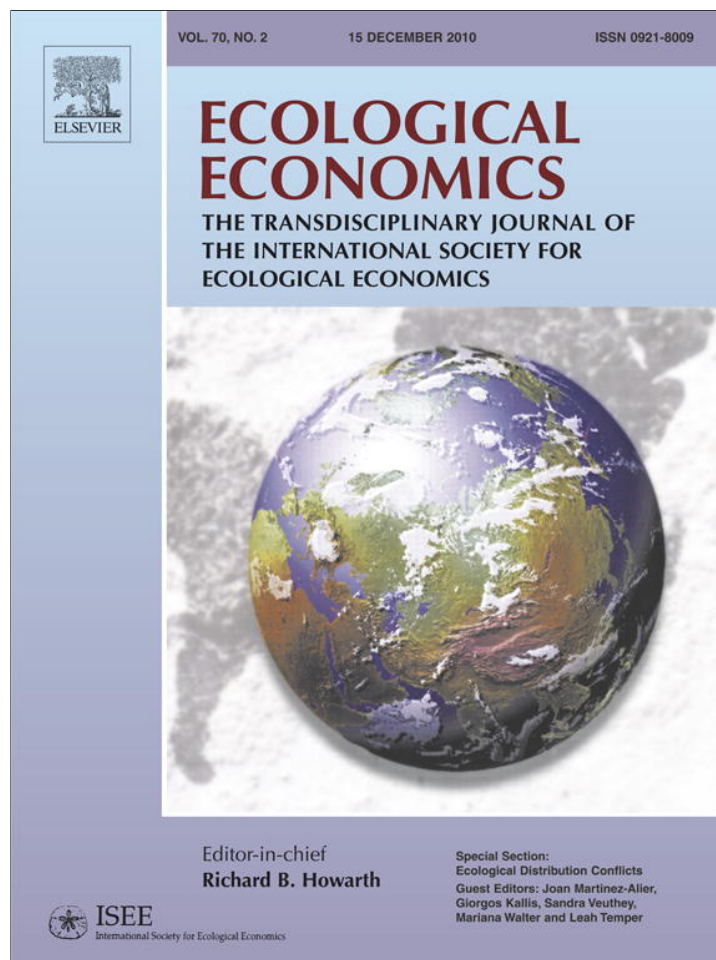


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## Analysis

## Ecuador's Yasuní-ITT Initiative: The old and new values of petroleum

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## ABSTRACT

This article examines the financial mechanism, currently known as the Yasuní-ITT Initiative, by which Ecuador would be compensated for not exploiting the reserves of heavy crude lying underneath the Yasuní National Park, a Biosphere Reserve for Humanity located in the Amazon Region. An analysis of the ways in which the proposal is being debated is offered to illustrate the unique problems posed by the incorporation of natural capital in economic decisions. A focus on the creative measurements and calculations offered by a range of social actors highlights the relevance of morally framed evaluations in defining the future economic use of the park. I show how an anthropological perspective may complement ecological economics and various political and economic approaches to development policy, and enrich our understanding of the specific challenges posed by the design of economic instruments for the protection of ecological wealth in Latin American countries poor in financial capital, but rich in biological diversity.

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Petroleum and its worth are being re-evaluated in Ecuador today. On the 24th of September 2007, Rafael Correa Delgado, President of the Republic of Ecuador, addressed the UN Assembly to present his government's intention to keep the oil from the Ishpingo–Tambococha–Tiputini (ITT) fields in the ground indefinitely: “Ecuador seeks to transform old notions of economics and the concept of value. In the market system, the only possible value is the exchange value, the price. The Yasuní-ITT Project is based on the recognition of use and service of non-chrematistic values of environmental security and maintenance of world biodiversity. The project ushers in a new economic logic for the 21st century, one in which what is compensated for is not just the production of commodities, but the generation of value.”<sup>1</sup>

In the lecture he gave two years after, on the 27th of October 2009, at Chatham House in London, President Correa further developed his vision of value beyond market economics<sup>2</sup>: “Market prices are linked to the production of commodities. The market economy compensates for commodities. There are things which have a high value, but no price. Some things have very little value, yet fetch high prices; and

things with great value may be priceless. Like friendship, happiness and security, the environment is priceless. In our wellbeing approach to the economy, an economy geared to generate wellbeing for all, we seek to generate value, to preserve value, and to compensate for the generation of value. This means changing the market logic through collective action and seeking other logics beyond the profit logic through agreement, justice and responsibility. This means not relying exclusively on a monetary scale of values. Things that do not have a price can be assessed in value terms. Biodiversity has multiple values. The environment is not just natural resources, it's not just another factor of production along labour and capital. To conserve nature for future generations can be an end in itself. We need nature to live.”

“In the Yasuní,” President Correa continued, “we have 850 million barrels of heavy oil, which is the largest reserve in Ecuador, with a value of US \$ 720 million a year. Previous governments did not know how to use money to the benefit of the country. This money is needed for schools, hospitals, hydroelectric dams, but these 850 million barrels—if they were extracted—would generate 410 million tons of carbon dioxide (in other words, huge pollution). The value of these emissions, if this was carried out in Europe, and carbon permits had to be purchased to pollute legally, [...] would be € 5 billion or US \$ 6 billion. In other words, we are avoiding pollution in that figure.”

The Yasuní-ITT proposal was presented on that day as the articulation of a new economic logic: “in economic terms, what we would be doing is compensating for the generation of value.” What was meant by ‘value’ was a multiple service, including the preservation of biodiversity, the protection of indigenous lives and ways of life, and mitigation of climate change through avoided pollution. This, added the President, “would move [Ecuador] from an

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<sup>1</sup> Correa, R. 2007. Speech at a High Level Meeting on Climate Change at the UN Assembly in New York, 25th September 2007. <http://www.ens-newswire.com/ens/apr2007/2007-04-24-04.asp>. Accessed on 7 July 2008. All English translations of Spanish quotes are mine.

<sup>2</sup> Correa, R. 2009. Environmental Policies in Latin America. Transcript of a Lecture given at Chatham House on Tuesday 29 October 2009. <http://www.chathamhouse.org.uk>. Accessed on 11 November 2009.

extractive type of economy to a service economy. We would be selling services to the rest of the world. We would be avoiding deforestation and, beyond, pollution as well. [...] The Kyoto framework needs to include the concept of compensation for avoided pollution.”<sup>3</sup>

President Correa made it clear that Ecuador's new thinking about petroleum, value and development had to be understood with reference to the impact that thirty years of intercultural dialogue with the country's indigenous peoples has had on national politics: “in Ecuador, like in Bolivia, society has been influenced by our ancestral people, who have guided the political reflection and the search for a new economic model beyond the antiquated logic of short-term profits and short-sighted benefits.”<sup>4</sup> He further explained that this vision was enshrined in Ecuador's new constitution, “the greenest in the world,” which grants “nature certain rights in terms of its life cycles, with the aim to respect and regenerate them.” The new constitution, as well as the government's determination to “find new levels of development” through wellbeing (*Sumak Kawsai* in Kechwa) and the aspiration to “survive in harmony,” he specified, are direct expressions of the national recognition of the value of indigenous wisdom: “we have learnt from our ancestral peoples. Their values are useful for the whole country.”

To fully measure the significance of Ecuador's official recognition of indigenous values in orientating national development, one needs only to recall the infamous comments made by Peru's president, Alan García, who, in stark contrast to Rafael Correa, sees oil development as having been “hampered by those who question the expansion of extractive industry,” resulting in “millions of hectares for timber extraction that lie idle, millions more that [indigenous] communities and associations have not, and will never, cultivate, in addition to hundreds of mineral deposits that cannot be worked” (cited in *Bebbington, 2009: 12*). As Harakmbut leader Jaime Corisepa notes: “for the [Peruvian] government, we are enemy, obstacle, and all this because, according to them, we are minorities with so much land [...] If we do not accept their version of civilization, we are thrown in jail, like criminals, but what we want is to live our own destiny [...] Development needs to originate from within our own communities, [...] our territory is not merchandise [...] There is another economy beyond market, money, and commodity prices.”<sup>5</sup>

Is the difference between Ecuador and Peru, two countries equally dependent on extracting oil from the Amazon, just a matter of style and approach? Or has Ecuadorian society started to develop the values needed to transition towards a post-petroleum development model (*Acosta, 2000*)? Why has the Yasuní-ITT Initiative captured the imagination of so many people around the world? What calculations, new thinking and moral imagination have produced the idea that “oil has monetary value when it is not produced and the forest is preserved untouched”?<sup>6</sup>

In this paper, I propose to answer these questions, at least in part, by showing how ethnography and anthropological analysis may help both uncover the values underpinning the Yasuní-ITT Initiative and assess the economic instruments by which the current government of Ecuador proposes to convert natural capital in actual monetary flows. The analysis of values as a point of departure for human action is central to a social science that aims to serve society by contributing to public debate and policy (*Flyvbjerg, 2001: 57*). Moreover, differentiating between forms of value has always been and remains a key anthropological task (*Gregory, 1997: 16*). The Yasuní-ITT Initiative

represents a perfect opportunity to apply the methodology recommended by *Flyvbjerg (2001)*, who stresses that a case study approach to public policy decision-making enables the phronetic social scientist to analyse in great detail the central role of values in public deliberation. The anthropological insight that economic exchanges are embedded within wider systems of value production and that “economic practices are always situated in a value context” (*Gudeman, 2001: 5*) enables us to focus on the ways in which various protagonists envisage the transformation from market values to community values (and vice versa), and the passage from a petroleum-based to a post-petroleum economy.

Data were collected through ethnographic methods over a long period of time, as part of an on-going work with Huaorani communities, and more systematically over various field trips to Ecuador between 2005 and 2008, when I was able, sometimes along with Huaorani friends and co-researchers, to observe and participate in a number of meetings and workshops relating to natural resource management and payments for environmental services. These meetings and workshops aroused my interest in the cultural and moral norms and judgments that frame economic and political arguments around the values of hydrocarbon and biodiversity. During those three years, I conducted open-ended—and often informal—interviews with government officials, Ecuadorian academics, NGO activists, PetroEcuador employees, priests, military, and indigenous leaders. I also had conversations with ordinary people of all ages in the towns of Coca (Francisco de Orellana) and Puyo; Huaorani and Quichua villagers; schoolteachers working in remote indigenous communities; and long-time friends in Quito and other parts of Ecuador. In these ethnographic encounters, I paid particular attention to the ways in which the presence of indigenous people, above all the Huaorani people with whom I have worked for the past twenty years and their ‘non-contacted’ relatives has shaped and reconfigured the development futures that are being imagined in alternative proposals for the Yasuní. During 2009 and 2010, I was inadvertently, and rather indirectly, caught up in the Yasuní campaign. I read a great deal of material posted on the web and talked to activists and personalities involved in the December 2009 Copenhagen Meeting of the Parties. This open-ended, qualitative enquiry has obvious limits, especially when applied to a fast evolving public debate. However, it offers unique insights, which may be used to guide new research questions.

The Yasuní-ITT Initiative has evolved dramatically since its inception in 2007, and continues to evolve, as new people are becoming aware of it and joining in the conversation on how the proposal, especially its financial mechanism, should be designed to generate needed revenues for Ecuador while protecting the integrity of the Yasuní National Park and moving the national economy away from its dependency on oil. The paper is structured around the data currently available to me, which I analyse using anthropological theorizations of value, exchange and money. I start with discussions of the Yasuní's biological and cultural diversity and calculations of the size and worth of the oil reserves alleged to lie beneath the park, before analysing the compensatory monetary flows that underpin the proposal of not exploiting these reserves. I end with issues of valuation, governance and power, which bring me in dialogue with a number of scholars who have provided analyses of the Yasuní-ITT Initiative using a range of approaches to ecological economics and political ecology.

## 1. The Pricelessness of Biological and Cultural Diversity

Most documents referring to the Yasuní-ITT Initiative, whether of an official, activist or scientific nature, start with statements about the unique biological and cultural values of the region. These texts state that Yasuní is not only biologically megadiverse, but also home to various Huaorani and non-Huaorani groups living in voluntary isolation, and, as such, deserves integral preservation. Arguments are couched in superlative language, combining quantitative data on

<sup>3</sup> For academic discussions of the Yasuní-ITT Initiative, see *Finer et al. (2009)*, *Rival (2009)*, *Imesch (2009)*, *Warnars (2010)*, *Larrea and Warnars (2009)*, *Vogel (2009)*, *Martin (2010)*.

<sup>4</sup> A number of anthropologists have documented this impact, most notably *Whitten (2008)* and *Udenzoski (2005)*.

<sup>5</sup> Interview of Jaime Corisepa by Pablo Cingolani, 16 February 2010. <http://www.ecoport.net/content/view/full/91136>, accessed on 20 February 2010.

<sup>6</sup> Pincas Jawetz of [SustainabilityTank.info](http://www.sustainabilitytank.info) accessed on 23 March 2010 at <http://www.sustainabilitytank.info/2009/07/31>.

species diversity, information on geology, paleobiology and paleoclimate with statements about the unique qualities of its human inhabitants. Details of endemic and rare species saved from prehistoric times are given, as well as explanations of why this refuge zone will survive future climatic catastrophes.<sup>7</sup> In contrast to European or North American forests, relatively poor in species, the Yasuní contains many. Species diversity is thus the measure of its unique biological wealth (Finer et al., 2009: 7–8). If species are quantified, such is not the case for ecosystems and their services, or other untapped natural resources. The presence of non-contacted indigenous groups adds to the exceptional value of the region, not so much in numbers this time (they are comparatively few), but in terms of their unique qualities as extreme refugees from another era; they too deserve protection from extinction. Such arguments (see also Maffi, 2001) are easily dismissed as essentialising or naturalising socio-cultural systems, and potentially objectifying indigenous peoples (Hvalkof, 2000: 108). However, deconstructions miss the point of the arguments presented in these texts, or, for that matter, in President Correa's speeches: biodiversity with its multiple values and its capacity to generate value is priceless. This simple truth is perhaps best encapsulated in the graffiti adorning the streets of Ecuador's main cities: 'life is more than oil' (*la vida es mas que el petróleo*).

If these documents are peppered with numbers, they systematically avoid monetary calculations of environmental services or of development costs. Their authors seem to prefer to argue for the region's incommensurable diversity value, a notion often invoked in nature conservation discussions (O'Neill, 1997) or environmental management debates (Martinez-Alier et al., 1998; Martinez-Alier, 2002), but used more warily in cultural analyses (Ponivelli, 2001).

The concept of incommensurability has been used by many anthropologists whose empirical studies have shown that in all economies social groups place boundaries around markets. Rappaport (1993: 298–99), for instance, finds the concept useful because 'the world upon which the monetary metric is imposed is not as simple as the metric itself. Not unlike Parry and Bloch (1989), who distinguish two qualitatively distinct types of transaction, short cycles and long cycles, Gregory (1982, 1997) stresses the qualitative difference between 'gift' and 'commodity' exchanges. As for Myers (2001), he contrasts two opposed and complementary contexts of value: one organized around commensurable, quantitative values, and the other around qualitative, incommensurable ones, which, together, produce and structure cultural difference. These empirical observations have led Gudeman (2001, 2008) to conclude that economies are always dual and that boundaries constituted by social institutions, laws, and informal practices create a tension in the economy. Gudeman (2001) remark that "[W]e live in a world of inconsistent, incommensurate domains of value" is well illustrated by President Correa's speeches, which challenge the received market wisdom that value equals price equals utility. These speeches operate a distinction similar to Gudeman's between the values of the 'community' (which Gudeman also calls 'the base,' 'the foundation' or 'mutuality') and those of the 'market' (embodied in the 'price fetishism'). According to Gudeman, it is the permanent, dialectic conflict between these two sets of values which leads us to ask before making any economic or political decision: "What do we want to produce and distribute through the market, and what not? What kinds of community do we want and what do we want to produce and apportion in the community realm? How shall the realms of value be mixed together?" (Gudeman, 2008: 160).

The relationship between incommensurability and sacredness has also been explored by anthropologists, for instance Parry and Bloch (1989), who show that long-term transactions are often religious in

nature, or Annette Weiner (1985, 1992), who demonstrates that societies protect their most important forms of collective property by never exchanging them (not even as gifts), and passing them on down the generations as *sacra* or 'inalienable possessions.' Although the term 'sacred' is not directly used to refer to the Yasuní's biocultural value in any of the documents I reviewed, it was mentioned by a few informants, who talked about the Yasuní National Park as something precious that must be protected for the future, perhaps having internalized the heritage vision promoted by UNESCO (United Nations Educational, Scientific and Cultural Organization), which designated the park as a 'Man and the Biosphere Reserve for Humanity' in 1989 (Rival, 1993). Beyond political economy debates as to whether this heritage vision is essentially EuroAmerican, properly Ecuadorian, or reflecting a human propensity to institutionalize the protection of vital ecological systems and processes, there remains the possibility that the absence of calculations of the Yasuní's ecological and cultural worth or of the cost of its destruction reflects its sacred status. The Yasuní, as a complex form of *sacra*, brings together various imagined identities: territorial indigeneity, the Ecuadorian nation, and the international community. The reference to the sacred nature of the Yasuní may also reflect another type of 'beyond exchange' motivation, one well explored by Rappaport (1979, 1993), who argues that the logic of putting a price is especially destructive of ecological systems. In Rappaport's ecological understanding of value, the sacredness of life is the ultimate non-economic value: "life comes first," given that "the existence of any and all cultural systems is contingent upon biological-ecological systems, but the converse is obviously not the case" (Rappaport, 1993: 299).<sup>8</sup> This may be why supporters of the proposal have so far decided not to use the tools to quantify and price the park's biodiversity offered by earth economics scholars.<sup>9</sup>

In the same way that there is a sort of agreement between social actors on the pricelessness of the Yasuní's biological and cultural diversity (those who back the proposal argue for its incommensurable value, while those who support oil extraction choose to ignore both the value of diversity and the cost of its destruction), there is also a shared and implicit understanding that the reserves of crude oil can only be talked about in terms of barrels with a market price.

## 2. Measuring, Quantifying and Qualifying Oil in the ITT Fields

As a natural resource belonging by law to the state (or to the nation or the people as some informants preferred to say), crude oil is valuable because it is tradable. For many Ecuadorians, reserves of crude oil embody the wealth of the nation, a wealth that is realized through selling. They talk about the country's oil reserves in quantity terms (how many millions of barrels they contain), a value they measure both in barrels and in petrodollars. When referring to the Ishpingo–Tambococha–Tiputini (ITT) fields, experts, officials, journalists and campaigners mention numbers that go from 846 million to

<sup>8</sup> For Rappaport, the relationship of the economic to the biological-ecological is best understood as 'a relationship of the instrumental to the fundamental (Rappaport, 1993: 299).' Environmental degradation is a form of maladaptation producing structural anomalies that results from a violation of contingency relations, that is, the use of inappropriate reference values (such as, for instance, economic reference values) in governance of political, social and ecological processes, where the ultimate values of 'life comes first' should have been used. Values not only order social relations with regards to nature, they also structure 'disorderings.' Disorder is created by a situation in which "it becomes increasingly possible for ever-more narrowly defined interests to become regnant in larger socioeconomic systems, for, this is to say, the contingent and instrumental to claim the status of the fundamental. The instrumental, in claiming the place of the fundamental, degrades fundamental value to the status of mystifying ideology at the same time that it generates social injustice, [...] and environmental degradation and, further, reduces the capacity of social systems to deal with such troubles as they emerge' (Rappaport, 1993: 300).

<sup>9</sup> See Kemkes et al. (2010) and Farley and Costanza (2010) for recent discussions of monetary calculations and payment types for ecosystem services.

<sup>7</sup> See <<http://www.sosyasuni.org>>, <<http://www.ambiente.gov.ec>>, Albacete et al. (2004), Krefl et al. (2004), Bass et al. (2010), Finer et al. (2008, 2009) for summaries of scientific data.



950 million barrels.<sup>10</sup> In November 2007, Julio Cardenas from PetroEcuador estimated the reserves to amount to 944 million barrels, while another expert, Fernando Reyes, estimated the reserves of actually extractable crude to amount to no more than 700 million barrels. He justified his conservative estimate on the ground that geological conditions in the Yasuní, in particular the high permeability of the subsoil, would prevent the full recovery of heavy crude.<sup>11</sup> This wide range of figures illustrates the real difficulty one meets when attempting to estimate oil reserves accurately, as the oil's quality (i.e. its viscosity and density) determines to a large extent its quantity. However, even when experts disagree on how many millions of barrels actually lie beneath the ground, the ITT fields are often said to contain 20% of Ecuador's known oil reserves. Round figures are easier to remember. There is also the fact that, as Owen et al. (2010) remind us, those in the business of selling finite natural resources tend to exaggerate their quantity or extractability.<sup>12</sup> Interests no doubt shape calculations and categorizations such as 'proven' and 'probable' reserves. What is ironical in the case of the ITT reserves is that if their size has been inflated through expert calculation, it has been so by both those who support oil extraction and those who would like to see the oil remaining in the ground. Either as oil to be extracted or as store of hydrocarbon that will never release carbon dioxide, ITT oil is valued as so many millions of barrels with a price on the world market.

Not all protagonists, however, formulate their arguments in terms of extractable volumes of crude oil. I met activists who prefer to focus their calculative efforts on oil consumption, and say, for instance, that the crude contained in the ITT fields represents only ten days of world oil consumption. This figure is given as an example of the futility of 'our addiction to oil,' which drives the destruction of a treasure of biological diversity like the Yasuní. I heard someone asking in a meeting whether feeding the world oil for ten days was worth the huge social and environmental impact that the building of 130 wells and the releasing of millions of tons of toxic waste through the rainforest's fragile ecosystems would cause.<sup>13</sup>

Before becoming an official government proposal, the Yasuní-ITT Initiative started as a grassroots campaign, which asked people around the world to use their cars less and support the Yasuní National Park by buying a 'barrel-in-the-ground' (Rival, 2009). Many proposal backers continue to think about oil reserves, not in terms of a commodity with a price from which government revenue can be generated, but in terms of the damages caused in one place for consumption to occur in another. One campaigner told me, not without wit, that 'carbon trade' would actually be a better name for the oil trade. He then launched in a long explanation about waste and responsibility, which reminded me of discussions I heard back home around recycling: Shouldn't we reduce waste rather than trying to recycle more efficiently? He then concluded: "We use oil, and the waste that's left over, I call it emission waste. This is why carbon trade in reality is emission trade, a transaction in waste. So let's think. If

instead of reducing the waste, we enlarge the dump, and we use Ecuador as a dump.... This is what they are proposing to us, they want to appropriate our forests to store carbon. This is not the Yasuní Proposal. What we're proposing is entirely different; we cut the waste, we don't trade in it."

As the Initiative gathered momentum in the build up to the Copenhagen's COP15 meeting, however, calculations were no longer made in terms of numbers of barrels of non-extracted oil (and losses in government revenue), but, instead, in terms of tons of carbon dioxide not released in the atmosphere. The following comment from a young woman activist interviewed by Warnars (2010) illustrates how the ITT oil reserves have been re-imagined as stocks of carbon dioxide in the course of 2008:

"Ecuador earns about US \$ 5 for each barrel of oil. ITT contains 1 billion barrels, that gives us US \$ 5 billion over 20 years [...] but the cost of cleansing (an expert would say 'store') a ton of carbon is US \$ 20. There are 0.44 ton of carbon dioxide in each barrel. So 1 billion barrels produce 440 million tons of the stuff, or US \$ 8.8 billion [...] There are markets for oil, but there are also markets for carbon dioxide."

This statement makes clear that avoided carbon dioxide emissions come with a price tag attached to them, one which indicates a concerted effort to present the price of a barrel of oil and that of a ton of carbon dioxide as commensurate figures, which explains why, as discussed in greater detail below, the Ecuadorian government bonds or Yasuní Guaranty Certificates (CGY, following the Spanish acronym) are calculated to equal one metric ton of carbon dioxide.

### 3. Pricing Hydrocarbon Stocks and Carbon Sinks

Despite all the complexity and uncertainty involved in quantifying oil reserves or the release and absorption of carbon dioxide, such calculations are routinely made in the world today *in relation to established market prices*. When, for instance, President Correa mentions that the ITT fields contain 850 million barrels of oil, he is less interested in the quantity itself than in its price value—US \$ 720 million a year. Given the prominent role that oil plays in generating government revenues, putting a price on Ecuador's oil reserves becomes also a way of calculating how much money the government will have to build schools and hospitals, as politicians—starting with the President—lose no opportunity to remind voters. The following remark by an Ecuadorian student in Quito also expresses the value of oil as a world commodity with price consequences: "Oil is not just a source of energy that we can trade... It's a source of foreign currencies. We have a debt because of oil, this debt asphyxiates us."

Oil prices, however, are highly volatile and anticipating the market value of heavy crude, as Ecuador's recent history shows, full of risk (Rival, 2009). The value of the oil contained in the ITT fields varies according to projected oil prices, projected extraction and transport costs, and speed of exploitation. Although analysts agree that the crude's viscosity and high density (14.7° API)<sup>14</sup> lowers its market value, increases production costs, and causes additional environmental costs, they offer different predictions of the total market value of the proven reserves. For instance, one calculation performed at a workshop in November 2007<sup>15</sup> involved (1) calculating the cost of extracting the heavy crude from the ITT fields, mixing it with lighter oil from an already

<sup>10</sup> Various PetroEcuador engineers told me in 2008 that the ITT fields contain up to 1500 million barrels, including 900 million barrels of proven reserves. A French report mentions the figures of 412 million barrels of proven reserves and 920 million of probable reserves. Other figures are used in the technical report prepared by Oil Watch, *Proyecto ITT Opción 1: Conservación de crudo en el subsuelo*, 12.4.2007, which also provides a breakdown for each field (pages 14–16).

<sup>11</sup> This figure was given at a workshop organised at the Universidad Andina Simon Bolivar on 21–23 November 2007. The ITT fields contain a high ratio of toxic water to oil. Some actors speak of 130 000 barrels of toxic water for every 30 000 barrels of crude (Maldonado and Almeida, 2006: 92–100). See Valdivia (2008: 11–12) for an explanation of why there can be no separation of quantity from quality issues in calculations involving Ecuador's Amazon crudes.

<sup>12</sup> Owen et al. (2010) mention that world oil reserves have been exaggerated by up to a third.

<sup>13</sup> See also Esperanza Martinez from Acción Ecológica who wrote in 2007 that 'the world consumed during the year 2005 nearly 825 million barrels of oil a day. In other words, all the oil contained in the ITT fields (around 1 billion barrels) is equivalent to what the world consumes in a little less than twelve days.' See also Martinez (2009).

<sup>14</sup> API (American Petroleum Institute) gravity measures the relative heaviness or lightness of a petroleum liquid in relation to water. If its gravity is greater than 10, it is lighter and floats on water; if it is less than 10, it is heavier than water and sinks. By comparison, the light oil extracted by Texaco in Lago Agrio in the 1970s was of 28 API grade (C. Larrea, Personal Communication, 17 April 2008). See Valdivia (2008) for an interesting discussion of the materiality of oil and of the calculations through which it acquires market value.

<sup>15</sup> See footnote 11.

producing field, stoking it, and transporting it to a new refinery; (2) estimating the market value of heavy crude by comparison with light oil on world markets at the time (between US \$ 22 and US \$ 49 for the period between January 2006 and March 2007); (3) calculating externality costs (adding US \$ 2 to production costs per barrel); (4) estimating the total income per barrel, as well as the state revenue for it; (5) estimating the net present value of utilities from the ITT fields with a 12% discount rate; and, finally, (6) reducing this sum by 20% to account for the fact that two of the wells would not be exploitable as they lie in the sanctuary created by the government for indigenous peoples in voluntary isolation. PetroEcuador has made alternative calculations, which focus on alternative models of state participation.<sup>16</sup> Carlos Larrea, the leading Ecuadorian economist who has worked out many technical aspects of the Yasuní-ITT Initiative, has prepared a more comprehensive model that incorporates a wider range of variables and discount rates, and fully takes into account the fact that oil is not a simple market commodity.

According to Warnars (2010: 64), the team developing the Yasuní-ITT Initiative chose to express the monetary value of the ITT oil reserves in terms of stored carbon dioxide (measured in metric tons) instead of extractable oil (measured in barrels) because of the high unpredictability of the world prices for heavy crude. Warnars explains that when the team realized that the benchmark price they had to use for the ITT crude in May 2009 gave them an estimated total value of US \$ 6.979 billion (with a discount rate of 6%), which was not wide apart from the US \$ 7.188 billion market value they had calculated for the corresponding avoided carbon dioxide emissions (using CERs [Carbon Emission Reduction] prices on the European carbon trading market as a reference), they decided that it would be easier to estimate the amount of capital needed to cover the opportunity costs of petroleum extraction (as well as the monetary value of carbon credits) on the basis of the price of carbon dioxide. Imesch (2009: 37) reports that in order to fix the price of the CGYs the team “compared the price of a barrel of oil at a given moment in time with the price of a ton of CO<sub>2</sub> on the Leipzig market. They happened to have the same approximate value on that day, and the decision was taken to sell them at US \$ 17.” Martin (2010: 31–32) also mentions that her informants found it easier to quantify the CGY bond value in terms of carbon capture rather than in terms of oil *in situ*, or, in other words, to sell the bonds, not at the price of oil, but at the price of non-emitted carbon dioxide, with one informant quoted saying that “the only efficient manner to raise the US \$ 350 million was to sell carbon bonds.”

My own research has led me to similar conclusions. Until 2008, the CGYs were broadly conceived as government bonds that could be given to anyone in the world who made a payment to the trust fund, be it a gift, an individual donation, a private contribution, a debt cancellation, or a payment for environmental services. Ecuador would receive money from selling CGYs as emission prevention through the non-exploitation of fossil fuels. The initial proposal specifies that the compensation sought after to keep the oil in the ground is neither a *sale of reserves*, nor a *sale of environmental services*, but rather, a *compensation* paid by rich countries in the north to Ecuador, in the spirit of the Kyoto Protocol under the principle of common but differentiated responsibilities of developed and developing countries (see page 29 of the document).<sup>17</sup>

The feasibility of linking CGYs to emission permit auctions, carbon emission taxes, and other payment systems linked to the Kyoto Protocol was examined during 2008 by the special commission, the negotiating team and international experts. The existence of international carbon

markets alongside oil markets allowed negotiators to index the value of CGYs to the value of carbon dioxide as it is calculated in the European Union Emission Trading Scheme (ETS). This in turn enabled the negotiating team to creatively appropriate available international mechanisms in order to maximize the value of state foregone revenues from oil.<sup>18</sup> For most carbon trade specialists, however, obtaining funds for avoided emissions from avoided oil extraction is not compatible with the EU ETS, or with any of the emerging trading regimes. The circulation of CGYs, they thus claim, requires a political decision. The Ecuadorian negotiating team has responded by demanding that the Yasuní-ITT Initiative be treated as a pilot-project, a unique experiment *beyond* the Kyoto Protocol, which could become a model for other small countries with similar levels of poverty and biological wealth.

In conclusion, the reason why 1 CGY has been calculated to equal the value of 1 metric ton of CO<sub>2</sub> is both very practical and heavily influenced by the pre-Copenhagen political conjuncture. Now that Copenhagen has come and gone (with the results we know) and that the status of the Yasuní-ITT Initiative is far more precarious than it was in 2009 (Rival, *in press*), new ways of calculating the worth of the ITT oil reserves are emerging.

#### 4. Popular Calculations and the Re-imagining of Oil-related State Revenues

The Yasuní-ITT Initiative can be read as a highly creative challenge from the part of a small developing country heavily dependent on oil to the chaotic international order emerging out of the Kyoto Protocol. As I have shown so far, the Ecuadorian government, with its daring calculations, has subverted not only the ‘law of comparative advantage,’ but also the meanings and values of new global financial mechanisms such as ‘carbon off-setting’ and ‘reduced emissions from avoided deforestation.’ I now wish to illustrate the ways in which the Initiative has inspired ordinary Ecuadorians with little prior knowledge of oil economics or climate change negotiations to come up with all kinds of calculations of their own. Although limited, the empirical data below provides some evidence of the modes of calculation used by ordinary citizens sympathetic to the preservation of the Yasuni.

The first mode of calculation consists in challenging the idea that Ecuador is too poor to afford not to develop the ITT fields. I came across it in the town of Coca (Francisco de Orellana) on 23 April 2007, through a press editorial entitled ‘Of ITT and Other Tales.’ The editorial starts with a reflection on the delusions of wealth and development that have characterised the oil economy in the Province of Orellana, a list of urgent needs faced by the population, and a list of harms caused by oil pollution. The editor then asks the readers: “So what will happen if the international community fails to compensate us with the US \$ 350 million mentioned in the Proposal? And what if they give us only US \$ 200 million, what will happen then? Are we so poor? Is the country in such a state of misery? Why is Ingeniero Carlos Pareja Yannuzzelli [the then President of PetroEcuador] talking about ITT as a matter of life or death? Why should we believe these tales of oil and development? They do not make sense to us who are living the chaos, illness and destruction wrecked by oil in our province. The only dignified thing to do is to leave the oil in the ground. This in no way will make us poorer. The country generates sufficient revenues today for us to start organising things differently, and realize our dreams. The president of PetroEcuador knows this very well [...] I have many ideas as to how we could generate US \$ 750 million without touching the ITT oil, without any foreign handout. I am convinced that these ideas are also in President Correa’s head, so I beg him to start

<sup>16</sup> There are currently three different models, one in which PetroEcuador makes the full investment; one in which there is an international public tender; and one in which the Ecuadorian state goes in joint venture with a foreign state company, the latter model being apparently favoured by PetroEcuador. See also page 31 of the official proposal at <http://www.yasuni-itt.gov.ec>.

<sup>17</sup> Carlos Sevilla said in a press interview, “if CGYs look like carbon bonds, they are not; these certificates are valued using the scheme, but they are different.” See <[http://www.infolatam.com/entrada\\_impression.jsp?id=14252](http://www.infolatam.com/entrada_impression.jsp?id=14252)> accessed on 12 February 2010.

<sup>18</sup> An informant explained that “selling avoided emissions through CGYs would be more lucrative than selling oil. We must renounce petrodollars.”

executing them, and stop his desperate calls to the outside. If only he could be resolute enough, the tale would be over.”

The editor ends his piece by acknowledging that the measures he proposes will not be easy to implement: “If we do all the above, we will have a serious confrontation with the transnational companies, the *vivos* [i.e. the cunning ones], the rich and the tax evaders who will not let the bone escape without biting.” He then addresses Ingeniero Pareja one more time, and begs him to note that if the citizens of Orellana are still demanding a hospital worth the name, they find it unacceptable that the President of PetroEcuador should parade on national television and use their just claim to sell the ITT oil development to a public uninformed of the local reality. Discussions with various actors in Coca suggest that these feelings are widespread in the population.

The second mode of calculation involves a kind of cost and benefit analysis that challenges the arguments advanced by those in favour of expanding the oil frontier deeper in the Amazon forest. These, according to proposal supporters, underestimate the externalities of oil development, while overestimating the social benefits. Similar calculations were done in opposition to the building of the OCP (Oleoducto de Crudos Pesados) pipeline. An activist actually told me that we should not forget what happened with OCP, especially “all the false promises of job creation and cutting edge technology,” adding that “before OCP was even operational, there were five major oil spills [...] It will be worse with ITT; all this toxic water flooding the Yasuní region...” A friend in Quito explained to me that she was not supporting the development of the ITT fields “because the costs outweigh the benefits”: “The fields won't be operational for at least six years; their development will be very costly and will generate more debts for the country; there are many other ways of funding the country's social needs; it is more cost-effective to cover these needs now without incurring additional debts which we will have to repay in the future.”

Humorous cost and benefit analyses could be found on the web in 2007, illustrating how social relations and facts about the world are creatively re-examined through playful calculations<sup>19</sup>:

“Dear sir, Calculating the benefits of oil could not be easier. We simply need to find accurate values for the following: **Value 1**: The number of barrels of oil that have been extracted since 1971. Multiply this number by the prices at which they were sold. Add all these values, and you will find the total market value of the oil extracted from the Ecuadorian Amazon. **Value 2**: Add all the annual national budgets between 1971 and 2007. **Value 3**: Add all the social inversions made between 1971 and 2007.

However, you will also need to take into account that: **Value 2** minus **Value 1** represents the cost of production including the theft perpetrated by oil companies. **Value 3** minus **Value 2** represents the cost of the bureaucracy handling oil, including corruption. **Value 3** is the only real benefit that the nation has derived from oil.

Given the above, what does a barrel of crude in the subsoil really cost?

- An oil engineer would calculate the cost of the machinery and infrastructure
- An ecologist would add the cost of environmental restoration
- A sociologist or an anthropologist would include the cost of the destruction of cultures and communities, the costs of community division, alcoholism and other social ills
- And so on.

If we add all the above answers and deduct all the above losses, we would, without a doubt, get to a number close to ... little...very little... or may be nothing at all.

Further research will tell whether such humorous calculations are widespread, and whether they play a role in the balance of power between those who support and those who oppose the Yasuní-ITT Initiative.

The last form of calculation I found involves the buying of barrels of oil in the form of CGYs on the Internet—or at least the wish to buy some, as such an operation is not yet possible. This method of supporting the Yasuní Campaign is popular, given the modest price set up for the purchase of each unit (US \$ 5 a barrel).<sup>20</sup> I found people who were willing to buy ‘barrels of oil left-in-the-ground’ as a special souvenir, akin to buying special, limited editions of coins or stamps. Others wanted to buy CGYs to offer them as presents to relatives or friends, a little bit like the ethical gifts one can make today in Europe by buying a chicken or a goat for a villager in Africa through aid NGOs. Ecuadorian friends with whom I discussed the matter told me that they would buy CGYs as ‘barrels of oil left-in-the-ground,’ but not as ‘avoided emission of carbon dioxide.’ Although limited, these examples shed light on the popularity of the trust fund as a form of saved capital designed to receive payments of all kinds, including individual donations, debt cancellations, and payments for environmental services (Rival, *in press*).

Finally, I found on the web various Ecuadorian bloggers who declared their willingness to sacrifice a purchase they would have liked to make in order to buy CGYs instead. Here is an example:

“For something as precious as the Yasuní, for something as important as helping Ecuador to show the world the way out of its destructive inclination and save life on our unique planet, I am ready to give US \$ 10.000 to the fund. This is the price of the Toyota van I was going to buy myself. I'm sure there are at least one million people like me in this country, who could sell a plot of land or a harvest, or who would sacrifice a holiday, a car they don't really need, or whatever else they have in mind. In no time, we would get millions of dollars to save the Yasuní. How easy then it would be to invest this money, our money, in education, health, social justice, and renewable energy.”

Such calculations stand in stark contrast to cynical interpretations of the Initiative as ‘funding capture’ or ‘begging for subsidies instead of living from one's honest productive work’ (Rival, 2009). They also exemplify the delight with which individuals and groups with little prior knowledge of economics are ready to crunch numbers. Such willingness to enter calculations usually associated with experts may be related to the fact that the proposal has opened a democratic space in which the country's economic future may be debated and the calculations made by professional economists and government planners examined and challenged. The empowering nature of such debates is all the more remarkable given the secretive and—according to some—corrupt nature of decisions made around oil development.

## 5. Looking for and Sharing Valuation Arguments

The quotes from President Correa's speeches with which my exploration started illuminate the kind of re-evaluation that is taking place in Ecuador today. While different models of natural resource regulation and management, especially for oil and minerals, are being considered by the government, citizens are searching for new values in nature, including values grounded in indigenous ways of living and knowing. Far from putting an end to indigenous mobilizations, the process of re-evaluation has encouraged people to take the current administration to task for betraying both the voters and the constitution. President Correa's sincerity and commitment has also been challenged.

<sup>19</sup> The text was at <<http://www.amazoniaporlavida.org/es/>> during 2007. The author is Jorge Merlo of the SOS Yasuni Campaign and Amazonia for Life Campaign.

<sup>20</sup> This sum was calculated on the basis of the marginal cost of extracting oil, estimated at between US \$ 2–7.



These protests signal that the contest is not about the newly shared values, but, rather, the truthfulness of those who herald them.

Undoubtedly, the afore-mentioned speeches present only some of the values resulting from the country's on-going debate with the indigenous movement. There is no shortage of presidential speeches and declarations articulating the views of 'oil nationalists' (Rival, 2009; Valdivia, 2008; Perreault and Valdivia, 2010; Bebbington and Humphrey Bebbington, 2010). This, however, does not invalidate the fact that a growing number of Ecuadorians no longer attach their national sentiments to the conviction that oil should continue to be the strategic natural resource bringing development to the nation. Many say that 'Ecuadorians need to get out of oil dependency' and 'build a less aggressive relation to the forest.' Why should expanding the oil frontier deeper into the Amazon region be better for the nation than to realize the values of its biological and cultural diversity? The Yasuní-ITT Initiative has made this kind of domestic debate possible.

As Myers (2001: 12) reminds us, value is 'always involved in global as well as local circuits of exchange, display and storage.' By valuing the Yasuní for its diversity rather than for the market value of its crude oil content, supporters of the proposal have given visibility to a new national patrimony and opened new possibilities for redefining the forms of social consciousness, collective identity, and will to act through which both nationalism and internationalism get realized in practice. The arguments and calculations proposed by those who support the Yasuní-ITT Initiative are not directly framed in terms of 'livelihood interests,' to use the terminology developed by Joan Martinez-Alier (2002), nor do they express a radical, ontological difference in the sense celebrated by authors such as Escobar (2006), Blaser (2009), or de la Cadena (2010). Rather, they articulate an environmentalism of the people. Although further research is needed, I would like to propose that the values expressed by the local actors I spoke with are best understood as constituting a critique from below of the 'unavoidable imperatives' and 'irrefutable truths' that powerful actors attempt to impose on them, especially in the province of Orellana. Between strikes and well occupations, their environmentalism consists essentially in talking back to the centre in a playful language and demanding that the state fulfil its duty of care for the people and the places where the people live.

As my ethnographic exploration—incomplete and provisional as it stands—shows, this popular form of environmentalism does not prevent social actors from putting a price tag on what they wish to value. Their monetary valuations, which differ radically from the calculations of environmental economists, illustrate the economic tension through which they try to transform market values into community values. Whereas carbon trading experts puzzle at the nature or legality of CGYs, popular environmentalists, who take the social differentiation of money for granted, marvel at the multiplicity of exchanges CGYs afford: they can be compensations, entitlements, gifts, acts of thrift, or all at once. Popular calculations combine words and numbers in practice to create 'regimes of value' (Myers, 2001) that express degrees of commensurability or incommensurability. As Zelizer (2000: 837) notes, 'money transactions can accommodate multiple systems of valuation.'

The distinctions popular environmentalists make when speaking about the values of the Yasuní (the pricelessness of its biological and cultural diversity; the apparently full commodification of its oil, which could be sold on world markets by the barrel; and the hybrid and highly dynamic value of the government bonds issued to keep the oil in the ground) are perhaps better described as 'regimes of re-evaluation,' each characterised by different degrees of commensurability, and each articulating contrastive sets of social relations and identities. Together, these regimes of re-evaluation carry the hope that the Yasuní-ITT Initiative will bring forth a new political economy based on rewarding, in President Correa's words, the generation of value.

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