

Ethan Martin Sollie Hill  
Auburn High School  
Auburn, Alabama

## **Building Infrastructure at The Roof of the World**

### **Background**

Nepal is at a crossroads, an impoverished, often desolate crossroads defined by its culture and its geography. It may be said that geography is destiny. Any consideration of Nepal's tremendous poverty and significant nutritional deficiencies must begin with a look at the nation's topography.

At 54,363 square miles, Nepal is slightly smaller than the Great State of Iowa. However, this land-locked nation has remarkable geographic diversity. The tropical southern lowlands of the Terai region rise to a mountainous north which contains eight of the world's ten highest mountains, including the highest, Mount Everest. The fertile, humid south is relatively urbanized. Although lacking an appropriate infrastructure of roads and towns, Nepal is widely recognized to have tremendous potential as a tourist destination, a virtual "Shangri-La" for environmental tourism. India borders Nepal on three sides, and the fourth border is Tibet, or as the Chinese regularly remind us, the Xizang Autonomous Region of the People's Republic of China. Naturally, political conflicts between these two Asian powers will continue to intrude in Nepal's domestic and foreign policies.

The facts that the country is isolated and land-locked have had a tremendous impact on the lingering bonds to its cultural past and its slow movement toward modernity. Although a country of great beauty and cultural and religious significance, this country of 18.5 million people is one of the poorest countries in the world. With a per capita income of \$1,100, its economy is on par with the most impoverished African countries, such as Uganda and Guinea, and its income level is 2.4% of the personal income of the United States. The Nepali National Planning Commission estimates that 49% of the population lives in absolute poverty, and nutritional deficiency is thought to affect 40% or more of the population.

Nepal is a country of the very old and the very young. Overall life expectancy at birth is 63.8, 15 years less than for Americans, and because of disease and malnutrition, any Nepali over the age of 60 is considered elderly. Using those standards, the 2001 census determined that 6.5 percent of the Nepali population is elderly. During the years 1991-2001, the elderly population grew at a rate of 3.39 percent, exceeding the country's average annual population growth rate of 2.3 percent.

*The Kathmandu University Medical Journal* states that:

"Although the proportion of elderly is increasing both in absolute numbers and as a proportion of Nepal's total population, traditional family norms and values of supporting the elderly are eroding at an alarming rate. ...The population is generally poor, and Nepal has limited communication and infrastructure. Nepal has a high population growth rate and it is concurrently attempting to introduce population control

programmes. These programmes have resulted in a lower birth rate which will subsequently result in an even greater proportion of elderly individuals. Unfortunately, however, there is a dearth of specific initiatives to deal with the issues associated with aging at the international level.”

Demographically – where and how people live – there are major challenges. Despite the significant elderly population, the median age is only 20.1 (compared to the world’s median age of 26) with 2 out of every 5 Nepalis under the age of 15. The census of 2001 found that there are 23.1 million people in Nepal, a 500% population growth in one century, with the population currently growing at 2.25 per cent per year.

Rapid population growth—the current fertility rate is 4.1 children per woman—has pushed many Nepalese to migrate from the mountain highlands into the fertile, more urbanized lowlands. Nearly one-half of the population now lives in the lowlands, which comprise only 17 percent of the country’s landmass, challenging their capacity to support this burgeoning population. Nepal has the highest infant mortality rate in South Asia, and life indicators, such as adult literacy, nutrition, and life expectancy, are among the world’s lowest.

Yet on the “Good News/Bad News” front, with peace accords signed in 2005, Nepal is slowly beginning to recuperate from an extended Maoist insurgency which left 13,000 dead, 200,000 internally displaced, and 75 percent of the country under Maoist control. The civil war undermined the already-feeble education sector, resulting in a 45.2 percent literacy rate. Even with the peace accords, the United States Department of State notes:

“Political violence remains a problem in Nepal. The Young Communist League (YCL), a Maoist Party subgroup, continues to engage in extortion, abuse, and threats of violence, particularly in rural areas. Youth groups from the other two main political parties, the Nepali Congress (NC) and the United Marxist-Leninist Party (UML), have also formed and clashes continue among these political rivals. Violent actions by multiple armed splinter groups in the Terai region along the southern border with India remain a significant concern.”

### **Formulating Public Policy**

In formulating public policy initiatives to address “increasing populations, rapid urbanization, and gender or cultural discrimination,” questions of class and economic inequity are the bedrock issues for Nepal. For example, it is widely recognized that the success of the Maoists revolutionaries was based on their ability to harness the people’s anger and frustration over their lack of access to natural resources and their resentment of the ruling elite. Nepal was long under a feudal system where a small number of landlords held most of the agricultural lands, and the transition away from this system has not been easy.

### **Causes and Consequences of Conflict**

Bishnu Raj Upreti, regional coordinator of the Swiss National Centre of Competence in Research in Katmandu, has summarized ways in which efforts to resolve the country’s demographic and

environmental problems could reduce conflict, alleviate poverty, and provide a pathway to peace. Upreti has listed the key issues as: poverty, unemployment, discrimination (ethnic, socio-economic, and geographic), corruption, and failures in governance. However, he notes that the critical factor contributing to conflict is the lack of access to natural resources. Only 20 percent of Nepal's land is arable, but 78 percent of the population depends on agriculture for subsistence. The wealthiest 5 percent of the population own 37 percent of the land, while the poorest 47 percent own less than 15 percent of the land. And as noted above, the Nepalese population grew five-fold in the last century. As a result, Upreti says, the people most dependent on natural resources had the most difficulty acquiring them. The potential for insurgency and instability will linger as long as hunger and land inequity will continue to be linked. It is widely perceived that the central government has favored landlord ownership of agricultural land, forest conservation, and developing water infrastructure.

### **Urbanization – A Two-Edged Sword**

Throughout human history, urbanization -- the percentage of the population living in urban areas -- has been closely related to economic development. Where there are towns, such as traditional "market towns," economies grow. Although excessive urbanization (a Mexico City or Hong Kong, for example) presents a new set of challenges, rural isolation severely limits opportunities beyond simple subsistence. When the population is scattered across a difficult-to-reach terrain of hills and mountains, as in much of Nepal, it is virtually impossible to provide such basic services as roads, education, agricultural training, or marketing opportunities.

In recent history, Nepal was among the least urbanized countries in the world. In 1981, only 6.3 percent of the population lived in urban areas. However, during the 1971-81 decade, urbanization grew, increasing by approximately 108 percent, more than 8.4 percent annually, and it has been widely recognized that the Maoist insurrection drove many Nepalis into more populous regions, nonetheless, 90% of the population lives in rural areas.

Despite those increases, only twenty-three settlements in the entire country could be classified as urban. The capital, Kathmandu, is the sole center with a population above 100,000, with 235,000 residents. Along with the other two major urban settlements -- Patan (79,800 people) and Bhadgaon (48,500 people) -- the Kathmandu Valley in the Hill Region had the largest concentration of the total urban population, almost 40 percent.

Urbanized resettlement, intensified by the Maoist insurrection, has had a detrimental impact. Large, poor, urban zones lack significant transportation, medical, and educational infrastructure. Writing in the *Asia-Pacific Population Journal*, Indra P. Tiwari suggests that a model based on "small and medium-size human settlements across the mountainous and hilly zones of Nepal, where small and large valleys constitute ideal lands for the establishment of typical urban centres, seems to be the best possible option for the country." In formulating public policy, the positive course of action might be to create urban centers with the same services traditionally associated with the "market town" model that worked successfully in other regions of the world through the develop of farming cooperatives and other centrally-located resources.

## **Woman as Farmer**

In many countries, there is a tradition of men immigrating from the countryside to look for work in the city. The United Nations Food and Agricultural Organization reports that is the case in Nepal, one of several economic and cultural issues having an impact on the roles of women in agriculture. Among the FAO's key findings, stated in *Fact Sheet Nepal*:

- The literacy rate for women is 25.0%. This is less than half the rate for men (54.5%)
- 90.5% of women are engaged in agriculture as against 74.9% of men
- Women have extensive workloads with dual responsibility for farm and household production
- Women's work is getting harder and more time consuming due to ecological degradation
- Women play an active role in livestock production and forest resource use
- Women contribute considerably to household income through farm and non-farm activities
- Women are active as informal traders.

The FAO report finds that despite women's key roles in agriculture, traditional social norms and customs are barriers to women having access to the better resources such as water and firewood.

Despite these inequities, there are signs of promise. The literacy rate among females ages 10-14 (49.3%) is nearly 14 times greater than that among women aged 55 or older. The urban manufacturing sector employs a higher proportion of women to men (10.6% to 8.7%).

## **From Policy to Practicality**

Numbers and statistics are important, but what is the personal impact on the lives of individual Nepalis and Nepali families? Let's consider a "typical" household in the Madhyamanchal region, one of the hill districts of central Nepal. Since we are "average," we have 6.3 members in our household. Families in our region tend to live in multi-generational households, though the gender composition depends on whether boys or girls are born first. Nepali families want sons. A preference for sons leads couples to have more children and to space their births closer together. Gender discrimination and son preference are key demographic features of much of South Asia.

On our subsistence farm, sons are highly prized because they continue the family name, can perform funeral rituals and are expected to provide support in old age. Nepal's patrilineal social structure discourages women from practicing contraception until they have a son.

This approach to family planning has a clear impact on the region's environment: According to Biddlecom et al:

"[Research] show[s] that poorer environmental quality and greater reliance on publicly owned natural resources are associated with higher family size preferences and higher rates of pregnancy. The analyses provide support for the 'vicious circle' argument that environmental degradation can lead to rising population growth via positive effects on fertility. As environmental conditions decline and when households rely on public lands

for natural resources, men and women desire larger family sizes and women are more likely to get pregnant in the near future.”

### **Diet, Education, and Income**

My family barely gets enough to eat. Nutritional deficiency is thought to affect 40% of the Nepali population. The *American Journal of Clinical Nutrition*, notes that:

“The diet of the Nepalese people is clearly superior to many other areas of the Far East but is generally lacking in sufficient high quality protein, calcium, vitamin A, riboflavin, and ascorbic acid. Iron, thiamine, and niacin intakes are adequate to high due to consumption of large amounts of unmilled rice. Although the clinical nutritional status of the population is generally satisfactory, the high mortality rate among children under five suggests that marginal malnutrition exists which, coupled with constant exposure to a contaminated environment, is a major factor implicated in child deaths in Nepal.”

There are also suggestions that modern marketing and advertising has turned poor Nepalis away from “traditional good, nutritious food” in favor of “expensive bottled vitamins and tonics.” [see *Nepali Times*, Issue #336 16 FEB 2007].

The girls on my farm cannot read (only 25% of all Nepali women are literate). The boys might be able to read some (54.5% of males are literate). Primary education is free and compulsory, though issues of transportation and isolation limit access. Total school enrollment is approximately 52% of school-age children (approximately 70% of school-age boys, 30 % of school-age girls). Secondary school enrollment is only 18 % of the relevant age-group. About 72% of all students were male.

My family is very, very poor, since 72% of the residents of the Rural Midwestern and Far Western hill/mountain region live in poverty. They almost certainly do not have access to electricity for lighting, since less than 10% of all rural households do so.

### **Farm Size, Crops Grown, Agricultural Practices, and Marketing**

We will say that our farm is average, by Nepali standards: land holdings, including forestland/fallow, is 0.56 hectares (1.38 acres) and 0.50 hectares (1.24 acres) for cropland only. Land in terms of holding size is relatively scarce in Nepal and is decreasing. Average size of land holding has decreased from 1.12 hectares (2.8 acres) in 1981 to 0.80 hectares (2 acres) in 2001. Most land in Nepal is in the hands of large land owners and most poor, rural families have extremely limited access to land. Nearly 70 per cent of households have less than 1 hectare of land and many depend on plots that are too small to meet their subsistence requirements.

Rice, wheat and maize are the major crops. There might be some tea, cardamom, ginger or coffee grown as cash crops here in the middle hills. There will be approximately nine head of livestock on the farm – buffalo, cattle, and goats.

According to the World Bank, however, much of the terraced, arable land has been farmed continuously and is so deprived of mineral nutrients that farmers do not risk committing seed unless they are able to apply manure. The many abandoned terraces throughout the hills demonstrate that the supply of nutrients is often inadequate for continued farming.

We will be optimistic that our farm is moving toward developing some best practices in agriculture. They have worked with their neighbors to create irrigation canals; they have diversified their crops. A micro-loan from an NGO has provided them with credit for fertilizer, higher-yield varieties of seeds, insecticides and implements.

With fertilization and modernized farming techniques, conditions in the region are favorable for the development of horticulture, cash crops and off-season vegetables. If we were able to grow enough and get it to market, the people of Katmandu would pay well for our produce. Unfortunately, this production potential has not been met.

### **Major Barriers to Improving Farm Agricultural Productivity and Income**

The hill districts of central Nepal have difficult terrain, unfavorable climatic conditions, and little infrastructure development. Rural poverty (and national poverty) will be an overriding concern of planned agricultural development. It is yet to be seen if political stability will be fully returned to the nation after the Maoist insurrection – or if economic equity and land reform will reach the “poorest of the poor.” Economic growth is a precondition for poverty reduction, and for Nepal “economic growth” largely means “agricultural growth.” It has been widely noted that India, China and Vietnam have developed their economy through better agricultural planning and implementation.

Because of isolation and lack of transportation or other infrastructure, marketing will continue to be a key issue. And a significant issue, which I have not dealt with here, is the important challenge of class and caste – a complex issue that builds layer-upon-layer of division and discrimination within Nepali society.

The Nepali agricultural institutions may not speak with one voice, but there is a consensus that the Nepalese agriculture sector is not currently capable of meeting its people’s needs. Equitable access to land will require policy changes equivalent to “redistribution of wealth.” Policy decisions must be made on how much land should be devoted to food crops and how much to cash crops, how much land should be reserved for internal consumption and how much for export.

There is no fertilizer producing industry in Nepal, and many experts perceive that the importation and monitoring of fertilizer usage is unsafe and unsatisfactory. Likewise, policies must be developed (and external funding secured) for the introduction of newer technologies, such as has been successfully introduced in neighboring India and China.

Public policy (and market forces) give birth to infrastructure. For our farm family to be more productive and earn greater income, an infrastructure must be in place that will improve education, transportation, and provide access to arable land. The success of the Maoist

insurrection underscores the fact that access to land (and wood and water) is crucial to social and political stability. Agricultural education, perhaps following the model of the U.S Cooperative Extension Service, will almost immediately put food on the table, but a well-rounded academic education system – available to males and females – will serve the entire population of Nepal. Physical access to markets will be a major challenge, and will require improved transportation (through farm-to-market roads and along the river systems).

Nepal has always attracted considerable world attention. Ironically, its first image was as Shangri-La: “a mythical Himalayan utopia—a permanently happy land, isolated from the outside world.” More recently that attention has been due to its geo-politically sensitive location between the People’s Republic of China and the Republic of India. Following the fall of the monarchy, political tensions have continued in Nepal. Until governmental and social stability arrive, expectations for meaningful public policy initiatives must remain low.

As with a great deal of marginal farm land, much of the arable farm land has been badly degraded, a key issue at a time when a growing population is making greater demands on it. And social divisions will continue to frustrate advancement. Women are fully second-class citizens, although NGO’s are aiding them in making tremendous strides, educationally and economically, through such things as micro-loans. Just as pervasive and perhaps more insidious, is the Nepalese caste system, which like the Indian caste system is highly complex and continues the traditional system of social stratification along ethnic, religious, and cultural lines. And one can only imagine the economic impact of a society where untouchables and touchables have separate societies within a larger society.

Yet there is cause for optimism. There is a growing national awareness and interest in sustainability and environmental issues. The Sustainable Agriculture Development Program Nepal (SADP-Nepal) was established in 2004 and is committed to enhance the livelihood of resource poor farmers through research, development and promotion of sustainable agricultural system in the country. For nearly thirty years, the USAID has undertaken significant sustainable agriculture and the environmental programs designed to involve local communities in management and conservation of the forests.

Although far behind Western standards, issues of gender equity are making radical advances – even making people aware of the issue is a start. But there are specific programs directed at female literacy, rural women’s networks, and the strengthening gender equity in Extension Systems.

The more (and better) land that farmers have access to, the better their crops will be. The better seeds, fertilizers, and insecticides they have, the better their crops will be. The more educated farmers are on good farming techniques, the better their crops will be. The more easily farmers can reach markets, the more income they and their families and communities will have. Those are all dependent on good and effective public policies.

With organization, the small farmers of Nepal could move from becoming subsistence farmers to becoming cooperative exporters. With China on one side and India on the other, demand will always be great.

Nepal would benefit greatly from a stable, egalitarian democracy. They might look at the models of other countries which have made the transition from being culturally and ethnically divided into effective unified nations. For example India, Nepal's major trading partner, has made significant economic strides working within the same cultural milieu. It will not be easy.

Change must come from within. Educate. Continue to promote democracy. Build and re-build internal dialogue. Specifically promote policies which encourage agricultural land access, including public land and communally owned land.

It is said that Mt. Everest grows 2.4 inches each year, two feet each decade. With patience, commitment and perseverance, Nepal can grow as well.

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