

**No-Such Gold Rush:
A Southern Response to Unsustainable Development.**

Prepared for GEOG 5762: Sustainable Development

Dr Rachel Silvey

by

Anton Seimon

*Department of Geography
University of Colorado, Boulder.*

18 December 1999

1: Introduction.

The 20th century legacy of development in the Amazon Basin and its attendant environmental and social miscarriages has been largely associated with activities involving natural resource extraction. In the current era of sustainable development thinking, the hopes for a preserved Amazon of the future hinge largely upon implementing far-sighted management strategies of such resources and reversing past practices of rampant exploitation. Frameworks have been adopted over the past decade at international, national, and local scales dictated by such objectives. At present, initiatives guided by sustainable development principles contribute to the growth of management structures and coordination between actors who are increasingly forced to take on accountability for social and environmental stewardship in the drive for economic prosperity.

This study focuses on Hueyptetue, an obscure community in the Madre de Dios Department of the Peruvian Amazon that has been one of several nodes of gold rush activities that periodically beset the Amazon in response to new or discoveries price rises on the international market. This particular manifestation has its origin in a sudden 4-fold increase in 1979-80 concurrent with particularly stressed economic conditions in Peru, Bolivia and Brazil which led to simultaneous explosions in activity wherever gold was found throughout the basin. The most famous among these was the fortuitous discovery of massive near-surface gold deposits at Serra Pelada in Brazil just as the international gold price peaked at \$850 an ounce. The resultant frenzy produced an influx of 20,000 laborers of all types accompanied by a witch's brew of lawlessness and social ills, prompting military intervention within a few months of the initial gold find (Hecht and Cockburn, 1989). In contrast, the gold works at Hueyptetue were neither a sudden discovery nor regulated then or even now.

A personal visit to Hueyptetue in December 1998 revealed gold mining activity of tremendous proportions being undertaken by thousands of individuals, with severe impacts upon people and the environment much in evidence. Rather bewilderingly, this destructive situation appeared to be self-sustaining and perpetuates in isolation from the agendas of both government and non-governmental interests. Explaining how this has come to be serves as the impetus for this study. A holistic approach to revealing what lies behind the Hueyptetue enigma is attempted in this investigation by utilizing political ecology thinking. This reveals a trade off of sorts where environmental and social wellbeing is bartered for political stability. The Peruvian governmental response to Hueyptetue has been to exhibit ignorance to its existence due to overriding national concerns and the recognition that Hueyptetue cannot be reshaped to conform to sustainable development guidelines, leaving it best not to acknowledge its presence at all.

II: Sources of information.

It is estimated that Hueyppetue contains 15,000 inhabitants, yet it remains a statistical non-entity whose very existence and location remain obscure to most Peruvians. It is commonly said that Hueyppetue is the land of no one because almost all the inhabitants are migrants (Villanueva, 1997). The informal nature of Hueyppetue is even exemplified by its multitude of spelling variations. The name derives from the Amarakaeiri Indian word for 'rio tigre' (jaguar river) and is pronounced "why-pet-way". Variations in spelling include Huaypethue, Huepetue, Huepetuhe, Huaypetue and Hueyppetue: my choice of usage is quite arbitrary.

Hueyppetue is one of several settlements co-located within the watershed of the Rio Madre de Dios that share common characteristics of non-designation by the government and a lack of formal infrastructure. These pariah communities are regarded with great disdain, even by those who dwell there yet are clearly a regional phenomenon with a collective identity. The aggregate population is unknown: the number of persons engaged in gold mining ranges in estimations from 17,000 (Arbex, 1997) to 70,000 persons (Juan Ojeda Gutiérrez, mayor of Hueyppetue quoted in Villanueva, 1997). In comparison, the official population of the entire Madre de Dios Department in 1985 was just 36,555 (Gray, 1986). Most workers around Hueyppetue are seasonal migrants from the highlands and thus their identification as residents is ambiguous. Indigenous tribal groups also are also involved in gold mining though they comprise a small and diminishing minority among the workers (*ibid.*).

A long-time resident priest from Switzerland, Xavier Arbex recently performed the first attempt at a ground-level systematic study of the Madre de Dios Department (Arbex, 1997). A self-described liberation theologian, Arbex has lived in the Madre de Dios for twenty-five years including seven in the town of Mazuko near the Hueyppetue gold works (personal communication, 1998). His study, El futuro del Departamento de Madre de Dios (Peru) was published in Cuzco in February 1997 and is unfortunately accessible only to a very limited readership; I obtained a copy from the author following an interview in December 1998. This work is a survey of contemporary realities through a geographic approach that utilizes some GIS mapping and includes numerous proposals for improved management. It is highly critical of the lack of government involvement in a variety of concerns across the region, none more so than the gold industry. A key finding of the study is that the disadvantages of the gold industry currently far outweigh the benefits across the region, but that it nonetheless constitutes the principal resource and thus urgently requires proper management (Arbex 1997:25). Despite a wealth of local knowledge that he brings to the study, Arbex admitted to me that he had never visited Hueyppetue despite having lived in Mazuko, just an hour away. Significantly, Hueyppetue is

not shown on any of the seven regional maps in the study and finds mention only briefly as being a minor population center. This important study, while highly critical of government disinterest unfortunately perpetuates some of the ignorance of Hueypetue that appears to have been willfully promoted by the government for at least a decade now.

Another informative source is a newspaper article by a reporter for *El Comercio*, Peru's leading daily (Villanueva, 1997). This report was apparently prompted by a visit to Lima by the mayor of Hueypetue who was seeking governmental assistance to develop infrastructure in the town and to request disaster relief for climatic stress related to the ongoing El Niño that had decreased gold production. The journalist visited Hueypetue while researching the article and was thus able to provide verification on some aspects of the growing mythology surrounding the region.

A source that is revealing mostly by its misrepresentation of Hueypetue is the *Atlas de la región de Cusco: Dinámicas del espacio en el Sur peruano*. (Atlas of the region of Cusco: spatial dynamics in southern Peru), a comprehensive atlas recently produced under joint French-Peruvian direction (Hurtado *et al.*, 1997). This opulent, large-format volume utilizes systematic GIS mapping to depict numerous social and economic parameters in southern Peru. The data utilized is based primarily upon results of the 1993 national census, augmented by additional sources including Xavier Arbex. Out of 68 pages of maps of the portraying the region, "Huaypetue" appears only on a map showing the regional road network. The shadow-effects of Hueypetue are nonetheless apparent despite its non-representation in themes such as migration, population change, and livelihood. The shortcomings in accuracy likely result from an absence of ground verification of data in this remote region compounded by the inefficiency of census techniques to sample communities composed of migrants who ebb and flow from different areas throughout the year (Villanueva, 1997). In common with most contemporary maps produced by both government and non-government interests, the non-recognition of Hueypetue in the atlas appears to derive from an absence of formal statistics quantifying its existence, rendering it an unknown, unmeasured entity.

III: Contemporary reality of Hueypetue.

Hueypetue is an ephemeral, unregulated and informal community. About it very little can be stated with certainty. Pooling available information with personal observations from visits to the region in August 1997, December 1998 and May 1999 suggest the following.

- Hueypetue is the second largest urbanized community in the Madre de Dios Department after Puerto Maldonado, surpassing other contenders by several thousand persons at a minimum.

- It lacks conventional urban infrastructure such as electrification, potable water, sanitation systems and viable roadways.
- Deforestation is already advanced and extends for many kilometers along the Rio Hueyppetue watershed. A priest from Mazuko estimated that based upon a rough survey he performed recently by helicopter, the deforestation now covers 2,200 km² (Juan Torres, personal communication, 1998). Personal observations from two aerial fly-overs suggest this estimate is likely somewhat high but not out of the question.
- The most serious agents of deforestation are the multitude of front end loading bulldozers operated by small groups of miners. Estimates of the number of these machines range from “over four hundred” (Jenkins, 1997), 450 (Arbex, 1997), 880 by a former resident of Hueyppetue (Vicki Rodriguez, 1999, personal communication), and almost 2,000 (Padre Juan Torres, personal communication; also Juan Ojeda Gutiérrez, mayor of Hueyppetue, quoted by Villanueva, 1997). The latter is the number reported by most regional residents.
- Gold production from the region varies enormously in various estimates. Official government statistics estimate 8.6 metric tons per annum were being produced as of 1996 in all operations across the Madre de Dios Department (Peruvian Mining Environmental Policy statement, 1999). Arbex estimates production at 19 tons per annum. The Ministry of Energy and Mines calculates placer activities to account for 22.56 tons nationwide, constituting 24% of national gold production; most of this would undoubtedly be produced in the Madre de Dios. These numbers, while highly significant, pale in comparison to estimates from within Hueyppetue itself. A mining engineer serving as advisor to the mayor of the town estimates regional production to exceed 100 tons per year (Róger Evangelista, quoted in Villanueva, 1997). This would almost double the total Peruvian gold output formally registered.
- All sources are consistent in identifying that gold produced at Hueyppetue goes untaxed. The loss of revenue is estimated to be as high as \$300 million (Evangelista, *ibid.*), though Arbex’s estimate is far more modest at just \$15 million.
- The capital value generated by gold production across the region is estimated to range from \$200 million (Arbex, 1997), to more than \$1 billion (Evangelista), very little of which is reinvested in the local economy thus perpetuating the lack of development infrastructure region wide.
- Despite the enormous wealth extracted at Hueyppetue, many workers are chronically indebted or are hardly ever paid wages due for their labor due to the debt burden carried by their overseers.

- Child and teen employment in the gold works unquestionably exists though the exact numbers are contested. The mayor of Hueypetue estimated that 5,000 underage workers in the regional labor force (Ojeda, quoted by Villanueva, 1997). In contrast, an inspection by the Directorship of labor of the Inka Region found only 54 minors working in all Madre de Dios gold works in 1996 (Villanueva, 1997) though critics charge that this was an incomplete assessment.
- Many workers at Hueypetue are migrants from the Andean highlands. The mayor, Ojeda estimates their numbers at 20,000 of which 40% come from Puno, 35% from Cuzco, and the rest from the cities of Arequipa and Lima (Villanueva, 1997).

The informal nature of these settlements can best be appreciated by the fact that a government presence in the form of a small police outpost was first established in Hueypetue as recently as 1997. The lawlessness of Hueypetue is legendary and human rights violations are reportedly widespread.

IV: Impacts

1: Social consequences.

i: Indigenous peoples.

Several tribal groups have long occupied the gold-bearing regions of the Madre de Dios and are presently being severely affected by the influx of migrants and attendant environmental degradation. Although dwarfed in number by the influx of migrants in recent years, many individuals from these groups are involved in gold mining to supplement their income from agriculture as they are increasingly drawn into the market economy. The anthropologists David Gray and Sheila Aikman have been instrumental in both studying their livelihoods and culture, and are leading activists for indigenous interests both within and outside of Peru (see, e.g., Gray, 1997). Severe and irreversible damage to these cultures has occurred throughout the region, both from cultural encroachment and deliberate confiscation of lands and exploitation by outsiders.

ii: Miner welfare.

The Hueypetue gold rush has an odious consequence in that many, perhaps a majority of workers involved in mining are deeply in debt or otherwise find they working without getting paid. With so many tons of gold being produced in the region, this appears to defy logic. Limited analysis suggests

that this situation came to be through a combination of past exploitative practices and the taking on of enormous debt burden by miners who saw the coming of mechanization as the key to riches.

Miners who work the placer gold deposits in the Madre de Dios suffer from a general lack of safeguards to ensure their social wellbeing. Much as has been noted elsewhere in the Amazon, miners tend to be those who are dislodged from the urban or rural economy, tempted by the prospect of wealth and social mobility (Hecht and Cockburn, 1989). For many in the Madre de Dios, this hope leads to entrapment. The high cost of provisions and the low return on mining yielded by most prospectors results in chronic indebtedness to regional merchants (Bliss and Olson, 1992). Death by disease and malnutrition are common among contract workers (*Ibid.*; Arbex, 1997). Furthermore, mass poverty, remote locales far removed from law administering bodies, and the corruptive nature of gold fever contribute to excessive violence. Poaching on claims often leads to violent conflict where many miners compete for space (Bliss and Olson, 1992).

A widespread system of peonage has long been established in the gold works of the Madre de Dios that renders many poor immigrants into exploitative contracts tantamount to slave labor. This is a form of indentured servitude, described by Bliss and Olson (1992) in which highland *campesinos* are conscripted to work for mining enterprises for 9 months in exchange for transport from the home province, accommodation and rudimentary training in gold mining. These individuals are, however, bound to obtain all provisions from designated merchants, representing a modern-day version of the 'company store' prevalent in similar contexts in earlier eras. The high prices inevitably result in indebtedness that prolongs the obligations of employment. Armed militias control dissent and the absence of official authority allows egregious human rights violations to take place unchecked and unpunished.

More recently, the purchase of heavy machinery to increase gold production has resulted in large debt burdens by miners who hope to obtain wealth by scaling up production. The cost of paying off the machinery leaves often leaves employers with insufficient funds to pay their laborers, who, lacking legal recourse, have no choice but to remain at Hueyputue and continue working until payment is made (Villanueva, 1997).

iii: Gender concerns.

Exploitation of females especially through prostitution is pervasive in the Madre de Dios, and finds a maximum in Hueyputue. The center of the town, known as the Barrio Chino for the amount of brawling that takes place was reported to contain 37 bars in 1997 where underage girls could be

purchased for 5 grams, or even less, of gold dust (Villanueva, 1997). The unbalanced male-female ratio across the region (depicted in Hurtado *et al.*, 1997) continues to promote such exploitation, much as has been observed elsewhere in Amazonia (Hecht and Cockburn, 1989).

iv: Public health

Health considerations have always been a powerful deterrent to lowland migration. In the Amazon basin are of course found a vast array of virulent maladies ranging from malaria to intestinal parasites. It has long been stated that fear of disease has constrained the migration of highland peoples to the Amazon. In particular, the *leishmaniasis* infection carried by sand flies can destroy facial tissue causing disfigurement that very visibly warns off would-be colonizers of the perils of the rainforest (Collins, 1988). Malaria is increasingly virulent and outbreaks are becoming commonplace with an outbreak of forty cases recently reported (El Comercio, 19 Sept. 1998). Venomous snakes are greatly feared by highland dwellers and probably contribute to regional mortality in the gold mining areas. By assessing statistics compiled at highland health centers visited by migrants, Arbex (1997: 28) concluded that 25% of migrant gold workers are affected by irreversible damage to their health from causes other than mercury poisoning, which will be discussed below.

2: Environmental consequences.

i: Industry regulation.

In the developed world, particularly in the United States and Australia, the mining industry faces strong and increasingly vociferous opposition to expansion and development. Thus far, such criticism has been relatively absent in Latin America. This is in part due to an increased awareness of large international mining concerns of the growth in consciousness worldwide in environmental concerns and accountability, especially in the light of several costly disasters that have been drawn to public attention both at home and abroad. The trend towards globalization has also had the benefit of extending many stringent environmental regulations across borders, which too, promises to foster improved accountability and environmental management of projects in less-developed countries. Such practices are congruent with sustainable development guidelines. Furthermore, developing countries are increasingly subscribing to environmental standards outlined by international bodies, especially those establishing strong ties with the emerging global economy (Gentry and Jarnigan, 1993).

International mining companies thus encounter increasing restrictions abroad in countries where they until recently enjoyed a legacy of unconstrained access (Cooney, 1996).

These improvements only apply to the formal mining sectors prone to governmental regulation. The vast gold works at Hueypetue unfortunately are not held to such standards. Indeed, formal recognition of the existence of these works would compel the Peruvian government to enforce its environmental regulations on mining upon what is already a runaway environmental calamity.

ii: Rainforest destruction and habitat loss.

The protective barrier offered by the Andes has been a firewall against both development and trade that has allowed the western reaches of the Amazon rainforest to remain less disturbed by human encroachment than most other sectors. Despite ongoing environmental damage caused by gold mining, agricultural expansion and a burgeoning timber industry, the Madre de Dios still contains one of the largest remaining tracts of relatively pristine rainforest on Earth. Efforts to preserve this extraordinary habitat have been fairly successful elsewhere in the Madre de Dios through the declaration of the Manu and Bahuaja-Sonone National Parks and “reserved zones” by the Peruvian government. This has been largely a response to pressure from the international environmental community, but also reflects recognition that such designations promote tourism to the region. Indeed, so-called ecotourism, a goal of sustainable development planners, is probably the largest formal industry in the Madre de Dios Department at present, though is undoubtedly dwarfed by the informal gold industry centered at Hueypetue.

Unfortunately, the ecological shadow of Hueypetue extends far afield of its immediate vicinity. The expansive gold works are centrally located within a 50 km-wide corridor that separates the two national parks. In combination with settlements promoted by road building along this corridor, the rainforest devastation at Hueypetue increasingly threatens to divide the unique rainforest habitat into areas separated by deforestation and denudation. Land is also being cleared for agricultural development to decrease the dependence on importation of food. Ecologically, the net effect is the imperilment much larger areas extending well into the domains of the national parks. This ecosystem, one of the most complex, is extremely fragile and highly vulnerable to human disturbance; the greatest biodiversity known on Earth has been registered in the rainforest not far to the east of Hueypetue.

The visible consequences to the environment are immediately apparent in both rivers and rainforests. Since mining at Hueypetue is more a horizontal than a vertical process, access to gold-laden sediments is contingent upon removal of the superposed rainforest. Forced to process as much alluvium as

possible to generate sufficient revenue for the large account balances, the workers in each enterprise, maintain operations around the clock. Competition with neighboring enterprises furthermore promotes relentless expansion to unexploited areas. The rampant denudation continues at present and the magnitude of destruction is easily appreciated from the air.

iii: Mercurial contamination.

The widespread contamination associated with mercury use in placer mining operations is a long-term negative consequences of enormous proportions. In The Fate of the Forest, Hecht and Cockburn (1989) predicted that the fallout from this activity would eventually exceed that of the catastrophe at Bhopal, India and comparable environmental calamities. The effects occur both among miners handling the mercury and by people living downstream from the mining sites. The miners in the Madre de Dios tend to ignore the health risks from mercury, and almost all the mercury used in mining is lost to the environment (Bliss and Olson, 1992). Whether this is due to disinterest or lack of knowledge is unclear. Long term exposure is very damaging to the human body since mercury accumulates within the central nervous system over time (Hecht and Cockburn, 1989). Mercury contamination is ongoing at a massive scale in the Amazon basin, with large numbers of the victims unaware of their predicament. Miners become contaminated by direct contact such as by inhalation of vapors during gold processing, absorption through the skin and through the intestinal tract from mercury-bearing foodstuffs (Hecht and Cockburn, 1989). The consumption of river fish appears to provide the nexus between mercury spillage into the ecosystem and high levels of mercury in residents living downstream (Homewood, 1991; Hecht and Cockburn, 1989).

The increase in mercury poisoning is closely tied to the expansion of placer mining activities through the 1980s. Homewood (1991) describes a doctor in the Amazon who identified his first case in 1986, but just 5 years later was counting 132 cases per month. One patient had mercury levels 23 times that considered safe by the World Health Organization. A 1988 health study in Brazil far downstream from gold works found that children of the Kayapo tribe possessed mercury levels comparable to those of the miners themselves (da Silva *et al.*, 1988).

V: Discussion

1: Historical and Geographical Contexts.

The ongoing gold rush in the Madre de Dios continues a legacy already underway well before the arrival of Spanish colonial rule in the 1500s. The Cordillera Carabaya lying adjacent to the lowland

rainforest where most present day workings are found is where the rich gold-bearing ores are exposed, weather by erosion, and ultimately washed down to the floodplains of the Amazon. Much of the gold of the Inca Empire had its source in mines located in the Carabaya. Following the Conquest the Spaniards engaged thousands of slave laborers to work the mines (Greer, 1990), and early chroniclers noted the extraordinary wealth thus generated.

Despite the known presence of gold in great quantities, development has been slow to come to the Carabaya and Madre de Dios. It has been the Andes-Amazon interface that has represented the primary impediment against development in the western Amazon for centuries. "Geography is a fundamental factor; here it does not favor man as in other civilizations rather it is against him", wrote Fernando Belaúnde Terry, a former Peruvian president (Belaúnde 1965: 89). The obscurity of Hueypetue is enhanced by its isolation even from neighboring highland regions. Under good conditions, overland travel from Puerto Maldonado, the capital of the Madre de Dios, to Lima takes more than a week (Gray 1997: 74); personal experience would certainly rank these roads as being among the worst in Peru. The obstacles represented by the daunting physical characteristics of the landscapes to be traversed have been the primary limitation on trans-Andean road development to date: the two existing routes from the *sierra* to the *selva* require crossing passes over 15,000 feet high. The Andean foothills around Hueypetue are furthermore an excessively wet zone, being exposed to moist air streams of Atlantic origin as they flow upslope causing excessive rainfall. Nearby to the southwest the town of Quincemil observes a mean annual rainfall of 7 meters making this one of the wettest locations on Earth. The intense rains of the wet season furthermore on occasion destroy bridges and wash out roads. The road that connects Cuzco with the Madre de Dios suffered the loss of four bridges in a single day in 1998 (El Comercio, 13 February, 1998).

2: Regional History: Gold, Migration and Colonization.

The lure of gold has ever been a cause for migrant movements, yet in the case of the Andes-to-Amazon labor pipeline it represents a complex interplay of push and pull factors being countered by longstanding inhibitions. Despite pervasive poverty in the sierra highlands and the centuries-old knowledge of ample lands and gold to be found in lowland watersheds, highland *campesinos* have until fairly recently exhibited considerable reluctance to migrate down from the highlands. As subsistence farmers, campesinos are tied to cultivation for most of the year and are reluctant to venture forth unless prompted to do so by crop failures and other stresses. This has been to the considerable frustration of governments and cornucopian visionaries such as Belaúnde who feel that all that the

Amazon lacks to release its latent agricultural and resource potential is labor. The Belaúndist vision of a vacant, fecund Amazon, a “land without men for men without land” remains both pervasive and persuasive to the present day, and continues to be offered as justification for any and all development in this sector of the country.

Placer mining in the Madre de Dios involves highly labor-intensive operations in a regional of sparse population, necessitating the import of workers from elsewhere. Sociopolitical factors and class relations in particular in the Andean highlands have strongly influenced the supply of labor into the Madre de Dios from these regions. The complex 20th century history of politics on the Peruvian Altiplano has been unraveled and analyzed by several authors, most notably Dew (1969), Tamayo (1982), Collins (1988) and Rénique (1994). The key components underlying the impetus for out-migration from the sierra include the following: (1) A feudal-like sociopolitical relationship of a land-holding class subjugating peasant masses well into present times. (2) A growing populace increasingly at risk from natural hazards. (3) Competition between neighboring regions for control of overland trade routes. (4) Struggle for domination within the wealthy class between a rising bourgeoisie and the traditional land owning aristocracy. (5) A legacy of civil conflict leading to violence and recurrent abuses against peasantry agitating for civil rights, land ownership and autonomy. (6) Waves of migration occurring in response to recurrent climatic stresses and civil oppression. (7) Naive understanding of the realities of lowland colonization by government advocates. These collectively constitute push-factors, facilitating the attraction of labor to the alien and unappealing environment of the gold works in the Madre de Dios

More deliberate attempts at colonization of the Amazon were attempted by the Peruvian government on numerous occasions since the mid-19th century (Eidt, 1963). These were motivated by perceptions of labor shortages, desire for importation of skilled labor, racist attitudes favoring an enhanced Caucasian presence in the country, and territorial concerns. Until the mid-20th century, settlers were recruited from abroad, primarily from Europe, and from within Peru by the military to occupy undeveloped lands east of the Andes. Few of these colonization experiments can be viewed as long-term successes. One such attempt was carried out near present-day Hueyppetue in 1929 when the administration of long-time *caudillo* Augusto B. Leguía (1908-29) arranged for 80 Russian Cossacks to migrate to Peru and travel overland from Lima to settle at Quincemil on the Rio Araza (Eidt, 1963). The settlers were frequently beset by malaria, and their livelihoods were inappropriately based around agriculture in one of the rainiest locations on Earth rather than in the abundant gold found in riverbank alluvium; the town's name, meaning ‘fifteen thousand’, is a reference to this wealth. All but

one of the Russians eventually abandoned the settlement for Lima or re-emigrated elsewhere (Eidt, 1963: 265).

Quincemil experienced a resurgence from a gold boom of about 10 years duration beginning in the 1930s (Gray, 1986: 33). This followed the US government's fixing of the gold price at \$35 an ounce in 1934 likely in response to Depression-era financial considerations. The price then underwent a three-fold increase within several years (Robinson, 1964: 351). This boom encouraged regional development and the interest of the national government. A road from the highlands first reached Quincemil in 1943 (Eidt, 1963: 266) and an airfield was built soon after. By this time placer mining operations were quite widespread and observed to extend downstream along the Araza at least as far as the confluence with the Rio Inambari (Benoit, 1947: 75-76). These areas are hardly worked by miners nowadays due to depletion and the attraction of more lucrative areas found further north around Hueyvetue.

Following several decades of stagnation another gold boom began in the Madre de Dios in 1972 when the international price again responded to changes in US fiscal policy. This increase was a result of the untying of gold from the dollar by the Nixon administration simultaneous with the allowance for the first time of private ownership of gold in the United States (Gray, 1986: 43).

These actions had immediate ramifications that continue to be felt in the remote backwaters of the Madre de Dios to the present day. The floating price rendered gold an extremely volatile commodity prone to speculation and hoarding and, most importantly, highly sensitive to the vicissitudes of international markets and politics. In the Madre de Dios gold suddenly loomed large in the 1970s as the commodity of choice, timber and hydrocarbons being others, yet the absence of developed regional infrastructure and overall legacy of underdevelopment did not allow for easy access to the riches. Furthermore, the government of General Juan Velasco Alvarado, who had gained power by deposing Belaúnde in a military *coup d'état* in 1968, had effectively deterred foreign investment at this time by nationalizing foreign-owned industries. This served to protect the interests of small-scale gold workers from foreign interference in the Madre de Dios since the threat of further of state takeovers deterred multinational corporations from undertaking in new ventures in Peru, especially in mining. This is an important precedent with considerable explanatory power towards an understanding of the contemporary situation in the Madre de Dios. A consequence of these synchronous events is that the gold fields of Hueyvetue are perhaps the richest in the world to remain outside the control of national interests or multinational corporations in the present day.

3: The Gold Rush at Hueyptue.

While these historical developments underlie Hueyptue's origins, its explosive growth appears to result from two interventions of markedly different character that occurred fifteen years apart. The first was external, an extraordinary surge in the price of gold that occurred in the latter half of 1979. The second was initiated from within Hueyptue itself by the importation of heavy earth-moving machinery.

The four-fold increase in gold price to an extreme of \$850 an ounce occurred in just twelve months and frenzied activity occurred wherever gold could be located worldwide. The fortuitous strike at Serra Pelada in Brazil occurred just as this peak was attained leading to the famous stampede described by Hecht and Cockburn (1989), and others. It is likely that Hueyptue coalesced as the amalgamation of several smaller settlements during this gold rush, perhaps due to the presence of particularly rich placer deposits along the Rio Hueyptue, though little would have distinguished it from other such settlements at the time. Although the gold price quickly slumped back to near \$300 by the middle of 1982, thousands had by then flocked into the Madre de Dios from the adjacent Andean highlands and even from coastal cities seeking opportunity from gold. When a secondary peak in gold price to more than \$500 occurred early in 1983, it coincided with the most intense El Niño on record as it afflicted Peru with climatic anomalies of both flood and drought that impoverished and misplaced thousands (Glantz, 1996: 62). Furthermore, increasing civil unrest in the highlands due to the growing Sendero Luminoso insurgency was simultaneously causing a flood of out-migration of *campesinos* from the sierra to Lima, but many also opted for other destinations such as the Madre de Dios gold works. Both push and pull factors were clearly active during this period in finally overcoming the long-standing inhibitions of highland dwellers to venture down to the insalubrious, hostile rainforest. Mining around Hueyptue probably proceeded in a fairly typical manner thereafter into the mid-1990s as placer works increasingly occupied riverbanks and sandbars leading to competition for dwindling claims. Since mining could only be carried on where sediments were not cloaked in rainforest, activities were confined to the watercourses only.

A dramatic change and acceleration in mining development occurred in the mid-1990s due to a locally inspired entrepreneurial intervention centered at Hueyptue. Realizing that the gold-bearing sediment underlies the rainforest along the entire outwash plains of certain watercourses descending from the Andes, miners expanded their operations by utilizing heavy earth-moving equipment to remove the overlying vegetation and then processing the underlying strata. This innovation is attributed to a miner named Edgardo Vargas, who along with his family acted as brokers in procuring

front-end loading bulldozers, transporting them to the mining areas and leasing them to groups who pool their resources to make the down payment (V. Rodriguez, 1999: personal communication). The remoteness of Hueypetue and its difficulty of access made this an extremely challenging operation; the number of bulldozers thus transported, in the hundreds if not thousands, represents a staggering feat.

The potential gains to miners offered by operation of such machinery seemed enormous, but are greatly offset by the terms of the lease. To obtain usage of a new bulldozer a down payment of \$15,000 is required followed by monthly payments of \$7,500 until full payment of the machine is achieved (Villanueva, 1997; Rodriguez, personal communication). Breaches of this contract result in repossession of machinery and transfer of the lease to other miners awaiting machines. The strict timetable for making payments and the large amounts of capital required result in the machines being worked around the clock by rotating teams of laborers (Villanueva, 1997) which has greatly increased the amount of both gold production and environmental damage.

4: Diesel.

The sudden need for a stable supply of fuel immediately became a paramount concern at Hueypetue. The dismal road conditions from the highlands, from where diesel for the machines could be obtained in sufficient quantities limited tanker trucks to 3,000-gallon capacity for the perilous journey from Cuzco, which could be accomplished in two days under the best conditions. A semi-continuous ferry system is presently in place: the register at the police checkpoint in Mazuko shows that an average of 15-20 trucks arrives daily (personal observation, May 1999).

The price dynamics behind this trade are quite revealing. The Peruvian government regulates the price of fuel throughout the country, and the trucks themselves are actually operated by the government. This serves to keep the cost of diesel remarkably low at Hueypetue given the difficulty and costs of transport which, under private enterprise would undoubtedly result in price gouging, and in turn increase the cost of gold production. The diesel trade therefore offers considerable evidence that the government is keenly aware of the scale of production at Hueypetue and actually acts to facilitate its execution if not indeed subsidize it in this manner.

VI: Analysis

1: Hueypetue and Serra Pelada.

The case of Serra Pelada offers a useful contrast to that of Hueypetue in the different attention given by the national governments to their respective gold rushes. In Brazil, the lawlessness, lack of

regulation and taxation at Serra Pelada soon prompted a military takeover of the mine on 20 May 1980, five months after the discovery of gold at the site. The miners welcomed the establishment of order, describing the intervention as a salvation rather than a theft (Kelly and London, 1983; Hecht and Cockburn, 1989). In marked contrast, the Peruvian government then as now passed on all opportunities to intervene and enforce regulation and management at Hueyputue. The 1997 visit to Lima by the town's mayor reflects considerable frustration at this continued state of affairs, and suggests that the absence of a government presence there is considered to be highly detrimental, not beneficial, by the gold miners.

The gold rushes differ in other manners too that might help explain the different governmental responses. Unlike Serra Pelada, the gold rush at Hueyputue was not inspired by news of a sudden strike with a resultant stampede of activity. Rather, it was manifest as the ramping up of production that had already been undertaken for many years across the region in response to the soaring price of gold. This somewhat more-tempered expansion of gold works is less likely to gain attention than news of sudden riches. Furthermore, the nature of gold deposits is very different at the two sites. Serra Pelada is an extraordinarily rich vein of gold-bearing ores in which nuggets, some of them of great size, are encountered merely by digging into the subsurface (Kelly and London, 1983). In the Madre de Dios, gold is found as small particles embedded in alluvium. Since it is typically found as small deposits in masses of alluvium, obtaining large amounts of it involves intensive labor input, diligence and persistence. Many tales of enormous wealth suddenly obtained by fortunate finds abound at Serra Pelada (see, e.g., Kelly and London, 1983: 174-190); such tales are not heard at Hueyputue.

The Serra Pelada gold rush came to international attention in numerous books, and especially through lurid imagery of thousands of mud-covered miners in National Geographic Magazine and similar publications. Hueyputue lacks such visibility and publicity. The sole reference uncovered in western media for this study was in Peru: The Rough Guide, by Dilwyn Jenkins who has personally researched the gold industry in the Madre de Dios. Nonetheless, Hueyputue fails to find mention even in this work. Given the presence of numerous international environmental concerns such as Conservation International elsewhere in the Madre de Dios, this is perplexing and seems to result from the combination of remoteness and obscurity of Hueyputue, and the absence of formal recognition of its very existence that might serve as a focus.

2: Reasons for non-intervention at Hueyputue.

In appearance at least, the gold rush at Hueyppetue resembles spontaneous grassroots development leading to economic uplift and empowerment of a significant rural population. Large numbers of people are employed in a capital-generating economy, foreign intervention is minimal, and significant wealth is generated from within an impoverished region. The reality totally fails to support such optimism. In both human and environmental terms, Hueyppetue embodies the very antithesis of sustainable development. It seems likely that the government's reluctance to become involved in this region as the present gold rush occurred was due to sensitivity at becoming involved in rural economic activity that appears to offer opportunity to impoverished masses. The horrors of the Sendero Luminoso insurrection, only recently brought under control in Peru, may well have served to fortify this stance over time. This is at best a partial explanation. Other possibilities are discussed below.

The greatest enigma of Hueyppetue concerns the logic of the Peruvian government to opt not to intervene in the gold rush to the present day. My analysis identifies that a variety of national agendas are better served by turning a blind eye towards the development that has taken place at Hueyppetue in recent years. These are summarized as follows:

- Hueyppetue represents employment to tens of thousands in the chronically impoverished south of Peru. In comparison, technologically sophisticated mines run by multinational corporations typically only employ hundreds of workers even at the most successful operation, Newmont Mining's Yanacocha Mine in northern Peru (Newmont Mining Corporation, 1996).
- The *campesino* peasantry of the Altiplano and Andean sierra have been viewed throughout the 20th century as a burden to society due to their chronic impoverishment, marginalized existence, susceptibility to hazards and rapidly increasing numbers. Hueyppetue serves as an effective and remote dumping ground for the population excess of the strained highland regions.
- A flood of highland migrants to coastal cities, especially to the capital Lima is perceived by many among the political and economic elites to be the most significant social problem of contemporary Peru. Hueyppetue represents a hoped-for reversal of the westward flood of migrants eastward into the Amazon instead; urban dwellers are not desirous of seeing such a trend suppressed.
- Migration into the Amazon fulfills the wishes of those development advocates who have long held the view of the Amazon being the fount of Peru's future wealth, lacking only in labor to actualize the latent potential. Hueyppetue has probably been the impetus for more migration than anywhere else in Peruvian Amazonia over the past decade; present day "Belaúndist thinkers" in national government probably view Hueyppetue positively in this light.

- Many recognize that Hueyptue is an ephemeral community. The sole reason for its existence is the presence of gold, a resource that will soon be depleted locally if present rates of exploitation continue. Significant investment is taking place, however, nearby at Mazuko near the junction of the two roads that descend from the Andes. While Mazuko appears poised to become a city in the near future and receives both recognition and investment from the national government, Hueyptue stands more as an enormous makeshift camp that will soon disappear and reform elsewhere once the gold runs out.
- Hueyptue serves as a magnet to the impoverished and a pacifier to the marginalized who might otherwise represent a threat to civil stability in the south of Peru. The recent memory of the brutal class-based insurrection of the Sendero Luminoso terrorist group results in considerable timidity to the collective power of a disgruntled populace. Governmental intervention at Hueyptue might be viewed as large-scale capitalistic imperialism over the multitude of small-scale capital enterprises which could thus, perversely, precipitate a violent Marxist-type response along class lines.
- Almost all aspects of the gold industry at Hueyptue stand diametrically opposed the tenets of sustainable development, be they concerned with social conditions, human rights, labor practices, long-term viability, and the environment. It is doubtful that Hueyptue could ever be repackaged in a manner that conforms to sustainable development objectives. This poses a problem to the Fujimori administration, which has held office in Peru since 1990 and has declared to the international community that Peru adheres to sustainable development objectives. It would appear that the large loss of revenue from the lack of taxation of the gold produced at Hueyptue is thus tolerated in favor of the difficult if not impossible task of making Hueyptue sustainable.
- It is recognized that any attempt to formalize gold production in the Madre de Dios would be met with strong resistance from the thousands of workers who, despite often lacking in success, feel that mining represents access to wealth and social mobility otherwise denied them in Peruvian society. Elsewhere in the Amazon prospectors from multinational corporations with legal governmental sanction to explore and develop remote regions have experienced severe harassment from territorial small-scale miners (Bowen, 1996).

3: Other agendas served by non-involvement.

i: Territorial Security.

Peru has long suffered from insecurity relating to its tenuous hegemony over its sparsely settled Amazonian lowlands so richly endowed in natural resources. This results from a legacy of territorial wars with Ecuador to the north, which flared into conflict as recently as 1995, and Chile and Bolivia to the south, along with the leviathan presence of Brazil to the east. Furthermore, natural features that might serve as barriers to invasion define none of its borders. Brazil in particular has long harbored ambitions of spanning the continent all the way to the Pacific and much like the United States, the historical legacy of development has always been a territorial expansion westward (Hecht and Cockburn, 1989; Kelly, 1997: 152). A cultural encroachment into the Madre de Dios from Brazil began with the Amazon rubber boom late in the 19th century when migratory rubber tappers who took advantage of the remoteness of the area by enslaving indigenous peoples for labor (Eidt, 1962: 261). Numerous Brazilians are presently involved in gold extraction in the Madre de Dios (Bliss and Olson, 1992; Greer, 1999, personal communication). Development proponents in previous national governments such as Belaúnde (1965) and Mercado Jarrin (Kelly 1997:124) have stressed the need for Peru to colonize the remote border regions with Peruvians to fortify the national presence there. It was such a motivation that led to a military expedition in 1912 to establish Puerto Maldonado, now the department's largest city at a strategic river confluence near the Bolivian border (Eidt, 1963: 264). The influx of migrants to Hueypetue serves Peru's territorial interests by greatly enhancing the Peruvian presence in a region with a superabundance of natural resource that has long been viewed as vulnerable to foreign invasion.

ii: Cuzco-Puno rivalry.

A regional conflict with a stake in governmental attention to Hueypetue is the rivalry between the departments of Cuzco and Puno for control of trade with the Madre de Dios. At present, Cuzco controls much of the trade with the Madre de Dios via the existing route through Quincemil and does so much to its advantage by considerable price inflation. Lowland residents, well aware of this, eagerly await the completion of the Transoceanic Highway, a route presently under construction from Brazil to the Pacific coast that will allow access the Puno markets instead where competition ensures lower prices (Gray 1996: 262-263). Cuzco, presently a bustling commercial zone will be bypassed by a new road presently under construction that favors Puno, the poorest department in Peru by many measures. To lessen the impact of this coming change, Cuzco has agitated for improvement of the existing extremely dilapidated Cuzco-Quincemil-Puerto Maldonado road that was completed in 1965 in an attempt to maintain its hegemony over inter-provincial trade. The presence of Hueypetue with its

large consumer population and enormous generation of capital exacerbates the rivalry. Symbolically, Hueyppetue sits close to the point where the routes originating from Cuzco and Puno merge. The Transoceanic Highway will allow through-transit by large cargo-bearing trucks in the near future upon completion of a suspension bridge across the Rio Inambari. This will inevitably increase competition between the two highland centers since Puno is likely to gain from the facilitation of trade at the expense of Cuzco. Importantly however, neither center would stand to benefit from governmental intervention in Hueyppetue since the inevitable imposition of taxation on the gold trade would inevitably reduce the commercial opportunity.

VII: Conclusion

The gold rush ongoing at Hueyppetue exhibits a multitude of characteristics that are discordant with the concepts of sustainable development that have become the paradigm of Southern development during the past decade. The precarious existence of the workers, exploitation of indigenous peoples, rampant environmental degradation, and the inefficient means of extraction collectively identify urgency to reign-in the uncontrolled nature this industry. The political ecology framework utilized in this analysis suggests the existence of numerous, complex, and often complementary factors that continue to collectively coerce the Peruvian national government to officially ignore the presence of the gold rush. Through this willful pseudo-ignorance, the government allows large amounts of revenues to escape the national treasury while thousands of Peruvians working the gold fields are left at risk without social services.

This analysis also finds that elements of chance with regard to timing play significant roles in Amazonian development. The discovery of gold at Serra Pelada prompted a runaway response because it coincided with historic highs in the price of gold; equally, it was this same frenzy that was instrumental in the Brazilian governmental intervention that established regulation and management at that site. In the case of Hueyppetue, the critical missed moment for the government or corporate interests to establish management over gold works may have been the onset of the 1972 gold rush when the Velasco regime's nationalization interventions deterred foreign investment that might have otherwise provided structure to later developments. Instead, local autonomy over gold production became entrenched and remains so to the present day.

Many questions remain. To where does all the gold produced at Hueyppetue disappear? Where does the capital generated end up? Could the massive importation of heavy machinery have been achieved

without the government facilitating, or even orchestrating the process? Are the multinational corporations who provided the bulldozers (Case, Caterpillar and Volvo) accountable for the enormous destruction to the rainforest that is being wreaked by their machinery? Much further investigation remains to be undertaken before such questions can be addressed.

References.

- Arbex, X., 1997: El futuro del Departamento de Madre de Dios (Peru). Centro de estudios regionales Andinos "Bartolomé de Las Casas", Cuzco. 98 pp.
- Belaúnde Terry, F., 1965: Peru's own conquest. American Studies Press, Lima. 219 pp.
- Benoit, L. J., 1947: Viajes por el Peru centro y sur. Editorial P.T.C.M., Lima, 121 pp.
- Bliss, J. D., and S. S. Olson, 1992: Current gold rush in Madre de Dios Department, Peru. *Mining Engineering*, **44** No. 7, 693-695.
- Bowen, S., 1996: *Financial Times*, 22 April 1996.
- Collins, J.L., 1988: Unseasonal Migrations. Princeton University Press, 211 pp.
- Cooney, J. P., 1996: Priorities in a politically challenging world. *Mining Engineering*, **48** No. 2, 21-24.
- da Silva, R., M. de Souza and C. Bezerra, 1988: Contaminacao por Mercurio nos Garimpos Paraenses. (in Hecht and Cockburn, p 143-144).
- Dew, E., 1969: Politics in the Altiplano, the dynamics of change in rural Peru. University of Texas Press, Austin, 216 pp.
- Eidt, R.C., 1962: Pioneer settlement in eastern Peru. *Annals of the Association of American Geographers* **52**, 255-278.
- Gentry, D. W., and L. Jarnigan, 1993: Environmental aspects an increasing part of international mining projects. *Mining Engineering*, **45** No. 8, 1009-1011
- Glantz, M.H., 1996: Currents of change: El Niño's impact on climate and society, Cambridge University Press, Cambridge. 194 pp.
- Gray, A., 1986: And after the gold rush...? Human rights and development among the Amaraeri of southeastern Peru, IWGIA Document No. 55, Copenhagen. 125 pp.
- Gray, A., 1997: Indigenous rights and development, Berghahn Books, Providence. 354 pp.
- Greer, P., 1990: Gold bugs. *South American Explorer* No. 25, 4-11.

Homewood, B., 1991: Mercury poisoning confirmed among Amazon villagers. *New Scientist*, **132** (1794), p. 18.

Hurtado, I., E. Mesclier and M. Puerta, 1997: Atlas de la región de Cusco: Dinámicas del espacio en el Sur peruano. (Atlas of the region of Cusco: spatial dynamics in southern Peru), CBC, IFEA and ORSTOM, Cuzco. 206 pp.

Jenkins, D., 1997: Peru: The Rough Guide, The Rough Guides Ltd. London, 436 pp.

Kelly, B., and M. London, 1983: Amazon, Holt, Rinehart and Winston, New York. 382 pp.

Kelly, P., 1997: Checkerboards and shatterbelts: The geopolitics of South America. University of Texas Press, Austin, 240 pp.

Ministry of Energy and Mines (Peru), 1999: Mining environmental policy. Accessed on the Internet at <http://www.mem/gob.pe>

Newmont Mining Corporation, 1996: Annual Report, 1996. 54 pp. Available from Newmont Mining Corp., 1700 Lincoln St., Denver, CO, 80203, USA.

Rénique, J.L., 1994: Political Violence, the state and peasant struggle, in Unruly Order, D. Poole, ed., Westview Press, Boulder, 223-245.

Robinson, D.A., 1964: Peru in four dimensions. American Studies Press. Lima. 424 pp.

Tamayo Herrera, J., 1982: Historia social y indigenismo en el altiplano. Ediciones Trenaitres, Lima, 389 pp.