for personal and family relationships is lost, as is a spiritual life. “Swadeshi for Gandhi was the spiritual imperative” (Kumar 1996, 421). Swadeshi’s guiding principles are as follows: whatever is made or produced in the village must be used first and foremost by the members of the village; avoidance of economic dependence on external market forces which make the village community vulnerable; each village is a *microcosm of India*; each village should embody the spirit of the home; we should work to restore dignity to the work done by human hands (“Not mass production, but production by the masses”); economics has a place but does not dominate society; spiritual values should not be separated from politics, economics, agriculture, education, and all the other activities of daily life. The ideas behind Swadeshi break down the isolating walls of competition and materialism, and give us a place to return to: home.

~~~~~~~~~~Section V: Conversations and Snapshots in the City of Roses~~~~~~~~~~

It is appropriate to use Portland, Oregon as a case study for what is actually happening on the ground in the ecological sanitation movement. Portland is often hailed as a mecca of sustainability, and is regarded as one of the most livable cities in the United

States (Ozawa, 2004). A community organizer in Asheville, NC calls Portland "the eco-R & D (Research and Development) center for the industrial world." From a national and an international perspective, Portland serves as a leader in the movement for thoughtful urban planning in the face of rapid growth. The city boasts an Office of Sustainable Development as well as a regional government, Metro, which governs open space protection, land use planning, transportation, and recycling programs in the metropolitan area's three counties. Many nationally acclaimed books focus on or highlight the innovative growth of Portland, including *Greater Portland: Urban Life and Landscape in the Pacific Northwest* (Abbott 2001)*; The Portland Edge*: *Challenges and successes in growing communities* (Ozawa, 2004); *Portland's Changing Landscape* (Price, ed., 1987); as well as a number of journal articles written by Virginia Tech professor Arthur C. Nelson on smart growth and urban planning (1990, 2002).

Portland's livability is not a mere function of its governmental structures or its reputation. Many efforts are underway at the grassroots and community level which promote citizen involvement and a unique do-it-yourself mentality in the city. One example of particularly renowned success is The City Repair Project, an "all-volunteer grassroots organization helping people reclaim their urban spaces to create community-oriented places." The ten-year-old non-profit organization has been the inspiration for similar projects in other cities such as Seattle, Los Angeles, British Columbia, and Ontario.

Portland is an inspiration for many, but still faces its own legacy of industrial pollution and sewage scourge. Every time it rains in Portland, Combined Sewage Overflow (CSO) occurs. According to the City of Portland, "[d]uring a CSO, stormwater

quickly fills the combined sewers, which carry both sanitary sewage and runoff from streets, parking lots, and rooftops. The overflows carry bacteria from the untreated sewage as well as other pollutants in the stormwater directly into the river" ("CSO" 2007). Prompted by an environmental lawsuit in 1991 and sealed by a 1994 agreement with the state, Portland has now undertaken its biggest citypaid construction project, the 'Big Pipe.' Financed by sewer-bill ratepayers, the two decade effort is supposed to stop most overflows of sewage and storm water into the river. It involves three massive boring machines, one of which weighs 960 tons. The City has budgeted $1.4 billion for the project, which amounts to approximately $2,500 per man, woman and child living in the city. By any stretch of the imagination, the money could have been spent a number of other ways, including purchasing pre-fabricated composting toilet units for each household.

The current system's loopholes also allow for industry to illegally dump toxins into the watershed. For instance, Blackline, Inc., which uses chromium to finish chrome, steel, and other metals, has been sending the toxin, often in its most potent form, to Portland's sewage treatment plant, and eventually the Columbia River, in illegal concentrations since 2004. "Subject to federal Environmental Protection Agency and city regulations while using sewers, Blackline is held to a higher standard on chromium releases than the city itself, which can discharge unlimited chromium to the Columbia River through a permit from the Oregon Department of Environmental Quality" (van der Voo 2007).

The local community must understand itself finally as a community of interest- a common dependence on a common life and a common ground. And because a community is, by definition, placed, its successes cannot be

divided from the success of its place, its natural setting and surroundings; its soils, forests, grasslands, plants and animals, water, light, and air. The two economies, the natural and the human, support each other; each is the other's hope of a durable and a livable life. ~ Wendell Berry (*Home Economics* p. 192)

~~~~~~~Demonstrating the Possible: Tryon Life Community Farm~~~~~~~~

The enthusiastic residents of Portland are subject to its outmoded laws, which render illegal many ecological projects which address the problems described above. In a recent effort to deal with the legality challenges faced in its own initiatives, Tryon Life Community Farm launched its citywide "Recode Portland: A Campaign for Grassroots Sustainability" (2007). The focus areas in the campaign consist of *Building* (natural building, methane digestion, rocket stoves, shared housing, and off-grid microcottages) *Water* (greywater, living machines, composting toilets, and harvesting & storage), and *Transportation* (neighborhood parking agreements, volunteer bus routes, and required carsharing). The Farm's website explains the situation further,

> Many sustainable practices are not currently allowed in Portland. We've earned a reputation for being green because of hard work, ingenuity, and grassroots engagement, and our local officials and bureaus are exceptionally committed to ecologically-oriented innovation. Nonetheless, codes and regulations have not kept pace with the visionaries of Portland. In fact, many sustainable approaches considered best practice in other parts of the country are illegal here—simple systems that irrigate yards with dishwater, for example. It is time for forward movement. There already exists a thriving sustainable building community in Portland, born of the spirit of innovation. However, without a regulatory environment that fully supports such practices we are essentially tying the hands of our most creative and responsive, because larger projects can be neither funded nor receive institutional support.
>
> Tryon Life Community Farm (TLC Farm) is a sustainability education and demonstration center in S.W. Portland, which recently completed a

> strategic planning process that outlined a vision for nurturing this place as a practical laboratory for a transformed urban ecology in which communities come together to educate, experience, and emerge into densely interwoven relations between people and the earth. ("Recode Portland" 2007)

Tryon Life Community Farm is a seven-acre environmental education and sustainability demonstration center in Southwest Portland. Their composting toilet project received institutional support from The City Repair Project's sixth annual Village Building Convergence, a ten-day community building event held each May. The project also received creative and organizational support from the Portland Composting Toilet Initiative (PCTI), which was a project of a Portland State University Nohad A. Toulan School of Urban Studies and Planning undergraduate Community Development Colloquium course in the Winter and Spring of 2006.

The two public, pre-fabricated Envirolet composting toilets at TLC Farm are a solution to the on-going pollution of the ecologically sensitive watershed, which occurs when the flush toilets send sewage into the septic tank and leach field, and eventually into Tryon Creek. They are also designed to meet the needs of the facility to host the thousands of volunteers and school children that visit each year.

I had the great pleasure to interview two core community members of TLC Farm, Brenna Bell and Bonsai Matt. President of the TLC Farm Board of Directors, Brenna Bell has spent many years in the Tryon Creek watershed: first as a student at Lewis & Clark College, where she self-designed a major in Social Ecology; next as a counselor at the Tryon Creek State Park summer day camp; then as a student at Lewis & Clark Law School, where she was President of the Student Bar Association and received an

Environmental and Natural Resources Certificate; and finally as a resident and core organizer with Tryon Life Community Farm.

When asked about the educational value of the public composting toilet at the farm, Brenna remarked,

> one of the key pieces of TLC Farm is really trying to demonstrate what a closed loop system looks like. And dealing with our human solid waste in a really proactive way is one of those pieces, and it's a piece that people shy away from. So I think that having the composting toilet is great because it increases our educational capacity. It really helps us to be the demonstration site that we want to be, and to get other people talking about it. And it helps get people more into their own shit, because they actually have to *see* it, and I think that's always a good thing. (Brenna Bell, Personal communication, July 4, 2007)

Bell pointed out that the farm is not currently on the city sewer system, but rather on a septic tank, which does not function as well as it could, so there's seepage flowing into the headwaters of Tryon Creek. "So the composting toilet is a way to radically reduce that. And then the other main thing is to use is as an educational tool for all of our neighbors in the watershed, to rethink what they're doing with you know, all of their water, their stormwater, their graywater, their wastewater systems, and really just use it as a catalyst to talk more about water and our effects on it and how it affects the watershed in general" (ibid).

Because so few educational resources regarding ecological sanitation exist, I asked my interviewees about what would constitute appropriate material. Here's what Brenna had to say:

> Well, I think first of all, they need to make people feel safe about it- that's kind of the biggest [issue], you know, getting rid of the people's fear of contamination and sickness that's around poop. People are really afraid of poo! And so making it feel something that is safe, historical, normal, kind of rooted in the way that humans have always lived. It has to be clean looking, and to have a sense of accessibility, and fun surrounding it. And it

> has to be accessible to kids, because we have a lot of kids there, but we also need the kind of information where adults really get something from it. So the materials should transcend just being directed at one particular age group.

Ecological sanitation is inextricably interwoven with other relocalization efforts in Portland, such as community food security, alternative transportation, supporting local tradespeople and artists, alternative medicine, etc. Brenna shared her own thoughts on how it all ties together-

> Well, I think a lot of it is thinking about how we can get off the grid- you know, off the water grid, off the power grid, off the sewer grid, and start to make more sustainable efforts of localization. I think that people don't really think, like what would happen if the sewer system broke down and they couldn't flush their shit away. And so it's definitely not just planning for the apocalypse, but it's great thinking of it in those terms. That it really is just part of a whole system of just looking at what our life systems are and how connected are we with them, and what would happen if the powers that be that we do not control break down. And really think about it in those terms (Brenna Bell, Personal communication, July 4, 2007).

Anarchist strategies come in two basic shapes and sizes. One is to live now like we would like to live after the revolution. The other is to cobble together hybrids of the gift economy and capitalism. Both are inevitable. (Leahy 2006).

When I asked her about the cultural mindset of "flush and forget" that prevents composting toilets from becoming more prevalaent, she remarked, "well, I think these people are crazy. [laughs] I mean, honestly, people are just totally nuts. Because they cannot see the connections in what our actions are and the world we're creating. I fear that that kind of collective insanity will keep us from really being able to make it easier on people in the future. If that makes sense.

“Our river is full of caffeine! It’s full of caffeine, and Prozac!” ~ Brenna Bell

Bonsai Matt, another longtime resident of TLC Farm, is a certified permaculture designer, nursery owner and successful professional artist, and has wide experience in the fields of native and exotic bonsai cultivation, permaculture design and practice, landscaping & gardening with natives and exotics, stone masonry & sculpture, tincture & salve preparation from wild-crafted herbs, natural building, earthen oven construction and baking, and photography.

At one point in our interview, Bonsai suggested that elimination should be a quiet process. Prompted by the confused look on my face, he explained further. When we hear a toilet flush, we associate pooping with clean water, two things that should really have nothing to do with one another. Yet in our mixed-up world, they do. In fact, after some rather superficial internet research, I found one statistic claiming that 95% of Americans felt relief after elimination *only after they heard the flush of the toilet*. This was by no means a scientifically proven fact, but I imagine that a peer reviewed study might lend the same results.

When I asked Bonsai about how the composting toilet project at the farm enhances the educational impact of the public Village Green area where it is located, he responded, “not a lot of people are familiar with or have ever been exposed to composting poop, and so it’s a great exposure for people who are brand new to it, and for people who are already familiar with it, it’s an inspiration and an affirmation that they are in use, because even people that hear about composting toilets hardly ever see them, because they’re not real wide spread right now. But to see one in action- yeah- inspiration and motivation” (Bonsai Matt, Personal communication July 6, 2007).

I especially appreciated Bonsai's response when asked about the existing cultural mindset that undermines efforts to make composting toilets the norm. He said, "everything can change and will change, and there'll be a time when there's not enough clean water to flush toilets, and people will see that there has to be something different. Everything goes in cycles, so it's just like everything else" (Bonsai Matt, Personal communication, July 6, 2007).

The Farm Song, by Ravyn
We are the rising sun
We are the change
We are the ones we are waiting for
And we are dawning
We are the rising sun

Listening to the Story of the Land: Co-Creating Sacred Space at TLC Farm

If you have little to no interest in earth-based spirituality, you are welcome to stop reading this document and call it a day. Please note that I refer to a spirituality that is by no means mutually exclusive of other belief systems such as Judaism, Christianity, Islam, etc. Chances are, you would have put this document down at first glance had you no interest. So I am going to gamble that the phrase 'earth-based spirituality' resonates with some part of your being, in the same way gazing into a campfire or hearing a baby crying elicits a reaction from the collective human consciousness of which we are part and parcel. If this be true, please read on. The story I share is based upon a Permaculture Design project completed with Starhawk in May 2007.

As discussed above, we as humans somehow tend to see ourselves as separate from Nature, and from Spirit. This separation has been increasing so much in modern

times, that today children and adults alike experience a tragic disconnect from the Earth, and from the elements which support and nurture their very existence. It results in the misunderstanding and mistreatment of one another, of animals, and of the environment which supports us. This disconnect badly needs healing, and the healing will not happen entirely on its own; it requires facilitation, which is where the following story comes in. I propose that implementing systems to regenerate the ecology of the farm, such as composting toilets, is a good start, but we could go further to reclaim our place in the family of creation. We must come to understand the totality of the earth's cycles and our place within them. What are the sacred contracts we have made with other living beings? How do the systems we create speak to our relationships, with one another, and with the earth?

The co-creation of sacred space allows us to blur the edges between the perceived differences of the human and natural worlds, to de-compartmentalize our culturally constructed realities, both shared and individual. There is a lack of expressed appreciation and gratitude for the Sacred Elements and Spirits in Western culture. That being said, there is amazing potential for TLC Farm to evolve as a venue for people of all religions and spiritual persuasions to interact with the Sacred Elements, which do not belong to any particular belief system, but rather belong to everyone equally. In a time of global crisis, where tribes and nations are shedding blood over their beliefs, there needs to be more places dedicated to healing our human community, and dissolving the walls between ourselves and our Sacred Kin.

Tryon Life Community Farm is already a special place to countless people, plants, fungi, birds, critters, and micro-organisms. It is part of the Tryon Creek Watershed which connects the land and its inhabitants and visitors to all the waters of the world. It is due time for the human community to deepen relation and alliance with the Elements and Spirits present on the land of the farm. This deepening is facilitated by integrating the Sacred with the Profane, and allowing us to once again become a part of the story of the Earth we will one day tell our children, and our children's children.

The sylvapolitan is the inheritor of the elder wisdoms of indigenous consciousness. S/he works in the interests of the planet, often acting out its immune functions, and thereby catalyzing evolution, here defined as life becoming increasingly aware of itself. The sylvapolitan is a perennial figure, one whose presence ebbs as civilizations rise, and flows forward again as they fall, to receive the nutrients released by their composting (art forms, technologies, spiritual insights, and such).

As the current empire is in the last throes of an increasingly surreal dance of self-destruction, and has produced a particularly bountiful harvest of the fruits of its separation from Nature (e.g., the internet, seeds of renewable energy technologies, the globalization of spiritual traditions, and graphic examples of the dangers of mind possession), the food source for the sylvapolitan is rich, and we are incarnating in droves! ~ Morgan Brent, 2007.

Storytelling is an ancient art form and oral tradition into which we can breathe new life. It connects us to a collective memory through which we can weave our triumphs and our losses, and all that we hold dear. I present to you now, a story fastened to my heart by a sacred grove of maple trees, and carried on the wings of the song sparrow. It is the story of dreaming the possible with the land and people I love so much- it is a vision

of what the farm could be as we disconnect from industrial culture and reintegrate with the culture of the forest.

Before you listen to or read the story which I share, please ground yourself. Plant your feet firmly on the ground, sit upright, and breathe deeply and consciously. This is your story too.

I invite you to experience direct interaction with the Sacred Elements of this land, TLC Farm. After all, we have never been apart from water, fire, air, earth, and center. This is an opportunity to re-engage and reunite with our very birthrights.

On the western edge of the land, along the boundary between roadside and cliffside, a thick hedgerow grows, muffling the sound disturbance of the cars and filtering the water and air that enter the land. The hedgerow is a few hundred feet long and is comprised of both native and non-native plants, such as Honey Locust, Holly, Hazel, Goumi, Nine bark, Salal, Oregon Grape, Sword Fern, Hemlock, Oleander, Hawthorne, Yew, Lavender, and Laurel.

Below the thick and complex hedgerow, water is directed down the cliffside into a pool where it is blessed and welcomed. Here we sing our intentions into each cascading moment. The element of water represents feminine energy- one which cleanses and changes. Water is indiscriminating, and flows wherever gravity takes it. Water allows for renewal and rebirth.

We have so much to learn from water, and we can directly inform and affect it as well. This is a theory which is even gaining ground in the scientific community. Dr. Masaru Emoto's book, *The Hidden Messages of Water* (2004), describes how crystals formed in frozen water reveal changes when specific, concentrated thoughts are directed

toward them. Emoto found that water from clear springs and water that has been exposed to loving words shows brilliant, complex, and colorful snowflake patterns. In contrast, polluted water, or water exposed to negative thoughts, forms incomplete, asymmetrical patterns with dull colors. The implications of this research create a new awareness of how we can positively impact the earth and our personal health.

The water which enters this land comes directly from the township of Lake Oswego, and travels through chemically fertilized landscapes and over paved roads where oil and other vehicle fluids are present. This creates the need for the water to be healed, because we want the plant and animal life to have access to clean water, on the farm and beyond.

With this in mind, this place where water enters the land will provide opportunities for people to contribute to its healing, and ultimately, our own healing. Water will gather in large glass and wooden bowls, and spill down from the cliffs. There will be songbooks, singing bowls and Didgeridoos for sound healing. We will install a bird bath, create turtle and fish pond habitat, and plant insectaries to encourage species diversity. We will clear the ivy from the wall of the cliffside, and use natural resources to paint the phases of the moon onto the rock. The turning of the Earth and the cycle of the moon affect the ocean tides, so we thought it appropriate to reflect on this relationship, to pay homage to this delicate gravitational balance.

As we transition from this space of flow and renewal, we move to the south, where the spark of inspiration and passion is ignited, and creativity is born. Ceremonial plants such as sage, cedar, and tobacco grow aside the sweat lodge. According to some tribal cultures of North America, the creator gave the lodge to the people as a way to

directly ask for things. The lodge is seen as the creator, the mother, the Earth. Entering it is a sacred happening that involves ritual. It is seen a cleansing of the body, spirit, heart, and mind. Utmost respect is given to the lodge and its ceremonies. During a sacred sweat lodge, fire heats the stone ancestors in ceremony, and we are invited to experience relation and alliance with the people, plants, animals, and spirits native to this place. We ask ourselves to let go and to burn away that which does not serve us, as fire is the element of metamorphosis and transmutation. Here we are called to heal the wounds of the colonial legacy of the European ancestors, and to pay respect to the indigenous people of the land.

South of the sweat lodge, protected by a circle of bamboo and willow, we can see a star-gazing platform inviting us to recline and bear witness to the sky. This is an appropriate place to star-gaze, away from the lights of the houses. In a recent visit to Portland, Naturalist and Storyteller Jon Young reminded us how a campfire (or in this case, the sacred fire of the Sweat Lodge) connects us to the stars. The Sun is a star that grows the trees, and gives us wood to burn. When burned, a tree gives off the light it used to grow. So when we have a fire, we are connecting directly to the energy of starlight. First taking a moment to honor this relationship, we then depart from the South, and head into the forest's edge.

A path softened by moss and fern winds through the Cedars. We pause, to sit in the living room of trees with the spirit of Spider, whose presence is strong here, weaving her webs between the spindly grasses. The air is cool and moist, and an orchestra of songbirds travels on the waves of wind coming through the hollows. Here we can sit and

weave like the Spider. We can weave stories, or baskets made of ivy from the forest. We can weave songs for the birds to carry throughout the land.

From this protected gathering space, we continue to the eastern edge where the source of breath and memory is felt in the air, where the sun begins its journey across the sky at dawn. Here we are invited to meditate on the subtleties of communication and vibrational energy. How can we nourish and cross-pollinate like the honeybee? How can we call to the honeybee to return? Our sacred spaces are not just ethereal places where we can dream of a distant past or a better future; rather they are also designed as practical solutions to tangible problems, like the recent disappearance of Western honey bee colonies in North America and Europe, a phenomenon widely referred to as Colony Collapse Disorder. Huckleberry and salmonberry bushes, surrounded by insectaries and native blue flowers like Camas and Lupine form a radial garden grove, with a yoga cove in the center, a space cleared for Sun Salutations. The bee boxes sit safely beneath the Hawthorne tree, shaded by her leaves. We reflect on the time when this patch of land was dominated by blackberries, before our Goat allies ate them away, and human volunteers dug up their roots.

We continue, and pause beside a series of ponds in this micro-climate adjacent to the mostly Cedar and Fir forest of Tryon Creek State Park. The ponds hold and cleanse the water which flows from the West. They provide hydration and temperature regulation for the bees. Pond ecosystems transform the sun's energy quickly and efficiently. Here, willows, water chestnuts, watercress, cattails, reeds, and lotus grow.

We continue, traversing the path woven through the trees, and enter the Northern part of the land. Here a healing kiva/moon lodge gives us space to be nurtured and

ground into the Sacred Mother Earth. Here we can confront our mortality and our grief. Women have a space to retreat and honor themselves and one another as mothers of the creative life force. The healing kiva is adjacent to the orchard and the cob sauna. It has one main chamber and three smaller 'pods' attached. The center of the kiva (A Hopi word meaning 'ceremonial room') is an earthen floor below ground level, and accessible both through the front door, by spiraling around into the moon womb, or by climbing a ladder to the roof, and descending a spiral staircase (see illustrations). The main part of the kiva will be constructed using cordwood technology, and the outer pods will be built out of strawbales.

Again, this design aims to serve practical purposes. The healing kiva will support livelihoods and the barter/gift economy by providing a space for practitioners to bring clients who will pay or trade for services.

The North part of the land is also home to an earthen sauna and two composting toilets. The toilets are dry latrines, where the nutrients taken from the earth as food are returned to the earth as manure. From the North, Center calls to us. Through the gardens, we step into our place in the landscape, where the systems we create can heal and transform, rather than harm. As water from the west is cleansed in the rock and reed garden, we emerge with a new understanding, a conscious awakening grounded in the Earth.

~~ The Beginning of the World ~~
The Air it is the beginning of the world
All breath comes from the wind
The fire it is the beginning of the world
All warmth comes from the flame
The ocean is the beginning of the world
All life comes from the sea

The earth it is the beginning of the world
All strength comes from within

Source: The Human Flowering Songbook

Elsewhere in Portland…

In addition to residents at the Farm, I also had the wonderful opportunity of interviewing Ole Ersson, who lives with his wife and daughter in Southeast Portland. Ole is a family physician who has been using humanure in his garden for 15 years. He also helps to educate people about humanure composting, with a slideshow he calls "Make Compost, Not Sewage." He and his family help to maintain a community composting site on a lot they own a few blocks from their house. This allows for people who live in places where they can't compost, to bring their kitchen scraps, yard waste, and humanure, to compost together in an aesthetic, low odor, six-bin system. This particular site is also the drop zone for a nearby school with 70 children, which cannot compost on-site at the school because of a rat problem.

On a breezy afternoon in mid June, Ole and I and three other folks who were interested in composting toilets met at Ole's house to take a tour and ask questions. We saw his toilet setup, and then walked over to the community composting site and helped him empty over 30 buckets into the pile, a task he usually completes on his own. Ersson remarked, "I've worked in the community gardens since the early 90s, and I've seen a lot of people's attempts to do composting, and they often give up out of frustration because they don't understand the basic principles. So you'll see how we do it. And it's easy. It's a natural process, but it takes common sense and a little bit of experience to succeed" (Ole Ersson, Personal communication, June 21, 2007). And easy it was. Ole's enthusiasm for the way his family deals with their excreta made the whole process seem effortless.

The next week, I met again with Ole, and asked him what he thought of flush toilets, to which he responded,

> Well, my personal view is that they are the scourge on the planet. They consume huge quantities of drinking water, to flush a small quantity of nutrients. And at best, they waste the nutrients, and unfortunately the best is not usually achieved. They're actually- the system is quite polluting also. So, the end product is potentially very toxic sludge, plus the water that ends up in the Willamette River, or the Columbia River, which is in its last stage, sterilized with chlorine. So a lot of nasty stuff goes into the rivers when you use a flush toilet. And the alternative is to use a non-flush toilet, and recycle your nutrients, close the nutrient cycle. (Ole Ersson, Personal Communication, June 26, 2007)

Ole is proud of the fact that he does not contribute to the water pollution, but also that he directly contributes to the fertility of his own garden. "Wherever we live, we do composting toilets and we compost our excrement and household compost and create amazing fertility. So for example, the place we moved from recently, SE 18th and Stark in Portland, we created over a foot of topsoil in our backyard at that property. So we created about an inch per year of enhancing the fertility. I mean, you hear so much about topsoil loss, well you can create topsoil too […] With organic gardening, your soil gets better year after year. Every time you garden, your soil improves" (*ibid*).

Since Ole educates on the topic, I asked him about what appropriate educational materials might look like. He answered,

> Materials that show that the process can be not only great at recycling otherwise wasted nutrients, but it can be fun and aesthetic, you know, totally contrary to what people's view of outhouses are…Or chemical toilets, you know, they're very smelly, disgusting toilets. So the educational material should focus on the fact that composting toilets can be a really great technology, as well as an appropriate technology […] It's something that people anywhere on the planet can maintain. The problems of flush toilets and the central sewage system- the fact that it's not affordable for 95% of humanity, or 90%, or 80%, whatever the figure is. It's only in the West, rich, the really wealthy Western countries that we can afford these extremely complex centralized sewage systems. For the

> rest of the planet, it's a hopeless ideal to think that villages in Africa will be able to support flush toilets. As soon as flush toilets come in, believe me, they are, because people think that's the way to go, that's modernization. As soon as that happens, the environment is degraded, and very rapidly, the streams become sewers very quickly. The water is consumed. The water tables drop because there's such demand for water. (*ibid*)

The last thing I asked Ole was about the role of composting toilets in overall watershed health. He offered,

> Well, people are focused on the health of fish, you know, the health of the salmon, and you know, our water ecosystems, our rivers are so heavily polluted, and a lot of that has been from industrial pollution, but the pollution continues day to day, coming out of sewage treatment plants. It's like, why is this allowed to happen? Why are large groups of the public allowed to pollute water? You know, because, it's kind of like grandfathered in, because we've always done it. But if you think about it, how is discharging all this polluted water into our public water supply, our streams and rivers- how is that any different from pumping our pollutants into the air? One is just more visible. Water's hidden, you know. The pipes are underground, and so this heavily chlorinated water goes in underground, and you don't see it coming out of the sewage treatment plants, but really it's a terrible injustice to the rivers. So by publicizing this, we might create some awareness about that. It's got to be two-pronged, it's got to be, point out the serious faults of the current system, and point out simultaneously how things can be done differently. (*ibid*)

We can be grateful for what one person can create, but when we create together, it will baffle the intellect and arouse our spirits to celebrate the oneness of humanity and the need for cooperating in the neighborhood community.
~ Ken Norwood, Shared Living Resource Center

~~~~~~~~~~~~~~~~~~~~Section VI: Where do we go from here? ~~~~~~~~~~~~~~~~~~~~
Ecological Education

No final project for a Master's degree in Educational Leadership would be complete without adequate consideration of how the structure and content of our educational systems have played a role in our understanding of a particular topic such as ecological sanitation. In order to pay credence to the intellectual ancestors of this educational approach that has taken on many forms throughout the ages, let's briefly review their contributions.

Jean-Jacques Rousseau felt the obligation as a teacher to study his/her pupil and support his/her natural inclinations, so that the pupil would later be free to tap into his own sense of what should and shouldn't be. In *Emile*, he often comments upon the physical world of the child, and how harmful it is to render children constrained and inactive. Just as a child should be privileged full physical mobility, a pupil should be free in his capacity to wander. A teacher should not give the answers directly to the pupil, but rather lead him there judiciously.

> **If, then, you would cultivate the intelligence of your pupil, cultivate the power which it is to govern. Give his body continual exercise, make him robust and sound in order to make him wise and reasonable; let him work, and move about, and run, and shout, and be continually in motion; let him be a man in vigor, and soon he will be such by force of reason. *Jean-Jacques Rousseau* (1762, p. 84)**

Above all, Rousseau hoped for children to be educated with the final aim being self-sufficiency. This desire surely stemmed from his distrust in the government or even the community to take care of its citizens, as social upheaval had compromised a sense of security in his lifetime. I imagine that Rousseau would approve of educating children

about ecological sanitation, because it involves tangible knowledge, and provides self-sufficiency.

John Dewey's philosophy of education is based upon his understanding of the human characteristics that would ultimately inform a progressive, democratic society. Although he has been criticized for adopting certain simplistic ideas from the 19th century (i.e. ideas addressing progress), it was Dewey's seminal composition *Democracy and Education* that undoubtedly formed the foundation for the 20th century holistic education movement.

Dewey's genius perhaps lies in his ability to incorporate social and biological functions into the ideal educational system. Education is not something that takes place solely in the schools, during certain hours of the day; rather, we as humans are educated through living together and participating in democracy. Dewey emphasized the importance of communication as the chief means of educating, particularly the kind of communication where everyone has a role and shares in achieving the larger goals. He identifies the cause of the need for formal education in advanced civilizations: children interacting with adults and learning by following them around, as was the practice of education for many centuries, and still is in traditional societies, becomes impractical since the adult occupations are more advanced.

Dewey points out the erosion of adult-child relationship, which occurs as a result of the formalizing of education. "Formal instruction…. becomes remote and dead-abstract and bookish" (Dewey 8). In advanced societies, children are expected to learn much from symbolism, instead of familiar day-to-day activities. Dewey's commentary upon the repercussions of formal education reveals his philosophy on the ultimate goal of

education: it is to cultivate a human who can function socially as well as intellectually, someone who can contribute practically to the world around them. He insightfully remarks upon the apparent outcome of formal education: the training of "egoistic specialists" (Dewey 9). Whether or not this is actually the stated goal of formal education, the result can hardly be argued.

The educators I mentioned in the beginning of this document have taught us that schooling needs to change rather dramatically if the object is in fact to educate for health, happiness, and sustainability. The health of the student and the learning environment are seriously neglected in the Western model. School buildings and classrooms are toxic environments, full of chemical cleaners and asbestos that is too costly to remove. School lunches are highly processed, often frozen and shipped from thousands of miles away. Vending machines are stocked with snacks and drinks lacking nutrition and packed with sugar, artificial ingredients, and fat. Physical education programs are at the mercy of school budget cuts, which happen as standardized tests which emphasize math and science become the measure of a good school. Physical inactivity and improper nutrition lead to the fact that American children are increasingly obese and the rate of juvenile diabetes is rising dramatically. School buildings are hooked up to costly, polluting sewage systems that hardly teach children about ecological cycles, and render them helpless in the face of systematic breakdown.

Many students, especially those who are poor, intuitively know what the schools do for them. They school them to confuse process and substance… The pupil is thereby 'schooled' to confuse teaching with learning, grade advancement with education, a diploma with competence, and fluency with the ability to say something new. His imagination is 'schooled' to accept service in place of value. Medical treatment is mistaken for health care, social work for the

improvement of community life, police protection for safety, military poise for national security, the rat race for productive work. Health, learning, dignity, independence, and creative endeavour are defined as little more than the performance of the institutions which claim to serve these ends, and their improvement is made to depend on allocating more resources to the management of hospitals, schools, and other agencies in question. -Ivan Illich. *Deschooling Society*

How can we expect children to care about learning if the message they receive in the public schools is that they are not cared for themselves? How can we expect children to learn when their bodies are processing toxic and sugar-laden foods, compromising the optimal functioning of the brain? I have risked ranting negatively in order to proffer a lofty goal in education: to provide the opportunity for children to learn how to take care of themselves, body, mind, and spirit. And in taking care of themselves, they shall take care of the earth, and in taking care of the earth- themselves. Simple enough, isn't it?

I look to the wisdom offered by the emerging field of Ecological Education, as proposed by pioneers in the field Dilafruz Williams and Gregory Smith (1999). The ideas behind this educational approach resonate with the same aforementioned desire to heal the human-nature divide. Williams explains,

> Ecological education connotes an emphasis on the inescapable embeddedness of human beings in natural systems. Rather than seeing nature as other- a set of phenomena capable of being manipulated like parts of a machine- the practice of ecological education requires viewing human beings as one part of the natural world and human cultures as an outgrowth of interactions between our species and particular places. From this standpoint, arguments over a human-centered or an earth-centered orientation towards the environment miss the point. There is no way to disentangle human beings from the earth, and as long as our species exists, no way to separate the earth from humans. (1999, 3)

Anyone who has worked with children, or adults for that matter, in a learning environment is all too aware of how the separation has evolved, and the systems in place

which further severe us from the earth. I repeat this again, because long-term solutions are borne from clear thinking only when we understand the true source of the problem. One of the problems is that, in our rush to place modern technological innovation and economic 'liberation' above all else, Western culture has overlooked the simple wisdom of time honored traditions *in terram corpus*, with the body and earth in direct and necessary relation to one another. "Rather than seeking purely technological or legal solutions to the environmental disruptions that are now gaining prominence in the daily news, we need to revisit cultural traditions that have proven their sustainability and examine our own behaviors and beliefs in their light" (Williams and Smith 1999, 6).

I look also to Kawagley and Barnhardt (1999) for their thoughtful comparing and contrasting of Western bureaucratic organization with indigenous social structures.

> The specialization, standardization, compartmentalization, and systematicity that are inherent features of Western bureaucratic forms of organization are often in direct conflict with social structures and practices in indigenous societies, which tend toward collective decision making, extended kinship structures, ascribed authority vested in elders, flexible notions of time, and traditions of informality in everyday affairs. (121)

The indigenous model of education functions to prepare individuals for meaningful involvement with one's own community, a fundamental need of humans that has been lost in the miasma of Western mainstream culture. The Alaska Native communities to which Kawagley and Barnhardt refer use ecological foundations in order to transfer information to future generations, but not by using textbooks. Native people observe nature directly to learn from earth cycles and bodies of water.

In their published work, Wendell Berry (1987) and Fritjof Capra (1996) both impart this knowledge of nested systems, patterns, and webs of relationships. The Native system does not require completely abandoning the Western individualism abdicated by

John Dewey and Paolo Freire (1970). In fact, “in each Native person’s life the central drawing force is the self. The self is grounded in the profound silence of the universe- its sustenance is spiritual, it is love, it is a sense of belonging to a tribe, belonging to the universe, belonging to something greater than one’s self” (Kawagley and Barnhardt 1999, 128). Ecologist David Orr refers to inhabitants of post-industrial nations as *deplaced*. “For deplaced people, education in the arts of inhabitation is partly remedial learning: the unlearning of old habits of waste and dependency. It requires, first, the ability to perceive and utilize the potentials of a place” (Orr 2005, 93). These are values I hope to incorporate into my own journey of becoming an educator and re-learning how to learn.

Community based learning is one model that has facilitated the change in the way we understand our own education, and our own lives for that matter. This approach is rooted in the belief that there are many legitimate ways to learn, and many useful ways to support learning. Ron Miller, using the work of Canadian educator John Miller, suggests that there are four basic educational orientations: *Transmission, transaction, transformation, and self direction* (2000).

Education for transformation represents a radical and countercultural philosophy. “To educate a human being is not merely to make one a knowledgable, productive member of society (transmission) or an active, engaged citizen (transaction), but also to help each person discover the deeper meaning of his or her life” (*ibid*, 6). This is holistic education. The self-direction orientation goes beyond that of transformation, and is an approach grounded in a basic trust in human nature. It is found in the writings of John Holt and A.S. Neill, and expressed in the establishment of democratic, anarchist, and “free” schools during this century (*ibid*, 7).

How can we incorporate this radical new way of community learning into the larger framework of Systems Design? Evolutionary Systems Design (ESD) is an approach which incorporates into action the unique perspective which humans currently have on evolution. An Evolutionary Learning Community (ELC) is an ideal image of a future education system within ESD (Laszlo, 5). Together we collectively learn to adapt to our environment.

In an epic quest for understanding, our species has walked the earth and recounted mythic stories of our human experience. What we decide to carry forward as something of value and what we leave behind as a burdened and troublesome load is transmitted at the individual, community and societal levels. ~ Yveline Wilnau, 2006

There should always be an experiential element to learning. Ideas really begin to click when a student has the opportunity to try them out in a hands-on learning environment. There are few chances to learn from one's own mistakes when instruction is in the form of a textbook or a lecture. Western schools have incorporated labs and projects into some of their disciplines, namely the sciences. Yet they are light years away from providing curricula that educate on the infinite number of levels which encompass the human learner.

"Classroom-based research is inadequate to the larger tasks of cultural and ecological analysis that reinhabitation and decolonization demand" (Gruenewald 2003, 10). The schooling which students in public school receive today is tragically outmoded, becoming more and more obsolete by the day. The state and federal standards that inform curricula and benchmarks are based on a social and economic system that is rapidly changing, so it is virtually impossible to keep up. We must consider the rate at which our national economy continues to dwindle (or grow unsustainably and alarmingly, however

one should choose to look at it) and social services erode. Young adults all over the country are spending their valuable time and energy learning things which may not serve them, preparing themselves for opportunities they probably won't even have. Educational standards cater to a white, middle class value system which likely feels irrelevant to the impressive variety of cultures and experiences that comprises our populace today.

As an educator I will aim to shed light on racial issues, instead of pretending that they don't exist. I will celebrate the uniquity of place over the ubiquity of universal standards like that of the flush toilet. I will allow time for contemplation, digestion, reflection, celebration, and even grief. I will integrate food and place-based learning, in order to reconnect our severed ties to food production and to the earth. I will nurture. I will use art and music to encourage creativity and emotional expression. I will demonstrate reverence for my intellectual ancestors. I will demonstrate reverence for the ocean, the mountains, the rivers, the trees, the bacteria, the rain, the worms, the coyotes, the rats, the moss, the cornstalks, the compost heap, and all that supports my life and the lives of my students.

I will use my natural tendencies, my thirst for knowledge and learning, and my ability to teach others, by applying it to sustainability curricula. These curricula would involve healing, poetry, relevant history, life sciences, ecology, meteorology, herbs and natural medicine, natural building, gardening, world issues, Dialogue, wild crafting, wilderness therapy, philosophy, permaculture, watersheds, arts, music, dance, reading, film, nutrition and cooking, cultural geography, theater, and self-directed study. Taking from the work of Rousseau, Dewey, Freire, Orr, Berry, Noddings, and so many other holistic educators, in my ideal model, *the student is the teacher is the earth is the student*

is the teacher is the earth, and so on. I hope that someday we are able to recognize this willingly, and pass it on to the next generations that inherit the legacies that we have left.

Rudolf Steiner transcended the works of Plato, Rousseau, and Dewey in his educational beliefs, by incorporating the emotional and the spiritual facets of human potential. He saw education as an art, not as a science, and felt that the expression of creativity was vital to the learning process. His philosophy was very much a reaction against the influence of Western positivistic and scientific thought on education. His Waldorf-Astoria learning centers acknowledge the entire human body as the vehicle for consciousness, not just the brain. The ruling principle of Waldorf education is the spiritual unfolding of the individual. Unlike Plato, this holistic approach prioritizes the needs of the developing person over social goals (Miller 1990, 135-6).

To Steiner, the goal of true education was to acquire sensitivity and intuition, which is why art was incorporated into every educational program in Waldorf centers. Creating and perceiving art is an emotional act, offering a healthy outlet for many impulses which children experience. “The guidelines for educational practice are not derived from social values, nor even from some relatively objective, psychological-scientific study of children; the educator is asked to trust a source that at first appears wholly interior, subjective, hidden” (Miller 137). Trust in the unseen, the unknown, is at the very crux of Steiner’s worldview. It is a value much discredited by Western, particularly American, culture. American schooling blatantly lacks a concern for the inner human world that so desperately needs nurturing. Steiner’s approach radically challenged the existing nature of the teacher-pupil relationship. His observation of the extreme lack of spiritual and emotional development in Western educational institutions

led him to believe that teachers should stay with their students throughout their education, developing an investment and a deep bond. Steiner anticipated that the Waldorf model would help to reform education at a large scale; instead it has become isolated and separate from public schooling, which is by and large still subject to the cultural traits of competition and consumption.

There exists a complexity and richness to each of the above educator's individual philosophies. There is an even greater beauty in the gift of perspective granted to us today, the ability to look back and extract from each approach what worked and what didn't, and how they might be applied considering the ever-changing set of social norms. Following the cues of these inspirational figures in education, we can use our hearts and our minds as crucibles, to burn away everything that will not serve us in our full power and potential as part of the earth.

We must consider what resources are available for our continued survival, recognize which human faculties we possess to help us find balance and continue to encourage their development, and find a way for us to work together in this common ground for change. –Yveline Wilnau, 2006

Permaculture and Whole Systems/Regenerative Design

One form of education that is gaining popularity and credibility is that of Permaculture. Permaculture, mentioned previously, is a design system which utilizes a systems thinking approach to create sustainable human habitats by analyzing and duplicating ecological patterns. It is a term first coined by David Holmgren and Bill Mollison of Australia. Permaculture Design is based in part on indigenous and time-honored methods, and offers many solutions to dealing with human waste, which could

become an irreversible ecological crisis if flush toilets remain the norm (Mollison 1988). The two graphics below illustrate the conventional system (figure 6a) and the closed loop system (figure 6b).

Figure 6a: Ecological Sanitation and Health. ***Source: Esrey*** **et al.** ***2001, p. 35***

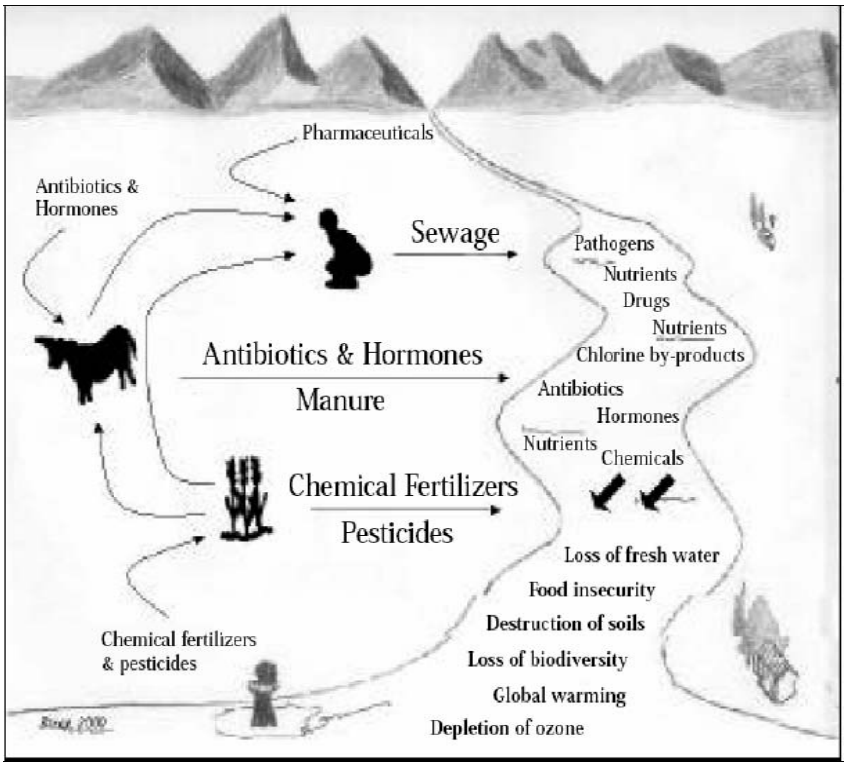
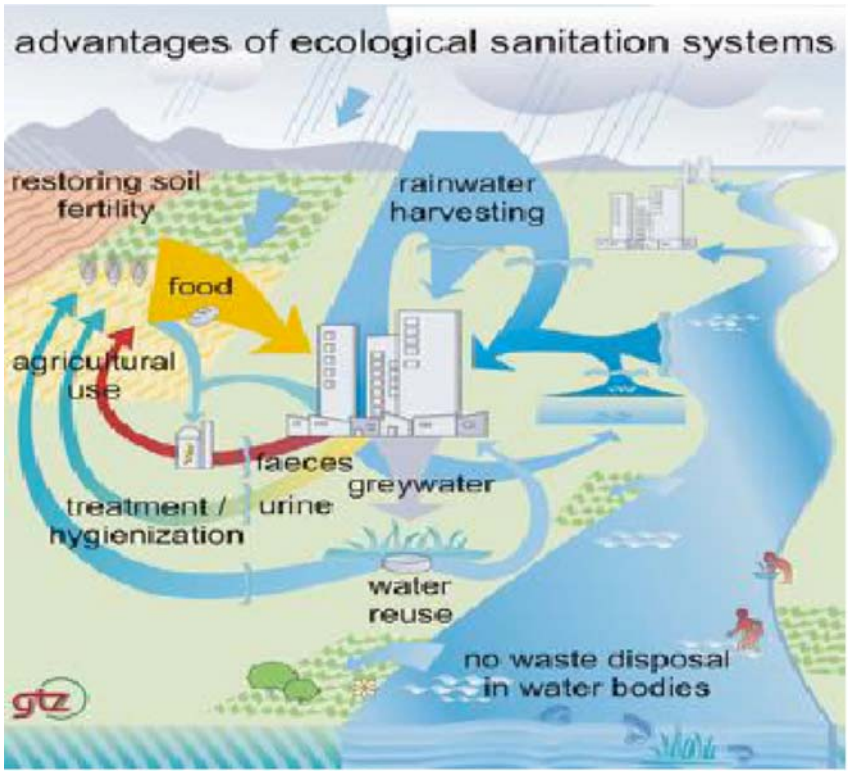


Figure 6b. Advantages of Ecological Sanitation Systems.
Source: "GTZ. Advantages of Ecological Sanitation." 2007



The process of healing the urban dweller's severed relationship to food production and the human nutrient cycle is part and parcel of healing our social relationships. As Murray Bookchin explains, "nearly all our present ecological problems arise from deep-seated social problems. Conversely, present ecological problems cannot be clearly understood, much less resolved, without resolutely dealing with problems within society. To make this point more concrete: economic, ethnic, cultural, and gender conflicts, among many others, lie at the core of the most serious ecological dislocations we face today…" (Bookchin 1993).

Bill Mollison's chapter on "Strategies for an Alternative Nation" includes a section on Bioregional Organization (1988, p. 510). Bioregionalism is a diffused social movement first identified in the 1960s. It prioritizes citizenship within the local region,

which is a natural area defined by identifiable geographic boundaries. Bioregionalism, in combination with global outreach, is one movement which seeks to address the ills described above by Bookchin. Bioregional groups deal with issues such as food, shelter, energy, and finance. The metropolitan Portland area, from its many grassroots community based organizations to its citywide strategic planning board, is sprouting seedlings of the bioregionalism movement. Local food production is becoming more and more of a priority, reflected in projects like *Diggable City*, a documentary about taking inventory of vacant, publicly-owned land in the Portland area, and about how that land might be used to support urban agricultural activities. The project and film grew out of a City Council resolution. There is vast potential to turn much land in Portland, whether publicly or privately owned, into edible permaculture gardens. The undertaking could bring neighbors together, and dissolve the boundaries between social guilds.

The Village Building Convergence, although now only a ten-day event, continues to formalize its niche within the broader sustainability movement in Portland. Each year that passes, organizers are more and more aware of how to link up with existing systems and apply permaculture principles to VBC projects. In Portland, as aforementioned, several initiatives are underway which speak to holistic design and permaculture principles. The City Repair Project's annual Village Building Convergence offers community-based projects ranging from gardens to earthen benches to murals to composting toilets. Many people involved with the projects cultivate a *bioregional* awareness.

In our collective human consciousness exists the memory of the home hearth and the village commons, places where we once felt like we belonged. We have the

opportunity to transform a culture built around commerce into a culture built around community. We must endeavor to challenge boundaries that exist between one another. This holds true not just for systems of knowing information, but also systems of knowing people. We must learn to walk through the walls of social guilds as well. This r:evolutionary process requires acknowledging and healing social constructs that, for better or worse, we have created and enforced. Capitalism has bred particularly inequitable social constructs, so in capitalist societies we are especially going to have to learn to think out of the box. Social ecology teaches us that in order to heal environmental crises, we must also simultaneously work to heal social crises- namely those of race, class and gender.

For millenia, humans have naturally settled in more or less homogenous ethnic and social groups. Even in large, diverse cities, we generally cling to that which is most familiar. I argue that in the post-modern, post-structural age, we can no longer afford to allow the level of isolation and segregation to continue. Our separate social groups can continue to serve us, but at the same time we need to reintegrate into the larger whole, recognizing our innate differences as well as our profound similarities.

What, then is the answer? The only other answer to the tragedy of the commons is the comedy of community. One is almost tempted to call it the Divine Comedy. Without some sort of sacredness, the comedy easily becomes black and obscene and returns once more to tragedy. ~ Kenneth Boulding

Lessons Learned and Next Steps

This paper represents merely a snapshot of the dialogue taking place in the scientific and activist communities around the world to address sanitation issues. In the same vein of many other challenges faced by urban communities, the lessons learned in Portland will be determined by the local, and informed by the global. With adequate education and public support, cultural perceptions and behavior may very well catch up to what science and good sense tells us.

I can say that, in these several weeks of research, I have learned that people really appreciate anyone who takes the time to think and write about shit, because so few of us are doing it. At first I thought that I would complete my research, hand my final document in, receive my diploma, and nobody would want to hear me mention the topic again. However, I have just opened a serious can of worms. People from all over the country have emailed me wanting to learn more. I have limited practical experience with composting toilets, but I have built them and used them when possible, so I am slowly working my way from becoming what Ole Ersson calls an "armchair permaculturalist" to a practicing permaculturalist. I am however, willing to wax eloquently on the topic for hours if necessary.

My good friend Martin Schulke offered some very sound feedback at the initial presentation of this project on July 13, 2007. He said that the real work is not going to be in memorizing all of the facts and figures and trying to convince others of the science behind the issue. Rather, the real work is going to be in holding space for people to talk about their experiences, and to do so in a tactful and empowering way. I was ever so

appreciative of this advice, because it has given shape to my desire to move forward with the work. In a few weeks I am hosting a forum for people to come together and begin a conversation about excrement. It may not be pretty, and it may not be comfortable, but it will be real.

The process of researching and composing for this document probably generated more curiosity than it satisfied. Rather than ending with a brilliant, mind-blowing conclusion, I can offer only genuine questions for you to ponder. For instance, what does it take to get people to start talking about the taboo topic of human excreta? How much time does Portland have before its Big Pipe project becomes obsolete? What is the potential for the composting toilet at TLC Farm to affect change in visitors and program participants? How do composting toilet projects in urban environments speak to the concept of neo-indigeneity? Relocalization? How can outreach and educational materials affect the impact of the composting toilet initiative at TLC Farm? What watershed issues are unique to Portland and its CSO method of dealing with sewage? How can TLC Farm and the composting toilet initiative serve to educate the residents of Portland and the greater Pacific Northwest about sewage and stormwater? What support does TLC Farm have from the City of Portland and the Bureau of Development Services in this composting toilet initiative which protects the Tryon Creek Watershed and mitigates CSO impact?

Some questions that are more relevant to the individual reading this- where is your watershed? Where does your food come from? Where does it go? What is your bioregion? Where is The Great Turning in *your* life? Has it begun? Does it involve relationships? With people? Animals? Places? Stars? Water? Soil? Does it ever end?

Are you ready to dive into this wave of opportunity? *The waters of life need us.*

The River is Flowing (Old Skool Rainbow version)
The river is flowing.
Flowing and growing.
The river is flowing
Down to the sea.

Mother earth, carry me.
Your child I will always be.
Father earth, carry me
Home to the sea.

(New Millennium version)
The Empire is falling
Walls they are tumbling
The Empire is falling
Into the sea

Mother Earth strengthen me
To rise and create with thee
Father Sky inspire me
To light up the Sea

Source: The Human Flowering Songbook

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