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Carving up the Arctic

A special report

Arctic oil drilling: a risky choice

Rick Steiner

As we enter the end of the age of oil, it is clear that most of the world's easily accessible oil has already been produced. Oil companies are now moving offshore into the last hydrocarbon frontiers - deepwater and the Arctic Ocean. The dangers of deepwater drilling came into sharp focus in 2010 with the BP Deepwater Horizon disaster, where 200 million gallons of oil spilled into the Gulf of Mexico over a 3-month period. Another high-risk environment is the Arctic Ocean, which geologists suggest may be the last significant oil and gas frontier left. As decisions are made on oil and gas drilling in the Arctic Ocean, we need to understand and acknowledge the risks. First, even if nothing goes wrong, there would be unavoidable impacts from each phase of oil development in the Arctic Ocean - seismic exploration, exploratory drilling, production platforms, pipelines, offshore and onshore terminals, and tankers.

Offshore oil development will include airplanes, helicopters, support ships, drill ships, platforms, artificial islands, icebreakers, waste streams from ships and rigs, lights and noise, extensive coastal infrastructure construction (ports, roads, causeways, staging areas), subsea pipelines, geotechnical coring, and noise from underwater seismic surveys. These industrial activities will add significant disturbance in an Arctic ecosystems already suffering terribly from warming. The acoustic disturbance to marine mammals from offshore oil development is of particular concern, as underwater noise can affect communication, migration, feeding, mating, and other important functions in whales, seals, and walrus. As well, noise can affect bird and fish migration, feeding and reproduction, and can displace populations from essential habitat areas. Some of these impacts can be reduced or mitigated with lease stipulations, but most cannot. And of course, beyond these unavoidable operational impacts, there is the very real risk of a large oil spill from exploration drilling, production, pipelines, terminals, and tankers. While government and industry ritually understate the risk of oil spills and overstate their preparedness, for high-risk environments such as the Arctic Ocean, we should assume that a large marine oil spill will occur.

In fact, for development off Alaska's Arctic coast, U.S. government authorities project the risk of a major spill at about 30 - 50 per cent, and that a worst-case blowout could release some 1.3 million barrels (58 million gallons) of oil. So if drilling proceeds in the Arctic Ocean, then everything possible to reduce risk should be required. The risk reduction standard for the Arctic should go well beyond industry's preferred standard of 'As Low As Reasonably Practicable' (ALARP), to 'As Low As Possible' (ALAP), regardless of cost.

This highest safety standard would include best available and safest technology for all components of an offshore drilling program - blowout preventers with redundant shear rams, well design and integrity verification, proven seabed well capping equipment, independent well control experts on rigs, rigorous cementing and pressure testing procedures, dual well control barriers, immediate relief well capability on stand-by, state-of-the-art seabed pipeline design and monitoring, tanker traffic monitoring, strict seasonal drilling windows allowing sufficient time for response to late-season spills, robust spill response plans, rigorous government permitting and inspection, and Citizens Advisory Councils to provide effective citizen oversight. As well, financial liability for offshore oil spills in the Arctic should be unlimited, thereby motivating companies to incorporate the highest safety standards possible.

Not "if" but "when" a spill will occur

But regardless how safe we make offshore drilling in the Arctic, there will still be a significant risk of a major oil spill, and policy makers and industry need to be honest about this. People will make mistakes, and equipment will fail. It's not a question of 'if' a major spill will occur, but 'when and where.'A major spill will travel with currents, in and under sea ice during ice season, and it would be virtually impossible to contain or recover. Even with robust oil spill response capability, in most scenarios far less than 10 per cent will be recovered, and a major spill could easily become a transnational event.

A large spill would undoubtedly cause extensive acute mortality in plankton, fish, birds, and marine mammals. As well, there would be significant chronic, sub-lethal injury to organisms - physiological damage, altered feeding behavior and reproduction, genetic injury, etc. - that would reduce the overall viability of populations. There could be a permanent reduction in certain populations, and for threatened or endangered species, a major spill could tip them into extinction. With low temperatures and slow degradation rates, oil spilled in the Arctic would persist for decades. And a major oil spill in the Arctic Ocean could severely damage subsistence harvest opportunities, and forever change the lives of coastal peoples.

Put simply, oil drilling in the Arctic Ocean cannot be done without risk and serious impact. There will be chronic degradation, and there will be spills. So the policy question is whether we wish to expose the Arctic Ocean to such risk.

To many, offshore oil drilling in the Arctic Ocean represents the classic fallacy of 'suboptimisation': maximizing one component of a complex system to the overall detriment of the system as a whole. For a few decades, there may be billions of dollars in profits earned, and billions of barrels of oil and gas equivalent in energy supplied. But the overall long-term cost to the region and global biosphere as a whole could be exorbitant, far outweighing the short-term benefit. Regardless of how safe we conduct offshore drilling in the Arctic, we would simply be doing in the best possible way something that we shouldn't be doing at all.

And therein lies society's fundamental choice with the Arctic. Do we continue our industrial expansion into one of the last wild and extreme areas of the world, extract and use the billions of tons of fossil carbon energy here, further degrading the environment of the region and world, and further delaying our necessary transition to a sustainable energy economy? Or, do we choose another, kinder and sustainable future for this magnificent place? Our choice here will tell us a lot about who we are, our selfless vs. selfish nature, and what our long-term future will be. Let's hope we choose wisely.

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COVER PHOTO: JOEL TOZER

Sami reindeer herders struggle against Arctic oil and gas expansion

Climate change and a rise in oil and gas exploration are bringing a host of problems for the indigenous Sami reindeer herders in the Arctic regions. Report and photos: **Joel Tozer**

The Arctic is at risk from oil and gas exploration

It's almost midnight when the sun finally disappears and the snow begins to harden. Here in the distant stretches of northern Norway, two herders are preparing to move almost 2000 reindeer to their summer pasture. In the back of their snowmobiles are the essentials: a bottle of vodka, an axe, some rope and several knives.

Inside their portable cabin, empty beer bottles and dirty plates lay at the end of the beds. For the main herder, Isak Mathis Triumf, this tiny space is his home for several weeks at a time. A foldout table and a small fire separate the men. There are no photos or pictures on the walls – it's where they

Herders have had to become used to a fierce and unpredictable climate in the Arctic

sleep and eat. 'If I didn't spend most of my time out with the reindeer, I'd go crazy in here,' he said.

Isak's three young daughters are joining the migration tonight. He leads them to the edge of a frozen lake where he knows the reindeer are feeding on lichen. Despite the loud clattering of the snowmobiles, the sounds of bells hanging from the reindeer's necks echo through the air. The eldest daughter follows slowly behind, using her iPhone to take videos of her sisters racing each other across the snow.

Every so often, Isak scans the mountains with his binoculars, looking out for predators like wolverines and lynxes. On the back of his snowmobile is a gun, but he isn't allowed to use it because the predators are protected. Just yesterday, he watched on from the mountains as an eagle killed one of his pregnant reindeer. 'Predators have become a big problem for reindeer herders,' he said. 'There are quite a lot and they take at least one reindeer everyday of the year.'

But a life in the Arctic means the herders have also had to become used to a fierce and unpredictable climate. Ask any local person here in the village of Kautokeino and they will say that for centuries, the Sami people have adapted their lifestyle to environmental change. But the Sami are beginning to worry that their traditional knowledge might not be enough to survive the changing climate. Sit down with the herding families and they'll tell you stories of melting ice, soggy herding tracks, early springs, mosquitoes and other insects where there once were none.

Arctic's rapidly changing climate

In the last ten years, scientists have been flocking to the Arctic to study how the Sami have used their traditional knowledge to overcome severe cold, famine and isolation. Dr Robert Corell is one of the world's leading scientists on the Arctic climate. In 2004 he chaired the Arctic Climate Impact Assessment, which he says was one of the first reports to meld the traditional knowledge of the herders, with the physical data of climate change.

This year he has been working with local herders in Finnmark, following them on their migration routes between the winter and summer pastures. 'We were mostly observing them, the people, and about how they manage the herd, how careful they are... we were observing how they manage this enterprise, rather than taking physical data, because we've got

> "I like to call it the climate super tanker – it was easy to get going, but it is very hard to stop it."

Climate change in the Arctic is happening faster than elsewhere.

Is the lifestyle of the herders under threat?

lots and lots of that,' he said.

Many of the herders have noticed that warmer temperatures have brought rain at times when they would expect snow. When the temperatures drop overnight, the water freezes, sometimes locking the reindeer's food under a lens of ice. Scientists call it a 'rain on snow event' and for many herds it can mean the female and younger reindeer starve. Dr Corell found that many of the herders are castrating the male reindeer so they are strong enough to push through the ice and provide for the other reindeer.

'This past winter has been quite good for the reindeer, because it has been quite cold, consistently, so there was very little rain on snow... so the feeding for the animals is much better,' he said. 'We've had some periods that were so devastating that thousands of animals were lost – you could lose 40, 50 percent of your herd.'

Seven years ago, the Arctic Climate Impact Assessment concluded that the rate of climate change was happening much faster in the Arctic than in other parts of the world. Dr Corell now says those results were conservative.

'Just take the melting of the ice in the Arctic Ocean,' he said. 'We projected it would probably be the end or beyond 2100 when you might have a wide open Arctic Ocean.'

Sea ice in the Arctic is melting at a record pace this year and some scientists are predicting that the summer months of the Arctic will be ice free in 30 years. Less sea ice will mean a warmer ocean, as more sunlight is absorbed by the open Arctic Ocean.

Scientists are studying how the Sami cope with severe weather.

At times of the year the Arctic nights are so short the sun goes down for only an hour.

'I like to call it the climate super tanker – it was easy to get going, but it is very hard to stop it,' Dr Corell said.

Carving up the Arctic

The rapid retreat of sea ice is not only a strong indicator of change occurring in the North, it is also part of a global race to 'carve up' the rich deposits of Arctic resources such as oil and gas. With the Arctic's shallow waters thought to contain some the largest remaining untapped oil and gas reserves, countries such as Russia, Norway and the US are all pushing to stake a claim. Private US embassy cables released earlier this year reported the Russian ambassador to NATO, Dmitriy Rogozin, as saying: '...the 21st century will see a fight for resources and Russia should not be defeated in this fight.'

This bitter dispute for territory and resources is something the reindeer herders have been battling with for years. The rise of oil and gas exploration in the North has brought with it a range of rewards and dangers for the people in the region. But the herders say the development is threatening their way of life.

> "Many parents now have ordinary jobs, they don't have the ability to bring their kids up the way our parents did"

Former President of the Sami Parliament, Ole Henrik Magga, says loss of land has become the single biggest threat to reindeer herding. 'Development has brought with it roads, pipelines and railway tracks, cutting our land into pieces,' he said. 'It used to be whole, where the herd could move freely, but now the area is being reduced more and more.'

Sami people say they see time when reindeer herding will no longer be a part of their life. Mikkel Nils Sara, who teaches reindeer herding at the university in Kautokeino, says more land is being lost each day. 'Reindeer is based on renewable resources, so it could last for thousands of years,' he said. 'But with all of this mining and resources, in 20 years there will be nothing.'

A gravel road that carves the way towards a local mining site borders Isak's herding route. While it does make it easier to access his land by car, he's concerned that in two to three years, more sites will appear across his land. With his herd making up only a small portion of the quarter of a million reindeer in Norway, many people's livelihoods rely on the future of this cultural tradition.

The Sami way of life

With lower wages and a demanding work schedule, the nomadic herding lifestyle is struggling to maintain its force in numbers. Parents are seeking jobs in the villages and very few youths have the option to become a fulltime reindeer herder. 'Many parents now have ordinary jobs, they don't have the

The Sami people often live with the herds

ability to bring their kids up the way our parents did,' Mikkel said. 'Maybe the things we learn as ten year olds, they now learn as 18 year olds.'

'The sudden decay of their rich oral heritage feeds into the stories of the younger Sami people. Ante Siri, 26, spent his childhood herding reindeer with his nomadic parents. 'Everyone expected that I would continue with reindeer herding,' he said. 'I thought that if I didn't become a reindeer herder, I would disappoint a lot of people, but you learn to see that it's not quite like that anymore.'

To be a reindeer herder, Ante explains, you need to be ready to make it your entire way of life. 'I didn't have that interest. My brother, who is really passionate about reindeer herding, it was easy because the knowledge just stuck with him,' he said. 'For me, it was harder because I thought that other things were more interesting.'

Staying with the herd

At this time of year, the Arctic nights are so short that the sun disappears only for an hour. Even with the sunlight it is easy to lose sense of your direction, as the planes of snow and ice seem to stretch forever. Isak raises his hand, signaling for his daughters to stop at the edge of the frozen lake. At last, he switches off the ignition of his snowmobile and the gentle rumble of the reindeer fills the air as they make their way across the frozen lake.

With only 15 kilometres left of the migration, the reindeer are moving slowly. The young girls sit back on their machines and marvel at the herd, watching as clouds of heat tumble from their backs. With the temperature now below minus 20 degrees, Isak passes around the plastic bottle of vodka: 'Two sips. That's how we do it,' he says.

It is early morning when the heard reach the summer pasture – a place that despite its name is still barren and covered in snow. Over the next month, Isak will live here with the herd, making sure the calves survive the next winter.

The herds are vital to the Sami way of life.

Putin's Russia will lead a 'new era of Arctic industrialisation'

The isolation of the white wilderness is coming to an end. Scientists and activists are urging caution but Russia is leading an urgent rush to exploit the Arctic's oil and gas reserves. **Tom Levitt** reports

The Arctic could be ice-free in Summer months by 2030 (Image: Peter Prokosch/UNEP - www.grida.no)

Autumn is the shortest of all seasons in the Russian city of Arkhangelsk. Lying on the edge of the Arctic circle, sub-zero temperatures arrive as early as September. By deep winter they can be -40C in the short-lived daylight hours.

Such a hostile climate has, until recently, deterred many from venturing further north, despite the promise of an abundance of oil, gas and minerals like nickel, copper and uranium.

But late last month, the sun was unusually warm in the city as Russia's power-maker and president-elect Vladmir Putin arrived at a conference on the Arctic to set out his ambitions for a new era of development in the region.

This will include offshore oil and gas exploration and drilling, new sea terminals, infrastructure and the promotion of a commercial shipping route through the increasingly ice-free Arctic Seas - nothing short of an industrialisation of the Arctic and its resources.

If there was any doubt about Russia's intentions to industrialise one of the world's last great wildernesses they were dispelled by Putin's speech, in which he vowed to create a genuine rival to the Suez and Panama Canals for the lucrative shipping trade between Europe and Asia.

However, as everyone inside and outside the conference knew, the bigger immediate riches for both Putin and Russia's state-owned energy companies lie in the Arctic's untapped reserves of oil and gas.

The US Geological Survey estimates that 22 per cent of the world's 'undiscovered' oil and gas is to be found in the Arctic. What's more, a further 240 billion barrels of oil and oil equivalents (mostly gas) have already been found in the region. A figure almost as much as the entire proven hydrocarbon reserves of Saudi Arabia.

Russia the 'petro state'

Many environmentalists want these reserves left alone, to protect the Arctic's fragile wilderness and prevent yet more greenhouse gas emissions.

For Putin and Russia that is unthinkable.

One of his first acts, upon assuming the presidency in 2000, was to abolish the Department for Environment and amalgamate it into the Ministry of Natural Resources, later saying he would 'not let environmentalists stop the development of the country'.

For Russia, more than any other Arctic nation except possibly Greenland, these new fossil fuel supplies are seen as vital for the country's future prosperity and for the survival of its political establishment.

As a so-called 'petro-state', the country is heavily dependent on revenues from existing oil and gas reserves, with 40 per cent of its GDP derived from oil exports (it vies with Saudi Arabia to be the largest producer in the world). It is also the second largest exporter of natural gas, after the US. With the flow of oil from Russia's existing oil fields declining, it desperately needs the Arctic region to maintain its current production levels.

'In the eyes of the Kremlin, producing Russia's Arctic resources is not a choice, it is a strategic necessity,' concludes Charles Emmerson in his recent book, 'The future history of the Arctic'.

At one time this may have led to fears of conflict. However, such a scenario is becoming less and less likely as western companies fall over themselves to sign exploration deals with Russia's state-owned energy firms.

When the Russian explorer Artur Chilingarov led an expedition to put his country's flag on the floor of the Arctic Ocean in 2007, it was seen to be the trigger for a new era of confrontation - a fight for the Arctic.

> "With large parts of the world off-limits to outsiders and the Middle East in turmoil, international oil companies increasingly see Russian assets as an indispensable part of their portfolio"

The other Arctic nations, Canada, Denmark (Greenland), Iceland, Norway, Russia and the United States (Alaska) were quick to pour scorn on Russia's territorial claims.

But economic demands have superseded any fears of a Cold War era conflict and Chilingarov's madcap mission is now fast becoming merely a footnote to a new era of cooperation between Arctic nations.

A new Arctic goldrush

Over the past year there have been a series of deals signed, effectively ending the Arctic's era of isolation and heralding in an era of development and industrialisation.

In September 2010, Russia and Norway put aside long-running differences to resolve a dispute over a boundary in the Arctic Sea. The day after its parliament had approved the agreement, Norwegian companies began exploring for oil in the area. Russia says it will start exploring its share in 2012.

Since then, Russia's state-owned Gazprom has started working with Norway's Statoil on one of the world's largest natural gas fields - the Shtokman field - in Russia's part of the Arctic. More recently, US oil giant Exxon Mobil signed up to work together with Rosneft, another Russian state-owned company.

'With large parts of the world off-limits to outsiders and the Middle East in turmoil, international oil companies increasingly see Russian assets as an indispensable part of their portfolio', says Arctic expert and author Charles Emmerson. 'Russia, meanwhile, needs international expertise, and money, to keep production high.'

Far from confronting each other over territorial rights, political leaders are finding themselves competing with each other to attract the investment and expertise of multinational energy giants.

Alaska's lieutenant governor Mead Treadwell says the deal between Exxon Mobil and Russia caught them by surprise. Russia has now overtaken Alaska in terms of the amount of oil it is producing in the Arctic region.

'There is a race for capital. All of the Arctic nations are courting the same industrial players to drill for resources,' says Treadwell, who believes Alaska is losing out because of tougher environmental opposition and a precautionary approach from government officials in Washington.

He says the legal delays Shell has been facing in getting approval to explore for oil in Alaska's Beaufort Sea risked persuading more energy giants to look at alternative Arctic countries.

A major reason for BP's interest in

Polar bears are just one of many unique species that live in the Arctic region (Image: Bjorn Alfthan/UNEP - www.grida.no)

exploring for offshore oil in the Russia Arctic was the legal challenges it faced in the US in the aftermath of the Gulf of Mexico oil spill.

At one time oil companies were keen to show a sudden passion for renewable energy. BP even went so far as to re-brand itself as 'Beyond Petroleum'. Now the driving ambition is to secure proven oil and gas supplies to keep shareholders and market traders happy.

As well as sucking investment away from the renewables sector, this urgency from both political leaders and oil companies poses a significant ecological risk. The Arctic, with little daylight for a large portion of the year and sub-zero temperatures, is a far harder environment to work in than other oil producing regions.

Even with all the technological know-how and a favourable climate BP struggled for three months to stop the spilling of 200 million gallons of oil into the Gulf of Mexico. In the far less accessible Arctic, no such immediate help is available and experience of spills is negligible.

Russia's conservation problems

In the case of Russia, it has both an appalling history of oil spills and a poor knowledge of the habitats and biodiversity in its Arctic territory.

'They are not investing in monitoring stations to get data on biodiversity or mammals. They just like to imply the Arctic is just white ice with no people or biodiversity,' says Tatiana Minayeva, Arctic advisor at Wetlands International.

According to WWF Russia, there is only one protected marine area in Russia's entire Arctic region, despite it being home to some of the largest continuously intact ecosystems on the planet.

Minayeva says many oil Russian oil companies have a history of using dilapidated Soviet era pipelines and infrastructure and never reporting the oil spills. Professor Rick Steiner, a long-time oil safety advisor, says it is not a question of "if" a major spill will occur in the Arctic, but "when and where".

Some of the Arctic's political leaders have been trying to convince a sceptical NGO community by arguing the involvement of international multinationals, with responsibilities to shareholders, will make spills less likely.

Alaska's Treadwell points to how BP's failings in the Gulf of Mexico led to a nationwide moratorium on offshore drilling by the US government, which impacted on development up in the Arctic. He says there is also the threat of legal action to keep companies in check.

'International law requires that international companies work to the highest standards. For example when Amoco Cadiz oil spill hit the beaches of France in 1978, the lawsuit was in Chicago, US, where Amoco are located, not in France.'

Professor Steiner says that, even with much-improved safeguards, Arctic offshore drilling is an example of what systems theorists call "sub-optimisation": doing in the best possible way something that should never be done at all.

'Put simply, oil drilling in the Arctic Ocean cannot be done without risk and serious impact. There will be chronic degradation and spills. So the policy question is whether we wish to expose the Arctic Ocean and its people to such risk,' he says.

One of the few high-profile voices on conservation in the country, WWF Russia's director Evgeny Shvarts, says 'between all good intentions and real life there is a big gap – on knowledge [of Arctic ecosystems], on technical matters [no proven techniques for cleaning up oil spills in ice conditions] and in governance [no regulation setting requirements for oil and gas exploration and response to accidents]'.

Russia needs stronger civil society

Putin and Russia's oil industry have striven to placate NGOs and indigenous groups, such as The Sami people, who survive on reindeer herding and fishing across the Kola Peninsula in North-West Russia, with rhetoric about the need to 'balance exploration with ecological protection'.

But Minayeva says civil society is not strong enough in Russia to hold industry or the government to account on such claims.

Even in the high-profile Arctic Forum last month, environmental concerns were almost invisible. A delegate from the United Nations Environment Programme (UNEP) complained of feeling sidelined at the event. At the one scheduled session due to discuss ecological issues, the two headline speakers from BP (Russia president Jeremy Huck) and Rosneft (CEO Eduard Khudaynatov) did not even bother to turn up.

The Arctic has seen a rush for resources before – oil from the blubber of whales in the 1600s and then gold in the 1800s – but up until now widespread development has been held back.

Russia's newfound zeal for Arctic development changes that.

Predictions of the region being ice-free during the Summer months by 2030 should serve as a warning to act to limit greenhouse gas emissions, climate change and our reliance on fossil fuels. But such symbolism looks likely to be lost as the world's oil companies, Russia and the other Arctic nations' strive for unsustainable wealth.

Tourism has a negative impact on Laos' wildlife

Tourists eager to try exotic meat and buy wildlife souvenirs in Laos are helping destroy the country's natural heritage. The consequences for both people and environment are worrying, reports **Dawn Starin**

Wildlife souvenirs for sale: Laos has become a hub for tourists eager to sample wildlife dishes, or buy trinkets made from animal products. Photo: D.Starin

Sandwiched between two wannabe titans — Vietnam and Thailand — landlocked, mountainous Lao People's Democratic Republic is the poorest country in Southeast Asia. Louangphabang, an ancient Lao royal town of great historical, architectural, cultural, and religious significance, lies in the north-central part of Laos on the banks of the mighty, muddy Mekong and its tributary the Nam Khan river.

With a population of 58,641 and designated as a UNESCO World Heritage Site in 1995, Louangphabang has often been described as a gentle backwater, an oasis of peace and tranquility, a real-life 'Shangri-la' lost in time and space. I have even heard tourists describe it as 'the most magical place in the most mysterious country on earth.'

Arriving late at night I am anxious to explore this sleepy settlement, and so I head for the night market. I have visions of local traders selling local goods to local residents. I hope to see home-grown fruits and vegetables vying for space with freshly caught fish and homemade baskets and brooms and well-crafted, locally produced, simple cloth. I was totally unprepared.

The night market — a market mentioned in every guidebook, frequently described as 'atmospheric,' 'romantic,' and 'traditional', and recommended by every guest house proprietor and tourist in Louangphabang — is a massive outdoor commercial venture of savvy traders selling lots of hippy-style cloth and clothing and bags and jewellery and stationery — some of it imported from neighbouring countries — to young, foreign backpackers and not-so-young foreign tourists at prices totally incomprehensible to many of the local population.

This market has nothing for the local population. It is similar to every tacky street market found in some section of any Western city where tourists abound. I could be anywhere in the world. Camden market in London, Haight-Ashbury in San Francisco, Plaza Mayor in Palma. In all such cities street markets sell similar goods to the same buyers. Except, of course, this market, in the middle of Southeast Asia, also sells wild ungulate horns and heads and wild boar tusks and elephant teeth and tortoise shell bracelets and pictures of Buddha painted on the backs of possibly endangered turtles, and pangolin and bear paws and cobra and python skins and peacock feathers — a treasure trove of endangered species body parts.

Helping yourself

When I ask a young Australian backpacking vegetarian who is bargaining for an ungulate, if it is legal to take the horns out of Laos and into Australia he says, 'Of course, otherwise they wouldn't be for sale. They're really cool. Everyone buys them and brings them home.'

And then I see a well-to-do fifty-something-year-old purchasing a bear paw. And again I ask my question. And again I am told, 'Everything's legal here. I could buy a monkey or an elephant if I wanted to.' When I explain to this tourist that it is sometimes said that Laos was once known as the 'Land of a Million Elephants' and that their numbers are dwindling, he bets me he could buy and export a herd of elephants today for a lot less than one million Australian dollars. Sadly, I'm sure he is right.

> "Laos is an extremely poor country with a growing population. Unfortunately, this means that there is continual pressure to make money any way one can."

The tourists have no idea that purchasing wild animal products and transporting them across borders is illegal. I am amazed that there are no signs at the airport or in the hotels or guest houses or restaurants telling the public that this is illegal. Lao public awareness campaigns are in evidence all over town. Everywhere I look I see posters for health and literacy and cultural sensitivity. Wildlife awareness? I spotted only one 'Threatened Wildlife in Lao PDR' poster. It was ripped and torn and tattered and hidden away in the corner of a noodle shop, half covered over by a calendar.

An all day boat ride through shallow waters, small rapids and heavy storms up the Nam Ou river past vertical limestone cliffs, sandy beaches, local fishermen, splashing, smiling children, foraging domestic water buffaloes, hand-made hydroelectric systems, eroded hillsides, burning forests and small villages takes me to the geographically isolated village of Muong Ngoi.

Legacy of war

Lying directly on the old Ho Chi Minh trail, Muong Ngoi was subjected to constant bombing during the Vietnam War. Today there are relics of this war everywhere. Posters warn of live bombs while land mine clearance teams wander through fields searching out unexploded ordnance (UXOs) - serious obstacles to sustainable economic and agricultural development. Amputees sit in the shade, amongst fence posts and flowerpots and house stilts and joists made from old pieces of war machinery, watching able-bodied tourists wander through the village. To this day, unknown numbers of UXOs lie buried in nearby agricultural fields and forests, where they continue to claim innocent victims.

Sitting on a grassy knoll, away from any UXOs, watching a group of local men drinking homemade rice whisky from a communal pot through long bamboo straws I am joined by two Dutch travellers and a school teacher from California who explains to me that she is on a much-needed sabbatical and is 'thrilled to be able to get in touch with the real Laos here in the middle of nowhere'. 'Tonight', she continues 'we are going to eat at our guides house because he wants to show us what an endangered antelope tastes like'.

When I ask why they would eat an endangered animal, the school teacher tells me that she wants 'an adventure and I want to see what it tastes like... I

mean it's pretty cool to be able to eat something rare that most people have never seen. And, it's cheap. We only had to give him 10 dollars for all of us. And, we are helping him. He is benefiting financially. It seems to me that we are doing the right thing.'

The Californian is right in only one respect. Ten dollars is cheap for their meal for them. But, ten dollars is a lot of money in a country where the average income is less than 450$ per year. And, potentially that's also a real incentive for people to go out and hunt endangered and exotic meals for travellers looking for the 'one-off' thrill. And so that night one Californian schoolteacher and two Dutch travellers sat down to a meal of local rice whisky, sticky rice, fried morning glory leaves and a stew made from endangered ungulate. They had their gastronomic adventure and their Lao host made a pot load of money.

Poverty and demand

Their host really had very little choice. Laos is an extremely poor country with a growing population. Unfortunately, this means that there is continual pressure to make money any way one can. So, if that means killing endangered wildlife to satisfy western appetites, then that is what happens.

No matter where I went in Laos I saw a once isolated country with a growing tourist trail. The tourists want to experience what they feel is the 'real Laos'. They want nature, the unusual, the unexpected and rare experience and the wildlife. Unfortunately, it also appears that some of them want to abuse the nature, turn the unexpected and rare experience into a commodity and collect and/or eat the wildlife.

The tourism sub-sector is expanding rapidly, and is seen as an important source of future growth and foreign exchange earnings. In 2007, Laos received over 1.5 million tourists and by 2015 it is estimated that there will be 2.2 million and 3 million in 2020. How many of these tourists are buying wildlife products? How many are eating endangered animals? No one knows.

As I watch the tourists piling into and out of cafes and hotels, buying endangered species to take home and put on their bookshelves and listen to them talk enthusiastically about eating wildlife, I fear that it is not going to be possible for them to appreciate their surroundings for its beauty without exploiting the place and the people and without subtracting from its essence unless major changes are made.

The economic benefits of tourism for local communities can be positive, but there needs to be a balance because the demands of tourism can also contribute to the destruction of the natural and cultural environment upon which it depends. If there is over-exploitation and the wildlife is harmed then both the local community and the tourist industry will eventually collapse. as will the environment.

As a Party to the Convention on Biological Diversity, and as outlined in their National Biodiversity Conservation Strategy, Laos is committed to conserving biodiversity and protecting wildlife. But, will this commitment be ruined by a tidal wave of ignorant tourists?

I had incorrectly assumed that an increase in tourism would provide positive financial reinforcement for residents to conserve many of the species. I had also incorrectly assumed that tourists would simply want to view wildlife and experience nature from a distance. Unfortunately what I am seeing is that tourists want to buy wildlife items and eat wild animals. In reality tourism is threatening wildlife.

Laos is clearly hemorrhaging wildlife, and possibly out of ignorance, possibly out of greed, tourists are taking part in this carnage.

Today Laos is loosing its wild animals and plants at an alarming rate according to IUCN, WCS and WWF. Forest cover is declining and forest quality is deteriorating. According to UNDP, some of the main factors contributing to the destruction of biodiversity are poor forest management, illegal logging, unsustainable hunting and fishing practices and wildlife trade. This over-exploitation of natural resources is depriving the local population of vital resources and thereby possibly increasing poverty.

Tourists buying wildlife products and eating wild animals (endangered or not) is nowhere as bad as all the other problems Laos faces - yet. But, and this is a big but, if the onslaught of tourism continues and the tourists are not properly informed as to the repercussions of their selfish acts then tourism will have extremely detrimental effects. The tourists must be adequately educated or more mistakes will be made and it will become very difficult to realign local thinking and business practice towards genuine ecotourism principles and environmentally friendly behaviours.

Out of time?

Unfortunately, it might be almost too late for the inhabitants of Muong Ngoi. According to a 2008 UNESCO document large numbers of tourists arrived in Muang Ngoi before local people were prepared to deal with the social and environmental impacts that tourism can cause leading to an increasing number of conflicts between local business owners, an increase in petty theft and drug abuse among youth, too many visitors and environmental problems such as water pollution and excess trash.

Before leaving Laos, I take one more walk through the market in Louangphabang. I see a German family putting some horns in their knapsacks, a Japanese couple buying a bear paw, an old elephant tooth being slipped into an Australian's handbag. I watch some young American tourists bartering for python skins and I know that they will get a 'good deal' and that the seller will have more python skins to sell and more python purchasers tomorrow and the day after and the day after that.

And so – for now at least - the circle of wildlife trading continues and the tourists walk away with smiles on their faces and trinkets in their pockets and the market traders, also with smiles on their faces, put the profits in their pockets and everyone seems happy. Except of course, soon, very soon, the supply will collapse, the smiles will disappear and the wildlife will vanish forever.

Spanish mountains under threat from open cast coal mining

Almudena Serpis reports on the activists taking action against the expansion of coal mining in the beautiful and ecologically important Lacaiana valley

Activists say the mining is already devastating the unique landscape. Photo: Almudena Serpis

The 15M movement, born in Madrid after a major demonstration against Spain's economic crisis earlier this year, moved away from the city and set up a camp to oppose the destructive practices generated by open pit coal mining as part of its 'Take the mountain!' initiative. The Ecologist visited their protest camp to witness an increasingly bitter conflict.

A few meters away from the camp the police welcomed the activists, shotguns in hand, searched they're belongings, and asked for identification. They followed the same intimidating procedure for the hundreds of people that poured in from all corners of Spain to try and stop the devastation of the beautiful Laciana valley in the Spanish north-eastern province of Leon. Home to endangered species such as the brown bear, by coal open cast mining.

If you walk a few hours north of the

camp, the majestic mountain scenery changes radically into a moon-like setting. 'It's like the Kingdom of Mordor in the movie Lord of The Rings,' some locals have commented. In this case, the one to rule them all is the coal bigwig Victorino Alonso (or Father Don Vito, as he has been named by campers). He is owner of the two main Spanish mining businesses, CMC and UMINSA.

This year his businesses received 134 million Euros in coal subsidies from the Spanish government to promote native coal, according to the Spanish Ministry of Industry. With this money Victorino is planning to expand open-pit mines to the adjacent mountains, but it's a no win situation. The European Union has ruled that all subsidises for deficient coal mines will have to cease by 2018. That includes all Spanish mines.

'Spanish coal is no longer economically viable. The coal from this area has little heating power and a high percentage of water, so it is mixed with stones or with coal from abroad,' explained an ex-miner.

Last year the Court of Justice of the European Union presented a report which proved that mines in Laciana were damaging the environment and breaking European laws. The European Commission is accusing the Spanish government of allowing the Junta of Castilla y Leon to give the green light for mining activities in Laciana, a protected area.

Unique ecosystem

At night our only source of light were the thousand of stars which watched upon the valley. Only the communications tent had electricity, which was given by a neighbour whilst campers worked on a solar panel which would act as a substitute.

The valley of Laciana is a unique ecosystem, one of the last resorts where brown bears and grouse live, both of them in danger of extinction. It is also a protected area inside Red Natura 2000 and SPAs (Special Protection Areas) and qualified as a Biosphere Reserve recognized under the UNESCO.

Expansion plans for open pit mines in the valley would occupy the equivalent to approximately 2000 football fields.

However mining companies claim that there is nothing to worry about, because after a mine is used the area is replanted and brought back to normal and may even 'look even better than before', as Victorino apparantly claimed in Spanish TV program La Sexta.

José Francisco Fernández Gatón, is an ex-miner who is now head of Filón verde, a platform born 7 years ago to fight open pit mining in the area. He said that 'it is impossible to reconstruct these mountains.' The soil, which took millions of years to form, is now weak and whatever is planted tends to be washed away downhill.

> "Spanish coal is no longer economically viable."

Moreover, aside from the actual mining area, all the earth, rubble and stones which are removed are stored up in huge dump sites, which can occupy the whole mountain, burying forests and creating cracks in the mountains due to the heavy weight. To extract one ton of coal, 40 tonnes of earth need to be removed. To make matters worse, the machines employed use up 7000 litres of gasoil per day.

Nobody from the village drinks from the tap. The underground flow of the aquifers which run through and by the side of the mines converge in the river Sil, where the population is supposed to drink from. 'There is a sewage treatment plant, but we don't think it can purify water which could carry poisonous metals. We rather not drink it, says a woman from the nearby village of Sosas.

Targeting dissent

We all cringed at what ex-miner Calasio was saying during one of the first assemblies at the camp. One of his horses had been attacked with an axe, dying shortly after, and another one had been graffitied all over his loin with the message 'son of a bitch'. Calasio, like many others, claims he was targeted after highlighting the ecological destruction of the valley.

Traditional sub-surface miners are now losing their jobs because underground mines are being shut down to make way for open pit mines, which need less workers as they rely on heavy machinery, activists claim.

The Ecologist has learnt that of a population of around 11,000 people who live in Laciana, in 2009 only 238 people worked at the open pit mines (today the figure is even less). This means that open pit mining is benefiting only 2 per cent of the population of Laciana, who are paying the price of seeing their mountains being destroyed.

Despite all this, some villagers have a different opinion. On the third day after activists' arrival an agitated group of people advanced against the camp holding up banners urging us to leave. 'You will not take our jobs away!' they shouted. A line of police held the angry crowd away from the protestors.

These were open-pit miners, youths and families who were wondering about the possible solutions and alternatives to mining. 'You cannot tell a man who has been working all his life in the mine to make lavender smelling soap and start selling it,' one of them said.

What next?

Contrary to what the younger generation of Laciana percieved, mining in the valley begun in 1920. Up until then, the valley had subsisted on agriculture and farming. Moreover, several projects begun in the area to provide alternative job offers, but they have been stopped. For instance, in 2004 it was announced that Laciana would enjoy a Tourist Inn in Villablino, but locals claim nothing has been done.

In addition, the area is benefiting from Europe's MINER plans, which are subsidies given to create infrastructures, give scholarships and finance projects to create new jobs in areas which have been affected by mining. 'Where is all the money going?' ask those who live in Laciana.

This year Spanish coal supplied just 12.9 per cent of the total electricity for the country, according to Red Electrica de España, the Spanish corporation in charge of operating the nation's electric grid. The figures are getting smaller every year whilst, according to the environmental organisation Greenpeace, coal is the most polluting way to generate electricity, responsible for 70 per cent of the CO_2 emissions from the power sector worldwide.

The 15M campers are promoting a change of lifestyle non dependant on fossil fuels, but face many problems involving the local authorities, miners, the government and mining businesses. It's a hard battle to fight in this remote corner of the country.