

# Environment and Law in Burma

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Environmental law in Burma under the current military regime is very weak. One of the main problems is that there are no up-to-date laws that regulate pollution. There are also no regulations for environmental impact assessments to examine the harmful effects of projects. Reasonably effective environmental laws were enacted under the British. The democratic period in Burma, from 1948 to 1962, did not improve these laws. After 1962, the military junta repealed and replaced the British laws. The current legislation is too general and has never significantly provided for the protection of the environment. Unfortunately, the Burmese junta shows little concern for the environment.

## **Problems with Burma's Environment**

Burma is one of Asia's naturally richest countries. Its diverse ecosystem ranges from the Himalayas to the tropical reefs along the Bay of Bengal. Fertile agricultural lowlands once made Burma a leading rice exporter. Its fishing grounds were among the world's most bountiful. Its immense native rain forests, some of the last remaining in all of Asia, are home to numerous endangered plants and animals.<sup>1</sup> Ruled by a xenophobic military junta since 1962, Burma missed the wave of development that brought new prosperity to its Southeast Asian neighbours—but which also scarred their environments through unregulated development. Since the 1980s, the junta has appeared intent on catching up on both counts. The junta's rush to acquire hard currency allows Thai and Chinese loggers to quickly cut down broad swaths of rainforest. The massive deforestation is causing serious problems of erosion, floods and landslides.

Deforestation is also threatening some of the last habitats on earth for endangered animals such as the Asian elephant.<sup>2</sup> Characteristic Indo-Malayan mammal species occur in most of the less disturbed forests, but populations have been greatly reduced and are continuing to decline through habitat loss and over-hunting. Of the two species of rhinoceros formerly occurring in Burma, the Javan is already extinct and the Sumatran almost. Existing forest reserves are managed primarily for timber production. Timber, principally teak, is one of Burma's main foreign exchange earners. Its exploitation is regulated by the State Timber Corporation (STC).<sup>3</sup> The Forest Department of Burma, one of the oldest in Asia, is technically still responsible for managing the forests, but is hampered by serious shortages of staff and funds, and by the fact that it has little control over the politically more powerful STC.

The junta's agricultural policies are also creating problems. Farmers are forced to double and treble crop rice. They must then sell large quotas of their harvest to the state at prices far below market value. The junta exports the rice at world market prices and pockets the difference.<sup>4</sup> These policies not only penalize farmers and distort the market economy, but they are also environmentally very dangerous. Ignoring the traditional wisdom of crop rotation, by growing additional rice crops and using harsh fertilizers, will destroy soil fertility and damage water supply, opening the way to potentially disastrous soil depletion and pestilence.<sup>5</sup> Moreover, Burma's fisheries are being stripped. To crown it all, massive hydroelectric projects on Burma's rivers, and mining, oil and gas operations are being rapidly expanded with dangerous disregard to environmental impact. This destruction of Burma's environment has been documented in many international reports. But Burma's peoples today have absolutely no say in how their country's resources will be developed. The military regime allows no public discussion or dissent, and punishes anyone who dares question its development priorities or other policies.<sup>6</sup>

A related problem is that environmental issues are either unknown, poorly understood or misunderstood in Burma (for example, there are no words in Burmese for 'conservation' or 'preservation'). Many people in Burma do not yet see the country's environmental problems as very serious. Even among educated Burmese, knowledge about environmental problems is scarce and incomplete. The military regime closely guards all information. Hence people in Burma have little access to information, let alone information about their environment. Education and information are necessary *before* the environment becomes Burma's most serious problem. Therefore, some specific objectives of the Burma Lawyers' Council are to increase awareness among Burmese and ethnic leaders about environmental issues, to prepare a draft list of environmental rights and responsibilities for inclusion in the Burmese constitution—as these were even missing in the democratic constitution of 1947—and to lay the foundations for institutions and laws that will provide protection against environmental damage in Burma.<sup>7</sup>

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## Environmental Law in Burma: The Forest Act

Throughout Burma's history there has been evidence of environmental problems. In the 13<sup>th</sup> century, during the Pagan period, destruction of forests occurred to make way for building the royal city. Trees were felled to provide firewood for baking bricks for pagodas. As a result there is still a dry zone around Pagan. In the 19<sup>th</sup> century, when Britain was in the midst of the Industrial Revolution, commerce was expanding and railways and shipbuilding developed rapidly. The timber needed for these activities was obtained from Burmese forests.

Following the First Anglo-Burmese War of 1824-1826, the British annexed Arakan and Tenasserim, and the British East India Company reclaimed land for agriculture. Vast areas of forest in Kyaik-khami and Tenasserim were destroyed. The aftermath of the Second Anglo-Burmese War (1852-1853) saw a further destruction of forests. Timber companies such as Bombay-Burmah, Steel Brothers, Fukar and D.T. Finlay were given logging concessions and they lost no time in cutting down the virgin forests of Burma. The British colonial authorities, alarmed by this voracity, felt the need to establish reserve areas.<sup>8</sup> Hence the Forest Act of 1881 came into being.<sup>9</sup> This was the first environmental law in Burma. It was also the ostensible cause of the Third Anglo-Burmese War (1885-1886), because in August 1885 the Burman royal council had ordered the Bombay-Burmah company to pay an exorbitant fine of 2.3 million rupees for allegedly illegal extraction of teak logs from Burma territory above Toungoo. The company countered by citing supplementary local agreements of 1882 and 1883 under the Forest Act. But on 20 September 1885, Burman authorities detained log rafts on the Burma side until an initial installment was paid on the assessed fine.<sup>10</sup> The British did not accept this and sent an ultimatum on 22 October 1885, giving Burma less than twenty days to agree to arbitrate the Bombay-Burmah fine. The Burman royal council sent a negative reply, whereupon the British annexed the rest of Burma within the next couple of months.<sup>11</sup>

The Forest Act<sup>12</sup> consisted of 82 sections, 19 of which dealt reasonably effectively with the protection of forests. Chapter 3 (sections 30 to 34) dealt exclusively with the General Protection of Forests and Forest produce. For example, section 30(1) said, "All standing teak trees wherever situated ... shall be deemed to be the property of the State and shall be reserved trees". 'Reserved' in the context of this Act meant that the President of the Union of Burma, by notification, had declared it reserved. Section 31 said, "No person shall fell, cut, girdle, mark, lop or tap any reserved tree, or injure by fire or otherwise any reserved tree or the timber of any such tree". Chapter 5 (sections 39 to 45) dealt with the control of forest produce. Section 39(1)(b) prohibited the import, export, collection or moving of any forest produce without prior written permission from the forest authorities. The Act contained specific rules for the transport of timber, the establishment of sawmills, duty on forest produce, and the seizure of cattle

or elephants trespassing in a reserved forest. Penalties under the Act were imprisonment for a term which may extend to six months, or a fine, or both. Chapter 7 (sections 74 to 82) described the duties and powers of Forest Officers, such as the power to investigate any forest offence, and the issue of search warrants under the Code of Criminal Procedure.

As economic development began to have an adverse impact on Burma's environment, the British colonial authorities decided to regulate this in more detail. As a result, the Forest Act was amended and revised in 1906, 1926, 1938 and 1941. The Regulation for the Protection of Birds was enacted in 1912, and the Wildlife Protection Act in 1936.

### **The Wildlife Protection Act**

The Wildlife Protection Act,<sup>13</sup> Chapter 2, deals with unlawful methods of hunting, the protection of reserved forests, and wildlife categories that are completely, normally or seasonally protected. Section 6 of this chapter says, "No person shall hunt any of the following animals, or knowingly possess, sell or buy them alive or dead, or any part or product thereof, ... Rhinoceros, tapir, argus pheasant, masked finfoot, and any other animal that the President of the Union [of Burma] may, by notification, declare to be completely protected animals". Section 7 says, "No person shall hunt any of the following animals ... save under and in accordance with the conditions of a license, Elephant, bison, saing, thamin, serow and goral. (...) It shall not be an offence to possess, buy or sell any domesticated elephant". Section 8 describes the close seasons during which other animals are protected. Penalties for offences under this Act (Chapter 3) include imprisonment for a term which may extend to six months, or a fine, or both. Chapter 4 describes the responsibilities of Forest Officers, Game Wardens and Police Officers.

### **The Fisheries Act**

Other laws relating to the environment included the Fisheries Act of 1905.<sup>14</sup> Sections 11 to 14 of this Act deal with the protection of fisheries. Section 11A (1) says, "No person shall use any dynamite or other explosive substance in any fishery with intent thereby to destroy or facilitate the catching of fish". Section 11A(2) says, "No person shall ... put or cause or knowingly permit to flow into any fishery, lime, *bónlónthi*,<sup>15</sup> poison, or other noxious material which, when put or permitted to flow into water, kills or stupefies fish or makes it difficult for

fish to remain in or near that part of the water”. Section 12 says, “No person shall make ... any canal or channel which may affect any fishery either by reducing or increasing the quantity of water, or changing the quality of the water, or by the introduction of silt”. Section 13 describes the protection of specified species of fish, turtle and tortoise. Section 23 laid down penalties: “Any person who ... kills, captures or in any way interferes with any species of protected fish, or takes, opens or in any way interferes with a nest of eggs laid by any protected turtle or tortoise, or ... permits any cattle or other animal under his charge to enter upon or approach any bank in which turtles or tortoises lay their eggs, shall be punished with imprisonment for a term which may extend to one month, or with fine, or with both”. The Act (under section 24) ensured the accountability of Fishery Officers by laying down penalties for wrongful arrest, seizure or search.

Further regulations concerning the environment can be found in a number of other laws, such as the Municipal Act of 1898<sup>16</sup> and the City of Rangoon Municipal Act of 1922,<sup>17</sup> regulating water supply, drainage, sewerage and the clearing of noxious vegetation.

### Agricultural Laws

Then there are a number of agricultural laws, such as the Canal Act of 1905 which regulated the application of water for public purposes, the supply of water, and drainage works.<sup>18</sup> The Insects and Pests Act of 1914 related to damage to all agricultural or horticultural crops, and all trees, bushes or plants.<sup>19</sup> The Underground Water Act of 1930 dealt with the conservation and protection of underground sources of water supply in Burma.<sup>20</sup> The Cattle Trespass Act of 1871 has two sections relating to cattle damaging land.<sup>21</sup> The Sugar Cane Act of 1934 regulated the areas where sugar cane is grown.<sup>22</sup> And the Dangerous Drugs Act of 1930 referred to the environment in that it regulated the cultivation of the poppy or *Papaver somniferum*.<sup>23</sup>

Regarding another flower, the Water Hyacinth Act of 1917 said, “The presence of the water hyacinth in the Union of Burma is hereby declared to be a public nuisance”. Article 4 says, “No person shall possess or keep the water hyacinth [*Eichhornia crassipes*] and every owner or occupier shall destroy any water hyacinth growing in or on any place belonging to or occupied by him (...)” Article 6 says, “Any person who (1) possesses or keeps the water hyacinth; or (2) fails to destroy ... any water hyacinth which may be found growing in any such place as aforesaid, shall be guilty of an offence, and shall be liable on conviction thereof to a fine not exceeding one hundred rupees, or upon a second or subsequent conviction to a fine not exceeding five hundred rupees”.<sup>24</sup>

Pesticides so toxic that their use is banned in Europe and the United States are still being imported into Burma by the State Agricultural Corporation. Farmers in Burma use a lot of phenoxy herbicides and other carcinogenic and embryotoxic substances. Since their use is so widespread, the most dangerous compounds such as Silvex, Weedone, Endrin, Aldrin and Dieldrin should be replaced by others less destructive to both human and wildlife. Unfortunately, the existing legislation is insufficient. Although there is a Poisons Act, this only regulates the possession for sale (and not the use) of poisons.<sup>25</sup>

### SLORC's Enactments and the Environment

From 1948 (when Burma gained independence) until 1988 no new environmental laws were passed, except some amendments. Although the 1974 constitution said that the State is the ultimate owner of all resources above and below the ground, it did not say anything about the protection of these resources.

Following the coup in 1988, the SLORC (State Law and Order Restoration Council, the name of the military junta at that time) made it a point to sell the natural resources of the country to get the urgently needed foreign exchange. The junta promulgated SLORC Law No. 1/92 by which a corpus of laws were repealed. The grounds for this repeal were given as "incompatibility with market economy", "long disuse" and "no anticipated need in the future". The laws as repealed by SLORC Law No. 1/92 include environmental enactments such as the Fisheries Act of 1905, the Canal Act of 1905 and the Municipal Act of 1898. Although the repealing of these laws was followed by promulgation of new laws, there were no provisions whatsoever in the new legislation to protect endangered species or the environment.

In 1988, the SLORC began to introduce market economy principles into Burma but made into law that certain economic activities are only to be conducted by the State. The State-owned Economic Enterprises Law (SLORC Law No. 9/89)<sup>26</sup> was issued in 1989. In chapter 2, section 3 of this law, the junta spelled out the economic activities that are to be carried out only by the State: "... Extraction and trading of teak within and outside the Union [of Burma]; ... All plantation of wood and its preservation and protection, except firewood plantations by villagers for subsistence; ... Exploration, trading and extraction of oil and natural gas and the production of oil, natural gas and related products; ... Exploration, trading, extraction and export of pearl, jade, ruby and other mineral precious stones; ... Production of fish and shrimps (...)" This means that the junta sees forest protection in terms of *economy*—not *ecology*. It also means that the junta is ignoring the fact that environmental preservation and protection are everyone's responsibility, and is contradicting Principle 10 of the 1992

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Rio Declaration on Environment and Development, which says that, “Environmental issues are best handled with the participation of all concerned citizens”.

### **SLORC’s Fishing Laws**

The Law Relating to the Fishing Rights of Foreign Fishing Vessels (SLORC Law No. 11/89)<sup>27</sup> was put into force on 2 April 1989. This law grants fishing rights and concessions within Burmese territorial waters and special economic zones to foreign fishing companies. The SLORC promulgated this law in haste as it badly needed foreign currency and as a result the law has many loopholes and inconsistencies. For instance, in section 10(b) the law says that the fishing company or the owner of the vessel has accepted the rules contained in the license, but in section 12 it says, “...if it is necessary to change the rules, this can be renegotiated”. This means that one can strike out an unwanted clause and write in a new one at will. In chapter 3 of the law, the fishing company’s rights and responsibilities are described. The rights include, “the right to repair the fishing vessel in any local shipyard”. The responsibilities include regulations such as, “...in case Burmese fishermen and seamen are employed, their names should be submitted to the Fisheries Department”. Nothing is said about over-fishing or pollution. Similarly, the Myanmar Marine Fisheries Law (SLORC Law No. 9/90) does not say anything about over-fishing or pollution.<sup>28</sup>

In 1993, a vague reference to the environment<sup>29</sup> was added to SLORC Law No. 11/89, stipulating that “the highest penalty of 30,000 kyats or seven years imprisonment or both shall be handed down to people who use explosives, poison, chemicals or the like in fishing”. However, section 16 of SLORC Law No. 11/89 provides that “notwithstanding any law in force, judgment passed by a court of law can be superseded and overruled by the Director-General of the Fisheries Department”. This was drafted to protect the interests of foreign companies working in joint venture with the military junta. It also means that there is no rule of law in Burma: when the economic partners break the law, they can still carry on business as usual.

Fishery concessions granted by the military junta to Thai companies in 1989 and 1993 have led to severe over-fishing by modern trawler fleets in wide areas of the Andaman Sea on Burma’s southeastern coast. That is why in 1993 SLORC Law No. 11/89 was amended by SLORC Law No. 11/93, regarding license fees, offences and penalties. In addition, the SLORC passed an emergency act (the Act Covering Foreign Trawlers) in 1993, again increasing the fees and penalties.<sup>30</sup> However, local fishermen were unable to pay the license fees and were therefore stopped from practicing the only livelihood they knew, whereas finan-

cially better off foreign fishing companies could obtain licenses easily. The depletion of a renewable resource for quick commercial gain is typical of the junta's economic policies: long-term environmental effects or their immediate impact on local residents are ignored. Many fishing villages in Burma are increasingly impoverished as their traditional source of sustenance disappears.

The Law Relating to Aquaculture (SLORC Law No. 24/89) was enacted on 7 September 1989. According to Chapter 1, Section 2(g) of the law, aquaculture is the "... propagation of fish species, and the breeding of fish through different stages of growth in natural or artificial waters". Although the term "Reserved Fisheries Waters" ("Fisheries waters in which the [Fisheries] Department has permitted the fisheries enterprise with restrictions, in order to prevent the extinction of fish species") is promisingly included in the law's list of definitions, there is no further reference to this in any section of the law, strangely enough. Chapter 8, Section 29(b) says, "No person shall ... obstruct navigation and flowing of water, or pollute the water within the fisheries' waters or abet such acts". This is not very specific and nothing is said about an inspection mechanism. Like so many other 'environmental' laws in Burma, this law merely regulates applications for either lease or license and the payment of duties.

On 10 August 1995, all fishing deals between the Burmese junta and Thai fishing companies from Ranong were scrapped after the killing of Burmese sailors by Thai fishermen. The junta also claimed Thai fishermen had violated the agreements by fishing outside the concession areas and taking more fish than they were allowed. In April 1997, Thai fishing companies complained that they were not being allowed to transport catches out of the Burmese concession areas despite new agreements with the junta.<sup>31</sup> In November 1997, the junta finally agreed to grant fishing concessions for about 400 Thai fishing trawlers and about 450 Thai boats registered as Burmese trawlers.

Between 1997 and 1999, the Burmese junta again issued a number of directives and decrees, further limiting deals with Thai fishing companies. In January 1998, the junta decided that 300 Thai trawlers would be granted 45-day fishing rights for a concession fee ranging from 250,000 to 320,000 Baht, depending on the size of the vessel. But an SPDC Order from October 1999 suddenly suspended all Thai fishing rights. Burma barred Thai fishing vessels from its territorial waters: "Any Thai fishing vessels found in Burmese territorial waters will be shot at by the Burmese navy [and] any Thai fishermen found poaching in Burmese territorial waters will be arrested".<sup>32</sup> This revocation of fishing concessions was the fifth such ban since Thai fishermen began operating in Burmese waters in the 1970s.<sup>33</sup> Thai newspapers stated that the fishing ban affected some 400 licensed Thai trawlers and up to 5,000 Burmese workers normally employed on the vessels. According to the Burmese Fisheries Department, the Order was issued "by reason of environmental concern [because] the Thais have been poaching and over-fishing". The junta denied the Thai statements regarding 400

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vessels: “According to the Myanmar Ministry of Fisheries, there are altogether 106 Thai fishing vessels being officially granted concession on a monthly basis to fish in Myanmar waters. The rest are illegal fishing vessels poaching in Myanmar waters for decades. The fishing authorities of Myanmar nevertheless appreciate the information given by the Thai newspapers, since it highlighted the approximate number of illegal fishing vessels operating in Myanmar waters”.<sup>34</sup>

According to Thailand, however, the SPDC Order was issued not for environmental but political reasons, in reprisal against the Thai government’s decision to release Burmese political dissidents who took hostages when they commandeered the Burmese Embassy in Bangkok in October. The Burmese junta has said that they will not lift the sanctions until the dissidents who seized the embassy are arrested and prosecuted.<sup>35</sup> It is estimated that the Thai fishing industry is losing around \$3.8 million a day as a result of loss of access to Burma’s rich fishing grounds. But the sanctions imposed on Thailand have also imposed a heavy burden on Burma itself. The cost of fuel and food in those parts of Burma that were dependent on trade with Thailand has risen sharply, adding further misery to a population that is already very poor.

### **The Junta’s Forest Rules: The Junta Rules the Forest**

The Forest Law (SLORC Law No. 8/92) was promulgated on 3 November 1992. This law, according to section 3(a) is “to implement the forestry policy of the Government ... [and] to develop the economy of the State”, which means that it protects the timber industry instead of the forest. The Law consists of 13 chapters, of which seven are concerned with licensing industries and the extraction of forest produce. Chapter 2 (‘Basic Principles’) is the only part where the Law vaguely mentions international agreements relating to conservation of forests and environment. Wherever ‘reserved trees’ are mentioned, the Law means teak trees belonging to the State. Article 43(a) says that “Whoever fells, cuts, girdles, marks, lops, taps, injures by fire or otherwise any teak tree ... or moves or keeps in possession unlawfully any teak timber without a permit shall be punished with fine which may extend to 50,000 kyats, or with imprisonment for a term which may extend to 7 years, or with both”. However the Minister of Forestry and the Director-General of the Forest Department may reduce, waive or exempt from payment any fine or royalty due. Article 58 says, “The Forest Act of 1902 is hereby repealed”. Although according to article 55, “The reserved forests existing under the Forest Act of 1902 shall be deemed to be reserved forests constituted under this Law”, under article 57(b) the Minister and the Director-General may issue their own orders, directives and notifications “as may be necessary”. Although the SPDC (State Peace and Development Council, the current name of Burma’s military regime) published a booklet with new “forest

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rules and regulations” in 1998, this is providing mere extracts of the Forest Law without any better regulations concerning forest protection.<sup>36</sup>

In theory, the military-run State Timber Corporation (STC) controls all Burma’s timber exports. But for two reasons it is unlikely that the military will be instrumental in protecting forests. First, timber is the second largest money-maker for the junta.<sup>37</sup> On paper, Burma extracts about one million cubic meters of teak logs per year with state-owned or contracted operations. But independent environmental protection organizations estimate that this must be at least three times as much. For example, from 1989 to 1992, the SLORC issued licenses to 60 Thai logging companies.<sup>38</sup> Second, in 1990, when the junta annulled the results of the election, the generals were concerned that the thousands of dissidents who fled Rangoon would be armed by insurgents who had been operating for decades along Burma’s northern border. So the junta cut a deal with the rebel forces: in exchange for permission to engage in business, the insurgents promised not to arm the dissidents. Logging concessions were a key sweetener. The junta gave the rebels access to logging machinery and milling equipment. Chinese businesses were soon working together with the rebels, bringing in lumberjacks and trucks, and cutting down forests. The Chinese have never done any business with the STC, but only with local military authorities and the rebels. In 1997, Yunnan-based environmentalists reported that Chinese loggers had cleared 35 miles into Burma. This year logging has moved 60 miles inside Burma.<sup>39</sup>

Then there are the plans for a highway and a gas pipeline along the route of the legendary Ledo Road.<sup>40</sup> The original road was extending from railhead Lashio in Burma to Kunming in China. About 700 miles long and constructed through rough mountain country, it was a remarkable engineering achievement. Undertaken by the Chinese after the outbreak of the Sino-Japanese War in 1937 and completed in 1938, the road was used to transport army supplies landed at Rangoon and transported by rail to Lashio. This traffic increased in importance to China after the Japanese took control of the Chinese coast and Indochina. The Ledo Road (later called the Stilwell Road) from Ledo, India, into Burma was begun in December 1942. In 1944 the Ledo Road reached Myitkyina and was joined to the Burma Road. Both roads lost their former importance and fell into disrepair and disuse after 1945.<sup>41</sup> If the Ledo Road is rebuilt, Assam will be linked with China, paving the way for the logging companies—with increasing deforestation in Burma as a tragic consequence.

## **SLORC’s Wildlife Laws**

The Protection of Wild Life and Wild Plants and Conservation of Natural Areas

Law (SLORC Law No. 6/94) was promulgated on 8 July 1994 as the junta's response to its obligations under the World Heritage Convention and the Convention on Biological Diversity. However, SLORC Law No. 6/94 is not very effective, especially in terms of protecting wild animals and plants. It contains no provisions for air and water pollution and pollution caused by industrial waste. The section on hunting does not mention unlawful methods of hunting but only mentions the possession of a licence. Chapter 6, section 20 says, "A person who has been granted a hunting licence shall (a) pay the hunting licence fees as may be prescribed; (b) abide by the [financial] conditions of the hunting licence; (c) submit to the inspection of the Forest Department" (what kind of inspection?) Although the Law says that "Whoever is hunting without a licence shall on conviction be punished with imprisonment which may extend to 3 years, or with fine up to 10,000 kyats, or with both", the Director-General of the Forest Department can stipulate his own conditions. Section 48 says, "The Wildlife Protection Act of 1936 is hereby repealed". However, in contrast to this, section 46 says, "Before the issuance of rules, procedures, notifications, orders and directives under this Law, rules, notifications, orders, directives and circulars issued under the Wildlife Protection Act of 1936 may continue to be applicable in so far as they are not inconsistent with this Law".<sup>42</sup>

On 26 October 1994, the Forest Department Notification No. 583/94 was issued in addition to SLORC Law No. 6/94. The Notification says, "In accordance with [SLORC] Law No. 6/94, the Director-General of the Forest Department, Ministry of Forestry, notifies the following endangered wildlife species as protected wild animals, in respect of their categories". Hereafter, Chapter I describes 'Completely Protected Animals' (A. Mammals, 39 species; B. Avifauna, 50 species; C. Reptiles, 9 species). Interestingly, the very first mammal listed under (A) is the Javan rhinoceros—in Burma already extinct for decades.<sup>43</sup> Chapter II describes 'Protected Wild Animals' in a similar arrangement (A. Mammals, 12 species; B. Avifauna, 43 species; C. Reptiles, 6 species). Chapter III describes 'Seasonal Protected Animals' (A. Mammals, Protected during the period of 15 June to 30 September, 2 species; B. Avifauna, Protected during the period of 15 March to 30 September, 13 species).<sup>44</sup> Nothing is said about penalties or licenses.

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### SLORC's Mining Laws

The Myanmar Gems Law (SLORC Law No. 8/95) was promulgated to enable private companies to enter into joint ventures with the junta to mine for precious stones. Previously the mining of precious stones was only done by the state,<sup>45</sup> and the impact on the environment had been negligible. Section 12(a) of the law however anticipated environmental issues by providing that the Ministry

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of Mines, in vetting the application to excavate a piece of land, "...must determine whether such excavation could damage nearby property and buildings, whether third party rights will be affected or not, and appoint the Myanmar Gems Trading Corporation to investigate if reserve areas, wildlife and natural habitats, highways, religious property or cultural heritage could be affected by such excavation". Although this sounds promising, 218 precious stones mines were excavated and 15 jade exploration projects were undertaken between 1989 and 1992, causing enormous damage. The use of high-tech equipment and dynamite enabled the mining companies to extract a lot in a short time but the damage to the environment, especially around Mogok and Mineshu, is extensive. Because the mining companies used water pumps, local people still face either floods or shortages of water for drinking and cultivation of crops. But as the junta is a business partner, no mining company is liable to prosecution or fines.

Similarly, under the Mines Act of 1924<sup>46</sup> or the Myanmar Mines Law of 1994 (SLORC Law No. 8/94, which repealed the Mines Act),<sup>47</sup> no mining company is liable to prosecution or fines. For instance, residents of Karen State have developed symptoms of lead poisoning and low blood pressure due to pollution from mining operations, but they cannot file any lawsuits. Section 9 of the Land Acquisition (Mines) Act of 1885 regulates the "Government to Pay Compensation for Injury Done to Mines", but nothing is said about harm or injury done *by* mines.<sup>48</sup>

### **No Laws to Govern Pollution**

In relation to pollution, Burma has no specific laws to govern air and water pollution. There is a general provision in Section 3 of the Public Health Law of 1972 which empowers the Ministry of Health "to carry out measures" relating to environmental health, such as garbage disposal, use of water for drinking and other purposes, radioactivity, protection of air from pollution, and food and drug safety. However, detailed provisions do not exist to ensure more effective and comprehensive regulation of these matters. Air pollution from vehicles, for instance, is a growing problem due to the increasing number of cars and trucks and the old age of most of these, but regulation exists only through an annual renewal of licenses.<sup>49</sup> No specific regulation exists for emission standards. In the regulations for hotels and tourism, there are no provisions whatsoever for pollution control. Although the Burma Ports Act of 1908 contains a paragraph about harbour pollution (see endnote 79), this merely focuses on the detriment to navigation. As for air pollution from industries, many small factories emit a great deal of foul smells, such as food preparation industries. The factories are governed by the Promotion of Cottage Industries Law of 1991,<sup>50</sup> administered

by the Ministry of Industry, but this law is only regulating licenses. It does not control air pollution and has no inspection mechanism. In addition, the main urban areas have no industrial zone systems. The only control of water pollution in the country is through guidelines issued in June 1994 by the Myanmar Investment Commission. These guidelines require that new investment projects have waste water treatment systems. River and lake pollution from sewage, industrial waste and solid waste disposal are serious problems in Burma, but are not regulated explicitly by any laws. Moreover, the waterworks and sanitation facilities in the country are not of good quality, nor are their operations coordinated by any governmental agency.

### **Ineffective Sectoral Laws**

The current environmental laws in Burma are often sectoral laws. This greatly increases their ineffectiveness. The laws created by the military junta are administered and enforced by different ministries. This means that the responsibility of protecting the environment is divided among many agencies that do not work together. Examples are the Forest Law of 1992, administered by the Forest Department, and the Myanmar Mines Law of 1994, administered by the Ministry of Mines. Typically, these laws are concerned mainly with licensing industries and may only vaguely refer to environmental protection. Even when the laws do address the environment, they do so in a very general way. For example, the National Convention drafted by the military junta stipulates only that "the State shall protect the environment". General rules like this are difficult to enforce. There can be no substitute for concrete legal regulations and remedies which the junta has promised but failed to implement. In addition, it is unclear whether or not the environmental parts of the laws are actually enforced. There is no independent agency in Burma that has the power to ensure that environmental laws are enforced, so it is completely up to each ministry to decide how much trouble they will take over environmental protection. Since the main purpose of most of the ministries is to promote the industries under their charge, it is unlikely that they are very concerned about the environment.

Four additional factors influence the effectiveness of the sectoral laws. First, penalties for violations of these laws usually only specify maximum penalties, so even if violators are caught and convicted, they might only get extremely light sentences. Second, because of the poverty and the high rate of inflation in Burma, fines that would be heavy for the majority of the population would be viewed as ridiculously light by foreign companies. This is a major problem because the junta is actively trying to attract foreign companies to build factories and other industrial projects. Foreign companies want to invest in Burma because its few environmental regulations are so weak that even if the laws are en-

forced, it is more profitable for companies to damage the environment and pay the fine rather than take the trouble to prevent harm. Third, any law is useless if the people who are supposed to enforce the law are corrupt. Finally, under a dictatorship like the Burmese junta which has the power to ignore or overturn any of its own laws, environmental laws are potentially useless.

In addition to the sectoral laws, there are laws passed by previous governments, some dating back to colonial rule, which may still be in effect. In this regard the junta's regulations are vague. Official reports do sometimes refer to repealed laws as being in current force, especially to back up the government's claim that it has 52 laws that address environmental issues.<sup>51</sup> At any rate, most laws are outdated and their environmental provisions are ineffective.

### **Burma's National Commission for Environmental Affairs**

The National Commission for Environmental Affairs (NCEA) was formed in 1990. It is chaired by the Minister of Foreign Affairs, which is another sign that the junta views the environment as a tool to win international approval. The nineteen members of the NCEA are the heads of department of various ministries. The objectives of the NCEA are supposed to include setting environmental standards, creating environmental policies for using natural resources and laying down rules and regulations to control pollution, as well as to create short and long term environmental policies which balance environmental needs and development requirements.<sup>52</sup> The NCEA is currently in the process of drafting two environmental laws, namely the Environmental Protection Law and the Environmental Impact Assessment Rules.<sup>53</sup> So far however, the NCEA has been severely under-funded and under-staffed and has been unable to meet its objectives. Nevertheless, it is the only government organization in Burma with a main purpose to work on environmental affairs. Although the junta has formed a Central Committee for the Administration of Uncultivated Land, Fallow Land and Waste Land,<sup>54</sup> this committee only controls deforested areas that are now wasteland.

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### **Burma's Environment Policy**

In recent years the military junta has become more vocal about improving environmental laws and policies in Burma. It issued an Environment Policy in 1994 and has been working with the United Nations on a national action plan for the environment called "Myanmar Agenda 21". These acts are however no more

than a façade that makes the junta look like an environmentally concerned government. This is part of the junta's attempt to legitimize itself with the United Nations and international environmental organizations.

The Environment Policy is a one-paragraph statement, which proclaims the government's commitment to the principle of sustainable development. It says, "To establish sound environment policies, utilization of water, land, forests, mineral, marine resources and other natural resources in order to conserve the environment and prevent its degradation, the Government of the Union of Myanmar hereby adopts the following policy. The wealth of the nation is its people, its cultural heritage, its environment and its natural resources. The objective of Myanmar's Environment Policy is aimed at achieving harmony and balance between these, through the integration of environmental considerations into the development process to enhance the quality of life of all its citizens. Every nation has the sovereign right to utilize its natural resources in accordance with its environmental policies, but great care must be taken not to exceed its jurisdiction or infringe upon the interests of other nations. It is the responsibility of the State and every citizen to preserve its natural resources in the interest of present and future generations. Environmental protection should always be the primary objective in seeking development".<sup>55</sup>

This environment policy is in fact a statement about sustainable development. While sustainable development is important and should be part of an environmental policy, a nation's environmental policy should include more than just sustainable development. It should be broader. For example, a policy should also, at least, talk about the importance of conserving natural areas and wildlife, the right of the public to participate in decisions regarding the environment, and the importance of protecting people and environment from pollution.

### **"Myanmar Agenda 21"**

"Myanmar Agenda 21" is essentially an environmental action plan for Burma. It is divided into 4 Parts and 19 Chapters, and reviews the current state of Burma's development and environment. It suggests policies to be undertaken for improving environmental protection in Burma. Some of the major proposals of the Agenda are strengthening the NCEA, possibly turning it into a Ministry; creating a national framework legislation on the environment to improve coordination and cooperation between ministries on issues related to the environment; and creating legislation that requires that environmental impact assessments are done before any development project is undertaken. Written with the assistance of the Asia-Pacific Centre for Environmental Law and the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), it was ap-

proved by the Burmese junta in February 1997. Although the document was presented at the June 1997 United Nations General Assembly Session on Agenda 21, it is only a plan and the junta is not bound to stick to it. So far it has only been a façade. It will nevertheless be an important tool for the junta to use when it wants to convince UN agencies and international environment organizations that it is serious about the environment and should get funding and other support.

## Oil, Gas and the Environment

Multinational oil development remains a key to Burma's expansion of the military. Without foreign exchange from oil investments, the junta would be much more dependent on foreign aid, which is tied to political reforms. Foreign investments in Burma only strengthen the junta and do not benefit the population. Moreover, Burma's current legal system allows foreign investors to operate free of environmental regulations. Consortium partners exert absolute decision-making control. In addition, lack of transparency ensures that oil companies will not be held responsible for any environmental damage that they cause. Oil companies usually do not trouble themselves with ecological concerns. The nature of their activity and, particularly, the race for profits are by definition counteractive to respect for the environment.

Burma is a country with particularly rough terrain, and almost no infrastructure to support oil exploration and production. Most of the areas where oil exploration is proceeding remain inaccessible by roads. Heavy equipment is shipped up rivers during the monsoon season, and then used after the monsoons have passed. Many activities require the use of helicopters to by-pass the roads and rivers. Environmental impacts of oil exploration include the significant deforestation for helipads, base camps, testing sites and roads. Testing involves the use of seismic lines. Companies clear paths, one to five meters wide, one kilometer apart in a series of grid lines, and lay 10-pound dynamite charges every 100 to 150 meters. Cables with seismic meters are placed along the grid lines and when the charges are detonated, readings are taken and analyzed. The companies cut roads by hand or with bulldozers through virgin tropical forests in order to lay the grid lines. Seismic survey teams clear an average of 5,000 kilometers for grid lines per contract. Geophysical exploration service companies have blasted with dynamite and bulldozed through extensive tracts of tropical monsoon forest in Burma, causing enormous damage.<sup>56</sup> Once roads are constructed into these areas, further deforestation follows. The SLORC granted timber concessions in areas of virgin forest newly opened up by the oil companies. Large amounts of timber are currently being trucked to China, an unknown but significant quantity of which is coming from oil concession areas. Constructing roads also al-

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lows the military to move soldiers, heavy artillery and supplies into opened areas, thus securing their hold over the indigenous population. In addition, the Burmese army has been carrying out extensive strategic defoliation of forests in its struggle against insurgent groups.<sup>57</sup>

Other environmental impacts of oil exploration include large-scale erosion around areas which are cleared and drilled. Flash floods occur in deforested areas during the rainy season. Pollution of streams and rivers with mud and silt from the exploration process is common. Many streams are eventually blocked by the mud, resulting in the formation of stagnant, mosquito-infested ponds. Rigs, both onshore and offshore, deplete water supplies and contaminate water by spreading of toxic wastes. These wastes can seep into ground water supplies, streams and rivers. Disruption of wildlife around the areas being explored is unavoidable due to the explosions, chainsaws and helicopters. While teak and hardwood cutting in Burma is currently more environmentally destructive, serious long-term environmental destruction will result from oil development.

The exploration, development and production of natural gas can create the same environmental problems as oil exploration. The Yadana and Yetagun gas fields in the Andaman Sea and the construction of pipelines across southeastern Burma to Thailand present significant threats to Burma's environment. Of the wastes produced during offshore exploration, the most damaging are the drilling muds which can be made up of many toxic substances. These are usually disposed of by simply dumping them into the sea, robbing the water and bottom sediment of oxygen. As a result, marine life such as shellfish is unable to survive. Another form of waste generated by natural gas exploration is that of toxic brine. This is disposed of in enormous quantities. Toxic brine is a dangerous chemical formation extracted from the gas reservoirs. The dumping of this waste has a disastrous effect on wetlands, fish and wildlife, and is polluting water supplies.<sup>58</sup> This is a legacy left behind by the oil industry in many countries.

Natural gas, unlike oil, is explosive, which makes gas pipelines inherently dangerous. The Yadana pipeline from Burma to Thailand may be even more dangerous due to the builders' lack of attention to this risk. There has already been at least one report that the Yadana pipeline has leaked in Thailand.<sup>59</sup> Led by oil companies Unocal<sup>60</sup> from the United States and Total from France, in partnership with the Burmese junta, pipeline projects have been pushed through without consultation or approval of local residents or independent environmental impact assessments.<sup>61</sup> The oil companies have insufficiently acknowledged the risk of explosion, e.g. by forest fires. The evergreen forests along the pipeline route are susceptible to this, and a pipeline explosion might cause damage beyond repair. There are enough other potential causes of a gas leak or explosion (such as seismic faults, landslides, human error, or breakage from rocks back-filled into the pipeline trench) to make an environmental disaster a real possibility. In addition to this, the pipeline splits a vibrant and cohesive ecosystem into

two parts, fragmenting it, thereby seriously damaging a previously healthy environment and destroying the forest habitat home to rare animals. This division of the forest is perhaps the most harmful environmental impact of the pipeline projects.<sup>62</sup>

The drilling rigs themselves also contribute to air pollution. In the United States, oil companies have been forced through the Clean Air Act Amendments of 1990 to formulate new requirements for the offshore industry. As a result, stricter air emission regulations on offshore drilling have been implemented. Since Burma has no such policy, the question is whether the oil companies adhere to the same standards in their operations offshore in the Andaman Sea. The “out of sight, out of mind” attitude makes it virtually impossible to know what is happening in an environment that is literally out of sight. Unocal’s ‘Statement of Principles’ includes a short paragraph entitled “Protect the Environment”. It says, “Take our environmental responsibilities seriously and abide by all environmental laws of our host country, as we do in the United States”.<sup>63</sup> Unfortunately (or ironically?) the existing legislation in Burma regulating the exploration of oil and gas does not say anything with regard to the environment.<sup>64</sup> The list of countries where Unocal is investing, as mentioned in the company’s annual reports, is dominated by countries lacking developed legal systems and environmental regulations.

None of the oil companies currently operating in Burma have disclosed any environmental plans regarding their practices in the country. Where are the drilling muds and other toxic wastes going? How is it managed? Who is responsible? These are only some of the questions that arise that need answering. Unocal and Total have never released the results of their purported environmental surveys, nor have they allowed independent ecologists to visit the region. All indicators surrounding oil and gas projects in Burma should raise major environmental concerns, both onshore and offshore. This is especially true given four factors. First, the secretive practices of the junta and the oil companies, resulting in a lack of information on the environmental impacts of their projects. Second, the lack of access to exploration and pipeline areas, preventing independent environmental impact assessments from being conducted. Third, the inability of local people to participate in decision making. And last but not least, the lack of effective laws and environmental regulations in Burma.

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### Treaties as Treats for the Junta

Burma is party to several international treaties which concern the environment. Some international treaties require that the countries that sign must take specific actions. Unfortunately, this is not the case with most of the environment trea-

ties Burma has signed, as these are not very strong and do not require Burma to do anything.<sup>65</sup> By signing the treaties, the junta hopes to get international recognition as a government that cares about the environment. The treaties also often provide opportunities for funding and technical assistance for the developing countries that sign them.

Even when environmental treaties require countries that sign them to take specific actions, it is difficult to enforce these treaties. When countries do not live up to their obligations, there are only limited actions that can be taken against them. There are several major international environment treaties Burma has signed, including the conventions listed below.

**Biological Diversity:** The Convention on Biological Diversity<sup>66</sup> attempts to protect animals and plants by promoting conservation and sustainable use. However, it only asks countries to protect their animals and plants “as far as possible and as appropriate”.<sup>67</sup> Moreover, the Convention specifically says that all countries have “the sovereign right to exploit their own resources pursuant to their own environmental policies”. In view of Burma’s environmental policy, this certainly does not place a heavy burden on the junta to take care of Burma’s abundant wildlife and wild plants.<sup>68</sup> The appeal of the Convention on Biological Diversity for Burma is probably explained by one critic’s description of the Convention as “a vehicle to transfer funds from rich to poor in the name of biodiversity”.

**Climate Change:** The Framework Convention on Climate Change<sup>69</sup> is aimed at controlling the emission of greenhouse gases such as carbon dioxide and methane, that are believed to cause changes to the climate. One of the main sources of greenhouse gases is from burning coal. However, this treaty is also weak because it does not set any concrete standards for reducing emissions. In other words, the treaty merely asks the countries that sign to reduce the amount of greenhouse gases they emit but leaves it up to the country to decide the level of reduction.<sup>70</sup> In addition, this Convention does not require developing countries to reduce their emission because it recognizes that the first priorities of developing countries are economic and social development and poverty eradication. Therefore, Burma can apply for financial and technical assistance under this treaty also without being obliged to take any specific steps to control air pollution.

**Ozone Layer:** The Vienna Convention for the Protection of the Ozone Layer<sup>71</sup> and the Montreal Protocol on Substances that Deplete the Ozone Layer<sup>72</sup> are aimed at reducing production of gases that damage the ozone layer (a layer of gases that surrounds the earth and protects the earth from radiation). Only a few Western countries have factories which emit ozone-harming gases. Therefore while these are strong treaties, Burma does not have to do anything because it does not have any factories that emit such gases. However, these two

treaties are useful to the junta because they provide international prestige.

***Endangered Species:*** Although Burma has accepted the Convention on International Trade in Endangered Species of Wild Flora and Fauna,<sup>73</sup> the trade in Burmese wildlife has not stopped. Throughout Southeast Asia still many birds are being imported from Burma, for which export permits are issued by the Burmese “Department of Livestock Resources”. However, only the Forest Department can legally issue such permits. Most of the birds are one species, *Gracula religiosa* or the hill myna (called *thaliga* in Burmese). Hill mynas are one of the few bird species fully protected in Burma since 1912.<sup>74</sup> Increasing numbers of wild orchids and rare butterflies, most of them collected in Burmese forest reserves, are also being exported, mainly to Singapore, Taiwan and Hong Kong.

***Pollution by Ships:*** The International Convention for the Prevention of Pollution by Ships<sup>75</sup> is a strong treaty and although it was signed, it only partly entered into force. It has detailed regulations for preventing pollution of the marine environment by ships. It contains very specific guidelines on matters such as discharging oil from ships, storing oil on board, carrying harmful substances by ship and dumping sewage and garbage from ships.<sup>76</sup> However, Burma has only signed Annexes I and II, about the “Prevention of Pollution by Oil” and the “Control of Pollution by Noxious Liquid Substances”. It is not clear whether or not Burma actually tries to follow these guidelines.<sup>77</sup> Ironically, Burma has not accepted Annexes III, IV and V—about the “Prevention of Pollution by Harmful Substances in Packaged Form”, the “Prevention of Pollution by Sewage from Ships” and the “Prevention of Pollution by Garbage from Ships” respectively. In addition, the Burma Merchant Shipping Act of 1923 does not mention the environment at all,<sup>78</sup> only the Burma Ports Act of 1908 contains a (very general) paragraph about harbour pollution.<sup>79</sup>

***Tropical Timber:*** The purpose of the International Tropical Timber Agreement<sup>80</sup> is to promote the timber industry. Although it has provisions to encourage sustainable logging,<sup>81</sup> many people feel that the main purpose of this treaty is to help the logging companies.<sup>82</sup> The treaty is administered by the International Tropical Timber Organization in Yokohama, Japan.

***World Heritage:*** Burma accepted the Convention Concerning the Protection of World Cultural and Natural Heritage (also known as the World Heritage Convention) in 1994.<sup>83</sup> This Convention asks each country that signs it to identify, protect and conserve sites which are so culturally or naturally important that they should be considered part of the world heritage of mankind. Countries are asked to set up services for the protection of sites of cultural and natural heritage, and to take appropriate legal, scientific, technical, administrative and financial measures to protect and conserve these sites. Countries which do not have the resources to carry out these obligations can request international assistance. Burma has not lived up to its obligations to this treaty. The only law that

Burma has enacted in terms of fulfilling the requirements of the treaty is SLORC Law No. 6/94 (the Protection of Wild Life and Wild Plants and Conservation of Natural Areas Law) which is not sufficient.

Most of the existing forest reserves in Burma were established towards the end of the 19<sup>th</sup> century when pressure on the natural environment was negligible. Their main purpose was to safeguard the most valuable stands of commercial timber, with little regard to the need for protecting the forest per se.<sup>84</sup> Today the needs are both very different and much more urgent. In 1981 the junta invited the Food and Agriculture Organization and the Development Programme of the United Nations to assist in a project to identify areas suitable for national parks and reserves. One of the conclusions of the project was that there was still a potential for the creation of new protected areas, but, "If conservation programs are to be effective, it is necessary to provide the legislation and administrative organization to administer these effectively".<sup>85</sup> A principal recommendation in another report was that "comprehensive new legislation based on modern concepts of environmental management" should be introduced.<sup>86</sup> However, legislation is still very weak, which is a clear sign that the whole concept of forest reserves and wildlife sanctuaries has never been taken seriously by the junta.

Although there are 15 wildlife sanctuaries in Burma, they are small and total only 0.5 per cent of the land area. Under the existing legislation the fauna in the sanctuaries is protected, but the habitat is not, with the result that some of the most valuable areas such as Shwe U Daung (one of the last known habitats of the Sumatran rhinoceros in Burma) have been logged. Damage to other areas has been so severe that they are now of little conservation value.

Nevertheless, the junta is now seeking World Heritage status for the newly-created Myinmoletkat Wildlife Sanctuary. The Burmese army has been clearing the area, thereby razing entire villages, killing, raping, enslaving, to make way for the sanctuary which is the biggest of its kind in the world. It is home to rare flora and fauna, tigers, elephants and the Sumatran rhinoceros. It must be a sign to the world as if the Burmese military junta, shunned because of its appalling human rights record, cares about endangered wildlife and the environment. "Burma wants a nature reserve. So do conservationists. But first they have to get rid of the villagers".<sup>87</sup>

## Conclusion

The current environmental laws in Burma are weak and vague, and enforcement is spread over many ministries. There are no up-to-date laws for some of the most important aspects of environmental protection, such as the prevention of

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Implementation of a sound environmental policy is necessary but can only be realized in a system which responds to feedback from all those who have a stake in the environment. The presence of a ruthless military regime has been making such an implementation impossible in Burma so far.

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water pollution, air pollution, and industrial waste. The laws that do exist are too general and often the penalties are not strong enough to deter foreign companies. There is no environmental regulatory agency that can make sure that the ministries are actually enforcing the laws under their charge. Implementation of a sound environmental policy is necessary but can only be realized in a system which responds to feedback from all those who have a stake in the environment. The presence of a ruthless military regime—resulting in a lack of transparency, lack of local participation, and lack of knowledge—has been making such an implementation impossible in Burma so far. Overall, the Burmese junta shows little concern for the environmental impact of its policies. Economic ‘development’ is proceeding without public input, clear legislation, reliable data or official accountability. Nevertheless, the military junta has discovered that environmental issues can be an important tool to gain international prestige and funding. The junta has become more vocal about protecting the environment but it has taken few steps to live up to its promises.

### **Endnotes**

\* Peter Gutter is an adviser with the Burma Lawyers’ Council in Bangkok.

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6. Martin Smith, “Paradise Lost? The Suppression of Environmental Rights and Freedom of Expression in Burma”. London: Article 19, September 1994.
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9. This was repealed by the Forest Act of 1902.
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11. John F. Cady, “A History of Modern Burma”. Ithaca, New York: Cornell University Press, 1965, pp. 116-121.
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- Law), "The Burma Code", Volume III, Published under the Authority of the Government of the Union of Burma, pp. 427-455.
13. The Wildlife Protection Act of 1936 (repealed by SLORC Law No. 6/94, the Protection of Wild Life and Wild Plants and Conservation of Natural Areas Law), "The Burma Code", Vol. IV, pp. 315-326.
  14. The Fisheries Act of 1905 (repealed by SLORC Law No. 1/92), "The Burma Code", Vol. III, pp. 455-468.
  15. *Bónlónthi*, also called *boun loun*, is a bamboo cylindrical fish-trap fitted with a tongue. ("Myanmar-English Dictionary", 3<sup>rd</sup> Edition. Rangoon: Ministry of Education, 1993, p. 315).
  16. The Municipal Act of 1898 (repealed by SLORC Law No. 1/92), "The Burma Code", Vol. VI, pp. 115-210.
  17. The City of Rangoon Municipal Act of 1922, "The Burma Code", Vol. VI, pp. 211-321.
  18. The Canal Act of 1905, "The Burma Code", Vol. IV, pp. 261-290.
  19. The Insects and Pests Act of 1914, "The Burma Code", Vol. IV, pp. 294-296.
  20. The Underground Water Act of 1930, "The Burma Code", Vol. VI, pp. 332-333.
  21. The Cattle Trespass Act of 1871, "The Burma Code", Vol. IV, pp. 334-342. 'Cattle', in the context of this Act, includes also elephants and camels.
  22. The Sugar Cane Act of 1934 (repealed by SLORC Law No. 1/92), "The Burma Code", Vol. V, pp. 26-27.
  23. The Dangerous Drugs Act of 1930 (repealed by SLORC Law No. 1/92), "The Burma Code", Vol. IV, pp. 85-99.
  24. The Water Hyacinth Act of 1917 (repealed by SLORC Law No. 1/92), "The Burma Code", Vol. IV, pp. 296-297.
  25. The Poisons Act of 1919, "The Burma Code", Vol. IV, pp. 108-110. In addition, on 11 May 1990 the Pesticide Law was enacted (SLORC Law No. 10/90) which is no better than the Poisons Act. The Pesticide Law does not provide for water pollution control. It does not say anything about risk assessment and the regulation of pesticide use, pesticide regulation in food, enforcement proceedings, or how farmers can dispose of pesticides safely. And although there is a Pesticides Registration Board in Burma, this in practice only registers the brand names of pesticides without assessing their environmental impact.
  26. This law repealed and replaced the Socialist Economic Construction (Empowering) Law of 1965.
  27. This law repealed and replaced the Sea Fishing (Enabling) Act of 1954.
  28. This law, also referred to as the Burma Sea Fishing Law, was promulgated on 25 April 1990. This law merely regulated license and registration fees and did not repeal SLORC Law No. 11/89.
  29. This section was taken from the Fresh Water Fishing Law of 1991 (SLORC Law No. 1/91).
  30. In addition to this, the Law Amending the Myanmar Marine Fisheries Law (SLORC Law No. 16/93) was issued on 28 October 1993. The penalties for fishing with poisons or explosives were increased—from 50,000 kyats and/or imprisonment of up to 3 years, to 500,000 kyats and/or imprisonment of up to 10 years.
  31. "Thai Fishermen Say SLORC Broke Deal". *The Nation*, 2 April 1997. How-

- ever, according to the junta, "Some fishing vessels were suspended from catching and marketing of fishery products to neighbouring countries on account of the violation of fisheries laws" ("The Union of Myanmar: Review of the Financial, Economic and Social Conditions for 1996/97". Rangoon: Ministry of National Planning and Economic Development, 1997, p. 81).
32. The SPDC Order, issued by Notification on 2 October 1999, entered into force on 6 October 1999. It was not an idle threat, witness the fact that the Burmese navy indeed fired at a Thai fishing boat ("Protest Lodged With Rangoon Over Gunboat Attack on Trawler". *Bangkok Post*, 21 December 2000).
  33. "Burma's Fishing Ban Fifth So Far". *Bangkok Post*, 25 October 1999.
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  35. John Brandon, "Burma Tries Sanctions on Thailand". *International Herald Tribune*, 24 November 1999, p. 8.
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  39. John Pomfret, "China's Globalizing Economy Ravages Border Forests: Logging Industry Taps Unregulated Markets for Wood". *The Washington Post*, 26 March 2001.
  40. Swapan Dasgupta, "The Ledo Road: Old Routes, New Links". *India Today*, 26 February 2001.
  41. See: Leslie Anders, "Ledo Road: General Joseph W. Stilwell's Highway to China". Norman: University of Oklahoma Press, 1965.
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  43. John Blower, "Conservation Priorities in Burma". *Oryx*, Vol. 19, No. 2, April 1985, p. 81.
  44. For an interesting comparison, see also: R.E. Salter, "Summary of Currently Available Information on International Threatened Species in Burma". United Nations Nature Conservation and National Parks Project, Field Document No. 7/83. Rangoon: Food and Agriculture Organization of the United Nations, 1983.
  45. The Upper Burma Ruby Regulation of 1887 ("The Burma Code", Vol. V, pp. 41-46) regulated licenses for the mining of ruby and sapphire but did not mention the environment.
  46. The Mines Act of 1924, "The Burma Code", Vol. V, pp. 191-214.
  47. The Myanmar Mines Law of 1994 (SLORC Law No. 8/94) was issued on 6 September 1994. Similar to the junta's laws governing forestry and fisheries, the Myanmar Mines Law merely regulates the granting of permits and payment of royalty percentages.



48. The Land Acquisition (Mines) Act of 1885, "The Burma Code", Vol. X, pp. 231-235.
49. The Motor Vehicles Law of 1964 was amended by SLORC Law No. 27/89 on 27 November 1989.
50. The Promotion of Cottage Industries Law of 1991 (SLORC Law No. 13/91) was enacted on 10 October 1991.
51. Including Buddhist monastic regulations concerning the protection of trees around monasteries and pagodas.
52. "United Nations Convention to Combat Desertification: Union of Myanmar National Report on the UNCCD Implementation". Bonn: United Nations, August 2000, pp. 4-5.
53. Duan Tingchang, "Myanmar Takes Measures for Environment Protection". Xinhua News Agency, 6 June 1999.
54. "Duties and Rights of the Central Committee for the Administration of Uncultivated Land, Fallow Land and Waste Land", SLORC Notification No. 44/91, issued on 13 November 1991. This Notification, merely regulating the granting of licenses, does not say a word about the environment.
55. SLORC Notification No. 26/94, dated 5 December 1994.
56. See: "Mya Yadana". Mae Hong Son, Thailand: Green November, August 1992, pp. 13-14.
57. In Tenasserim and Shan State, the Burmese army has been using 2,4-D (2,4-Dichlorophenoxyacetic acid), a powerful defoliant also used in the composition of the dangerous 'Agent Orange'. The American government provided Burma with large quantities of 2,4-D in the 1980s, in order to fight opium production.
58. "Burma: Human Lives for Natural Resources, Oil and Natural Gas". Bangkok: Southeast Asian Information Network and the All-Burma Students' Democratic Front, June 1994, p. 25.
59. "Pressure Builds Over Yadana Pipeline Leak". *Bangkok Post*, 30 September 1998.
60. Unocal, also written as UNOCAL, stands for Union Oil Company of California. Contrary to a popularly held belief in Burma, this company has nothing to do with the UNO (United Nations Organization).
61. "Total Denial: A Report on the Yadana Pipeline Project in Burma". Bangkok: EarthRights International and Southeast Asian Information Network, 10 July 1996, p. 55.
62. "Total Denial Continues: Earth Rights Abuses Along the Yadana and Yeta-gun Pipelines in Burma". Chapter 10, "Environmental Impacts in Burma". Bangkok: EarthRights International, May 2000, pp. 149-159.
63. "Unocal in Myanmar: Energy Projects Bring A Positive Influence". *Unocal Seventy Six*, Special Edition. Los Angeles: Unocal Corporate Communications Department, April 1994, p. 2.
64. The Oilfields Act of 1918 ("The Burma Code", Vol. V, pp. 215-220) and the Petroleum Act of 1937 ("The Burma Code", Vol. V, pp. 144-154) do not say anything about the environment. Although the London-based E&P Forum (Oil Industry International Exploration and Production Forum) has published detailed international guidelines for operating in tropical forests, these are not laws and do not include sanctions. See: "Oil Industry Operating Guideline for Tropical Rainforests", Report No. 2.49/170. London: E&P Forum, April 1991.

65. For a large collection of non-binding, unenforceable environmental agreements in international law, see: W.E. Burhenne (ed.), "International Environmental Soft Law". London: Kluwer, 1996. Moreover, if a state merely signs to a treaty per se, that may not amount to *consent* in international law. An additional step of ratifying the treaty may be required, depending on the local laws of the country concerned and the terms of the treaty.
66. Convention on Biological Diversity, done in Rio de Janeiro on 5 June 1992, accepted (but not ratified) by Burma on 11 June 1992, entered into force on 29 December 1993. Source: Secretariat of the Convention on Biological Diversity, Montreal.
67. For a description of biodiversity's basic legal threads and themes, see: W.J. Snape (ed.), "Biodiversity and the Law". Washington, D.C.: Island Press, 1996.
68. "Burma: Conservation of Biological Diversity and Forest Ecosystems". Tropical Forest Programme Document No. 12400. Cambridge, England: World Conservation Monitoring Centre, January 1989.
69. Framework Convention on Climate Change (also called the Climate Change Treaty), done in New York on 9 May 1992, signed by Burma on 11 June 1992, entered into force generally on 21 March 1994, ratified by Burma on 25 November 1994, entered into force in Burma on 23 February 1995. In connection with this, on 1 January 1997 Burma acceded to the United Nations Convention to Combat Desertification, done in Paris on 14 October 1994, signed (but not ratified) by Burma on 8 October 1997. Source: Secretariat of the United Nations Convention on Climate Change, Bonn.
70. See: R.T. Watson, et al. (eds.), "Climate Change 1995: Impacts, Adaptations and Mitigation of Climate Change". New York: Intergovernmental Panel on Climate Change, 1996.
71. Vienna Convention for the Protection of the Ozone Layer, done in Vienna on 22 March 1985, entered into force on 22 September 1988, accepted (but not ratified) by Burma on 24 November 1993. Source: Secretariat for the Vienna Convention and Montreal Protocol, Nairobi.
72. Montreal Protocol on Substances that Deplete the Ozone Layer, done in Montreal on 16 September 1987, entered into force on 1 January 1989, accepted (but not ratified) by Burma on 24 November 1993. Source: Secretariat for the Vienna Convention and Montreal Protocol, Nairobi.
73. Convention on International Trade in Endangered Species of Wild Flora and Fauna (also called CITES), done in Washington, D.C. on 3 March 1973, entered into force on 1 July 1975, accepted (but not ratified) by Burma on 13 June 1997, entered into force in Burma on 11 September 1997. Source: CITES Secretariat, Geneva.
74. The *gracula religiosa* was again listed under 'Completely Protected Animals' in SLORC Forest Department Notification No. 583/94 (Chapter I, Section B, No. 44).
75. International Convention for the Prevention of Pollution by Ships (also called MARPOL 73/78), done in London on 2 November 1973, amended on 30 October 1992, but only partly entered into force. Accession of Burma on 4 May 1988, entered into force in Burma on 4 August 1988. Burma has only accepted Annexes I and II, both of which entered into force generally on 2 October 1983. "The instrument of accession of the Government of the Socialist Republic of the Union of Burma contained a statement to the effect