



BURMA'S ENVIRONMENT: PEOPLE, PROBLEMS, POLICIES



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The Burma Environmental Working Group (BEWG)

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About the Burma Environmental Working Group

The Burma Environmental Working Group (BEWG) brings together Burma focused ethnic environmental and social organizations. Member organizations monitor Burma development policy and advocates for alternative development policies meeting their specific traditional and comprehensive understanding of local sustainability. BEWG provides a forum for member organizations to combine the successes, knowledge, expertise and voices of ethnic peoples in pursuit of not just local livelihoods, but sustainable and peaceful national, regional and international development policy. Members collaborate on research, reporting, advocacy campaigns, capacity-building initiatives and policy formulation. BEWG also networks with non-member organizations to encourage harmony and diversity in its own activities as well

as strengthen democracy and civil society in Burma.

Members of the BEWG first came together in 2005 through a seminar organized by the Another Development for Burma initiative (ADfB). The ADfB project provides a platform for political, community and issue based groups within the Burma democracy movement to consider long-term challenges and development alternatives for the future of Burma. Until now, most BEWG activities have been organized with support from the ADfB platform.

The following organizations are members of the Burma Environmental Working Group.

Arakan Oil Watch (AOW), founded in 2006, is an independent non-governmental organization that aims to protect human rights and the environment from extractive industries in Arakan State and in Burma. AOW educates affected peoples on these issues, develops and promotes oil and gas revenue transparency standards, and conducts international advocacy. AOW is an active core member of the Shwe Gas Movement and a member of South East Asia Oil Watch. Each month AOW publishes The Shwe Gas Bulletin in English and Burmese, a newsletter covering the latest developments in Burma's oil and natural gas industry. Website: www.arakanoilwatch.org

Bridging Rural Integrated Development and Grassroots Empowerment (BRIDGE) works together with rural communities impacted by political and socio-economic change in Kachin state to strengthen their capacities to manage their own natural resources. BRIDGE supports their community-based development activities and builds collaborations and partnerships that advocate for sustainable development and foster a culture of peace.

EarthRights International (ERI) is a group of activists, organizers, and lawyers with expertise in human rights, the environment, and corporate and government accountability. Since 1995, ERI has worked in Burma to monitor the impacts of the military regime's policies and activities on local populations and ecosystems. Through their training program, ERI trains young environmental activists from diverse ethnic backgrounds in Burma to empower young leaders with skills and knowledge to work on earth rights issues in their communities. In addition, ERI works alongside affected community groups to prevent human rights and environmental abuses associated with large-scale natural resource projects in Burma. Website: www.earthrights.org

Kachin Development Networking Group (KDNG), founded in 2004, is a network of civil society groups and development organizations in Kachin State. KDNG's purpose is to effectively work for sustainable development based on indigenous knowledge and culturally-appropriate environmental management and conservation methods. KDNG works to maintain the integrity of land and forest, and empower indigenous people by providing awareness on environment issues, especially relating to human rights, environmental rights and indigenous rights. It achieves these goals through trainings, workshops, research, documentation, and advocacy. Website: www.aksyu.com

The Karen Environmental and Social Action Network (KESAN) was established in 2001 as the first local community-based organization to raise environmental awareness among Karen people. KESAN works to empower and educate communities and local institutions to revitalize existing indigenous knowledge and practices for increased livelihood security

in Karen and Kachin States and in areas along the Thai-Burmese border. KESAN strives to build up local capacities in forest and natural resource management, raise public environmental awareness, and support community-based development initiatives. In addition to playing a leading role in environmental law and policy formulation, KESAN advocates for environmental policies and development priorities that ensure sustainable ecological, social, cultural, and economic benefits and promote gender equity. Website: www.kesan.asia

The Lahu National Development Organization (LNDO) was set up by leading Lahu democracy activists in March 1997 to advocate for the welfare and well-being of the Lahu people, including the promotion of alternatives to destructive development projects and opium cultivation. LNDO seeks to protect the livelihoods and lands of Lahu and Akha peoples and to increase understanding among the local ethnic nationalities about human rights, democracy, federalism, community development, and health issues. LNDO also aims to develop unity and cooperation among the Lahu and other highlanders from Shan State and to provide opportunities for development of civic leadership skills among local groups.

Network for Environmental and Economic Development (NEED) was founded in March 2006. NEED is a nonprofit NGO working to strengthen Burmese civil society so that all the people of Burma may benefit from the practice of indigenous and holistic development strategies, based on economically, environmentally, and socially sustainable ideas. NEED concentrates on the promotion of environmental conservation, sustainable agriculture, and economic development in Burma. Website: www.need-burma.org

The Pa-Oh Youth Organization (PYO) was set up in 1998 striving for peace and justice through empowering youth. PYO published the report *Robbing the Future* in June 2009 after two years of research at the site of Burma's largest iron mine and the Pangpet No. 5 Steel Mill in Shan State. PYO continues to monitor the situation and educate communities of the environmental and social impacts of this and other mining projects. Website: www.pyo-org.blogspot.com

Shan Sapawa Environmental Organization (Sapawa) works along the Thai-Burmese border and inside Burma to promote environmental protection and human rights in Shan State, Burma. Sapawa was established in 2003 by Shan alumni of EarthRights School and the Shan State School for Nationalities Youth who had become increasingly concerned at the environmental situation in Shan State. Sapawa's vision is a just and peaceful Shan State free of environmental destruction and exploitation. The mission of Sapawa is to empower Shan communities to protect their rights and livelihoods, and preserve their natural resources, and to expose the destruction of the environment and human rights violations occurring in Shan State to local peoples as well as the international community, in order to find ways to prevent such violations. Website: shansapawa.org

The Shwe Gas Movement (SGM) is a non-governmental organization campaigning against the Shwe Gas Project and China's Trans-Burma Pipelines, for Human Rights, Environment Justice and revenue transparency in oil and gas sector. SGM specializes in fact-finding, training grassroots and community leaders and advocacy campaign. Its members include the All Arakan Students and Youths' Congress, Arakan Oil Watch and Shwe Gas Movement (India) and dedicated activists in Burma.

Notes to the reader

In 1989, the government in Burma changed the official name of the country from the Union of Burma to the Union of Myanmarⁱ, along with names of cities, districts, and states, including the names of places mentioned in this report. In respect and recognition of ethnic and indigenous people's names for ancestral lands, however, this report uses the historical names with the exception of direct quotes.

Footnotes are clarification points to give the reader more background information necessary to understand a section's context. Endnotes list references used.

In Burma, several different measurement systems are used, including the metric system, the international system, and other national and localized measurements. This report utilizes various measurement systems, although there is a preference for metric measurements. Conversions for the most common measurements in the report are listed below. Numbers have been rounded to the three significant digits.

1 acre = 0.405 hectares

1 hectare = 2.47 acres

1 kilometer = 0.621 miles

1 mile = 1.61 kilometers

1 square kilometer = 100 hectares = 0.386 square miles = 247 acres

1 kilogram = 2.21 pounds

1 pound = 0.454 kilograms

1 ton = 2,000 pounds = 907 kilograms

1 *tical* = 0.0163 kilograms = 0.0360 pounds

1 *viss* = 100 ticals = 1.63 kilogram

Burma's national currency is the kyat (MMK). For reference, equivalents in American dollars (\$ USD) are often shown. Although the official exchange rate is set at 6.31 MMK per \$1 USD, the report uses the unofficial market rate where economic transactions are carried out and is therefore more meaningful.

\$1 USD = 30 THB = approximately 880 MMK

ⁱ In 2010 in the lead up to the elections, the name was officially changed to the Republic of the Union of Myanmar.

Acronyms

AAC	Annual Allowable Cut
ADB	Asian Development Bank
ADfB	Another Development for Burma
AOW	Arakan Oil Watch
ASEAN	Association of Southeast Asian Nations
BANCA	Biodiversity and Nature Conservation Association
BEWG	Burma Environmental Working Group
BRIDGE	Bridging Rural Integrated Development and Grassroots Empowerment
BSS	Burma Selection System
CBO	Community Based Organization
CDB	Convention on Biological Diversity
CPB	Communist Party of Burma
DAP	Department of Agriculture and Planning
DG	Director General
DHF	Dag Hammarskjöld Foundation
DKBA	Democratic Karen Buddhist Army
DZGD	Dry Zone Greening Department
ECODEV	Economically Progressive Ecosystem Development
EIA	Environmental Impact Assessment
ERI	EarthRights International
FD	Forest Department
FREDA	Forest Resource Environment Development and Conservation Association
GA	General Assembly
GEF	United Nations Global Environment Facility
GMS	Greater Mekong Subregion (defined by the ADB as Burma, Thailand, Lao, Cambodia, Vietnam, and Yunnan Province, China)
ILO	International Labor Organization
INGO	International Nongovernmental Organization
IUCN	World Conservation Union (International Union for the Conservation of Nature)
KDNG	Kachin Development Networking Group
KEG	Karenni Evergreen
KESAN	Karen Environmental and Social Action Network

KHRG	Karen Human Rights Group
KIA	Kachin Independence Army
KIO	Kachin Independence Organization
KNLA	Karen National Liberation Army
KNU	Karen National Union
KORD	Karen Organization of Relief and Development
KTWG	Karen Teacher Working Group
LMC	Land Management Committee
LNDO	Lahu National Development Organization
PYO	Pa-Oh Youth Organization
MoAI	Ministry of Agriculture and Irrigation
MOGE	Myanmar Oil and Gas Enterprise
MPCE	Myanmar Perennial Crops Enterprise
MTE	Myanmar Timber Enterprise
NBSAP	National Biodiversity Strategy and Action Plan
NCEA	National Commission on Environmental Affairs
NDAA	National Democratic Alliance Army
NDAK	New Democratic Army – Kachin
NEED	Network for Environmental and Economic Development
NGO	Nongovernmental Organization
REDD	Reducing Emissions from Deforestation and Forest Degradation
ROAP	UNEP's Regional Office for Asia and the Pacific
SLRD	Settlement and Land Records Department
SPDC	State Peace and Development Council
SLORC	State Law and Order Restoration Council
SSA-S	Shan State Army – South
TPDC	Township Peace and Development Council
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UN-REDD	United Nations Collaborative Program on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
UWSA	United Wa State Army
WCS	World Conservation Society

EXECUTIVE SUMMARY

Burma has extensive biodiversity and abundant natural resources, which have in recent years been threatened by militarization, large-scale resource extraction, and infrastructure development. Burma has some laws and policies related to protecting people and the environment, but the country lacks the necessary administrative and legal structures, standards, safeguards and political will to enforce such provisions. The country is also a party to several international treaties relating to the environment, including those on protection of biodiversity and indigenous peoples, wildlife, and countering climate change. It is unclear, however, how the contents of those treaties that have been ratified have been incorporated into domestic law.

Many organizations are active in Burma on projects and programs related to environmental protection and sustainable development. This includes a broad range of community-based organizations, grassroots organizations, national and international NGOs, UN agencies, and church groups both based in government-controlled areas of Burma ('inside') and those based in the Thai and Chinese border regions ('border groups'). Many organizations take the 'traditional' conservation approach or the rights-based approach or both. Organizations that are using a rights-based approach work from a perspective of sustainable development and livelihoods and subsequently focus on issues such as food security, land tenure and rights, and community development and organizing. Conservation organizations tend to focus specifically on environmental protection, although with varying strategies to achieve their common goal. Organizations working on environmental issues also focus on environmental awareness, education and training, policy development, advocacy and networking.

Communities continue to be excluded from protected forest areas, threatening their forest-based livelihoods. The 1990s and 2000s witnessed severe logging, first along the Thai-Burma border and then along the China border in northern Burma. Although the logging rush has somewhat subsided along these borders, the government and military continue to allocate logging concessions to Chinese and Burmese business people, irrespective of national and local laws regulating sustainable forestry practices. Timber, however, contributes much less to GDP as other resource sectors boom. Community forestry is positioned to challenge the manner in which timber resources are managed, providing some promising devolutionⁱⁱ trends.

Land tenure remains very weak in Burma. The state owns all the land and resources in Burma, with most villagers having no formal land title for their customary agricultural land. New policies have been put in place allocating land concessions to private entities which do not respect customary land rights or informal land holdings. There are no safeguards to protect farmers from the onslaught of capitalism or mechanisms to help them benefit.

Control over natural resources is a major cause of conflict in ethnic areas, where the majority of Burma's natural resources remain. Foreign direct investment in Burma is concentrated in energy and extractive sectors and often results in militarization and displacement. Recently

ⁱⁱ a delegation of authority by a central government to local governing units

there has been heightened interest from countries in the region for more investment opportunities. Given the lack of sound economic policy and unwillingness of the state to reconcile with ethnic armed groups, an increase in foreign investment could have a major impact on the environment and communities living in these areas.

While they do not provide loans, international financial institutions such as the World Bank and International Monetary Fund remain engaged in Burma. The Asian Development Bank in particular provides assistance through various channels and facilitates private investment.

Burma is currently facing many threats to the natural environment and sustainable livelihoods, such as construction of large dams, oil and gas extraction, mining, deforestation, large-scale agricultural concessions, illegal wildlife trade and climate change. The majority of Burma's income comes from selling off natural resources, including billions of dollars from gas and hydropower development. Investment comes from countries within the region— most significantly China, India and Thailand. Malaysia, Singapore, Japan, Vietnam and Korea are also key investors looking to increase investments after the elections. These resource extractive investments damage the environment and threaten local resource-based livelihoods, particularly in ethnic areas.

In order to take steps towards ecologically and socially responsible development in Burma, Burma must have a sound policy framework for environmental protection and sustainable development that enables citizens to take part in decision making about their own development, and ensures responsible private sector investment. Until then, new foreign investors investing in energy, extractive and plantation sectors should refrain from investing. Existing investors should immediately cease all project-related work - particularly in sensitive areas throughout Burma - until adequate safeguards are in place to ensure investment does not lead to unnecessary destruction of the natural environment and local livelihoods. At the same time, International NGOs and UN agencies should ensure people are recognized as key actors in their own development, rather than passive recipients of commodities and services; and civil society organizations should empower communities throughout Burma to understand their rights.

RECOMMENDATIONS

To Burma's Government

Environmental policy and law must be based on international laws and standards, including standards for Environmental Impact Assessments (EIA) and Social Impact Assessments (SIA). The development process must also incorporate the principle of and Free, Prior and Informed Consent (FPIC).

Hold open consultations with a broad spectrum of stakeholders in developing environment laws and policies before they are approved, including establishing a drafting committee with representatives from different sectors and ethnic groups.

EIA's and SIA's should be drafted in consultation with civil society (including ethnic groups) that are in accordance with international best practice. These assessments must be conducted by independent third parties, through a process that ensures access to relevant information, adequate participation of affected communities and public hearings to mitigate the impact of development projects on local communities and the environment.

Develop an equitable benefit-sharing system in all infrastructure, extractive, energy and development projects.

Develop laws, policies and institutions that protect communities and individual farmers' livelihoods and lands from the impacts of opening new markets, especially from domestic and international agribusinesses.

Enact land laws and policies that recognize and respect customary land rights, entitlement and tenure rights. For example, 'rotational farming' should be recognized as one type of traditional agriculture system in upland areas.

Abolish the 1953 Land Nationalization Act and uphold the still existing 1963 Law Safeguarding Peasants Rights to ensure farmers' lands and livelihoods are protected from confiscation by law.

Ratify core human and environmental rights treaties. Develop mandatory laws and regulations in accordance with these international laws and standards to regulate and monitor plantation, energy and extractive industries, including national private companies, state owned enterprises, and foreign private and state owned companies operating in Burma.

Respect individual and community rights in the process of compulsory acquisition of land in accordance with international best practice. This includes the provision of adequate information, consultation, and fair and just compensation or adequate alternative housing and livelihood prior to eviction from the land. During the eviction, there must be no use of violence or disproportionate force.

Establish independent bodies such as a National Environmental Commission, National Human Rights Commission and Anti-corruption unit with adequate budget and decision-making power to ensure social and environmental justice.

Enact policies that are rights-based, people-centered, and pro-poor. This ensures the rights of local people to the sustainable use and management of their resources, such as community forestry and payments for ecological services.

Apply the principles of sustainable and equitable development to economic development to make sure policies and practices are ecologically sound, socially equitable, economically viable and culturally appropriate.

To the Private sector and state owned enterprises

Existing foreign investors, as well as private companies, state owned enterprises and joint ventures within the country must:

Apply international sustainable development principles and practices (such as FPIC, financial disclosure, benefit sharing, conducting EIA and SIAs).

Conduct inclusive and meaningful EIA and SIAs in accordance with international best practice through a process that ensures access to relevant information, adequate participation of affected communities and public hearings to mitigate the impact of development projects on local communities and the environment.

Abide by international sustainable development initiatives and mechanisms, such as guidelines on sustainable oil palm development and Forest Law Enforcement, Governance and Trade (FLEGT).

Make every effort to avoid involuntary resettlement. In cases where resettlement is inevitable, there should be a clear plan for resettlement and compensation processes for relocation, land confiscation or property damage to affected people as a result of large scale development projects implemented by private companies, state enterprises and government. Foreign investors should follow the resettlement policies of the International Finance Corporation.

Immediately cease all project-related work until adequate safeguards are in place, particularly in sensitive areas throughout Burma.

Foreign investors should refrain from any form of new engagement in the plantation, energy and extractive sectors in Burma until the people of Burma can meaningfully participate in development decisions, preconditions for responsible investment are in place, and adverse impacts can be mitigated.

To Civil Society Organizations

CSOs working both inside Burma and on the borders should represent peoples' views in advocating for environmental law and policy development, and monitor the state and private companies' businesses to be in accord with socially just and environmentally sustainable development goals.

To International NGOs

International NGOs working on the environment must understand the local political and social context (including the human rights situation), conduct needs assessments inclusively; 'do no harm' to local people's rights and livelihoods; and focus on both policy and practice change towards environmental protection and sustainable livelihoods.

To UN agencies

UN agencies should facilitate real policy and practice change with meaningful participation of all stakeholders, and operate according to the UN rights based approach statement of Common Understanding, under which 'people are recognized as key actors in their own development, rather than passive recipients of commodities and services'.

The UN should ensure that the UN Declaration of the Rights of Indigenous Peoples (particularly the concept of Free Prior Informed Consent) is reaffirmed in any REDD+ agreement, and ensured in the implementation and monitoring on REDD+.

To International Financial Institutions

Until the people of Burma can meaningfully participate in development decisions, preconditions for responsible investment are in place, and adverse impacts can be mitigated, then IFIs should refrain from any form of new engagement with Burma.

If they do engage, International financial institutions (IFIs) must apply their own environmental and social safeguard policies, follow International Finance Corporation standards and UN Frameworks (ie. on community engagement and FPIC).

IFIs must make sure that any future national development plan for Burma is based on proper needs assessments and a participatory consultation process which ensure that it meets the interests of the people.

1. INTRODUCTION

This report by the Burma Environmental Working Group aims to achieve the following main objectives: i) to review the current state of environmental protection in Burma (including domestic and international policies and mechanisms, and the role of local and international NGOs and UN agencies), ii) to highlight key environmental problems and the impacts on local people and the environment and to iii) provide analysis on conflict over natural resources in ethnic areas before and after the elections in 2010.

The report begins by reviewing international commitments, domestic mechanisms, government policies on land, forest and economy (related to the resource sector), and the role of local and international NGOs based inside and outside the country working in environmental conservation and livelihood improvement. It then highlights the threats to local people and the environment. It also provides recommendations for policies, laws, institutions and mechanisms that meet international standards in protecting the environment and community livelihoods. Recommendations are aimed at policy and law makers in post election Burma, domestic and foreign investors, state owned companies, international financial institutions, UN agencies, international NGOs and civil society organizations.

The idea for this report originated at an Another Development for Burma thematic seminar in early 2006 in Chiang Mai, *Environment Seminar on Burma*. It was initially a response to a report entitled "Investment Opportunities for Biodiversity Conservation in Myanmar," published in 2005 by Birdlife International, UNDP-Burma and Critical Ecosystems Partnership Fund (CEPF). The report outlines key biodiversity areas, a list of threatened species, and conservation corridors, as well as identifies priorities for conservation investment. It is, however, entirely based on the biophysical sciences and technical expertise without any mention of ethnic areas and the conflict rooted in Burma, mega-development projects that result in militarization, displacement, widespread human rights abuses and environmental degradation, and the role of ethnic communities in maintaining traditional natural resource management systems which protect the environment.

It was discussed at the seminar how conservation planning continues to exclude the peoples who for centuries have lived in the areas to be 'protected', and that in Burma large scale conservation initiatives involve engagement with the government. The approach of international conservation organizations is often largely an ecologically-centred conservation approach practiced by the main at the expense of any social or people-focused concerns, and in certain cases linked to human rights abuses and increased access to contested ethnic territory. This brings into question the real motivations of the government in setting up large-scale conservation projects. Large-scale environmental projects, particularly in ethnic areas, might also mask economic or military objectives for the regime.

An idea emerged for a report on the state of environment from ethnic perspectives that would put together the situation in ethnic areas and demonstrate what ethnic based environmental organizations based in Thailand are doing from a rights based approach. It was also decided that the report would include the international commitments that the government has related to the environment, as well as legislation and domestic mechanisms related to protecting the environment in livelihoods. The report was then split into two

parts, with the first part published in 2009 called “Accessible Alternatives: Ethnic Communities’ Contribution to Social Development and Environmental Conservation in Burma”, which specifically focuses on the activities of ethnic based environmental organizations based in Thailand.

With the 2010 election looming and the economy opening it became important to highlight bilateral resource extraction agreements between the Burmese leaders and foreign governments and corporations which are having, and will continue to have, a negative impact on communities and the environment particularly in ethnic areas. At the same time a broader discussion was added of domestic processes that support private investment and the lack of adequate safeguards for farmers throughout the country.

The BEWG hopes that the report will provide policy and practice recommendations for policy makers, investors, international community and civil society groups working inside and outside the country so that they are well informed, and that when they implement a project in Burma, they have full awareness of the complications, impacts, and rights of affected communities.

The report is relevant to the entire country. Many sections focus more narrowly on ethnic areas of the country, while several sections give more general overviews of emerging trends relevant to the whole country. Finally, no attention is given to urban-based environmental issues.

2. COUNTRY FACTS

Burma is a resource-rich nation and yet it remains one of the least developed nations on earth. The latest UNDP’s Human Development Report ranked Burma 132 out of 169 on the Human Development Index.ⁱⁱⁱ ¹ At approximately \$435 USD, per capita GDP in Burma ranks amongst the lowest in the world and recent research shows that “remove net exports from the equation and the domestic economy has been growing at a rate that falls short of population growth—implying that per capita GDP has been declining in recent years”.²

2.1 DEMOGRAPHY

The absence of dependable data and the complexities in ethnic identity and classification and renders it difficult to estimate the total population of Burma and virtually impossible to gauge the exact makeup of the nation.³ The last reliable census was conducted in 1931 (the 1983 census was only partial, as numbers from conflict areas were not recorded).⁴ Using reproductive and fertility health surveys, the World Health Organization estimates that in 2003, there were more than 52 million people in Burma, which had at the time a 2% population growth rate.⁵ Burma is a multi-ethnic country. The largest ethnic group, Burmans, account for approximated two-thirds of the populace. Other ethnic and indigenous peoples reportedly comprise at least 40% of the population and lives on 60% of the available land.⁶

ⁱⁱⁱ The Human Development Index measures development combining indicators of education, life expectancy and income <http://hdr.undp.org/en/statistics/hdi/>.

The Shan and Karen each constitute approximately 10 percent of the population, and the Wa, Chin, Akha, Kachin, Karenni, Lahu, Kokang, Tavoyan, Pa-Oh, Naga, Mon, Kayan, Arakan, Rohingya, Palaung, Indian, Danu, and Chinese each make up no more than five percent of the population.⁷ The majority of the country's non-Burman ethnic groups live in the border regions.

2.2 NATURAL RESOURCES

Many ethnic and indigenous peoples in Burma are dependent on natural resources for their livelihoods and traditionally have maintained natural resource management systems that ensure the sustainability of these natural resources. In recent years, militarization, large-scale resource extraction, and infrastructure development are destroying the natural environment and threatening these local resource management systems which are still practiced in low density areas with ample swidden fields available (see section 5 of this report).

2.2.1 Biodiversity

Previously known as the “last frontier of biodiversity in Asia,” Burma has a seemingly unparalleled abundance of animal and plant life. Almost all of the country is located inside the Indo-Burma Biodiversity Hotspot, one of the world's 34 “richest and most threatened reservoirs of plant and animal life” as identified by Conservation International.⁸ Since it still houses a wide array of plant and animal species already geographically extinct in neighboring states, Burma is a country of particular concern in regards to biodiversity conservation in the Southeast Asia region.⁹

According to a recent Earthscan publication, Burma undoubtedly has “an exceptional level of biological diversity.”¹⁰ In terms of fauna, populations of many critically endangered species such as the one-horned rhinoceros and Gurney's Pitta can still be found in Burma.¹¹ Three hundred identified mammals and 7,000 plant species can be found in the country.¹² Burma also has 1,027 known bird species—the highest biodiversity in birds of any country in Southeast Asia.¹³ Four bird species are endemic, and 19 others are restricted range birds.^{iv} Burma is also home to 425 reptile and amphibian species, and 350 freshwater fish.¹⁴ In addition, many fish, invertebrates, and plants still need to be surveyed and classified.

2.2.2 Forests

Burma is home to Asia's most extensive intact tropical forest ecosystems. Many different forest ecosystems exist in Burma, including Delta mangroves, lowland tropical rainforests in Tennasserim Division (Tanintharyi), teak forests, semi-deciduous forests further north, and sub-alpine in northern Kachin State, among others. In addition, Burma possesses the world's only remaining golden teak forests. However, all these forest systems are under threat. The majority of closed forest is found in ethnic border regions, especially Karen State, Karenni State and Tennasserim Division along the Thailand border, Kachin State along the Yunnan, China border, Arakan State along the Bangladesh border, and Sagaing Division next to northeast India.

^{iv} Restricted range birds have a global breeding range of less than 50,000 square kilometers.

According to the 2006 Environmental Performance Assessment (EPA) report, 39% of Burma's forests are mixed deciduous, 26% hill forests, 16% evergreen, and 10% dry thorny forests.¹⁵ Dipterocarp forests account for 5%, with the remaining 4% belong to mangroves, beach and dune, and swamp forests.

2.2.3 Coastal Areas

Burma has a 2,832 kilometer-long coastline extending from the country's west to southeast from the Bay of Bengal to the Andaman Sea. Along this stretch, alluvial flats and sheltered muddy areas are home to mangrove trees and shrubs, keystone species that not only serve as habitat to crawfish, shrimp, crabs, and numerous other aquatic animals, but also protect coastal regions from the impacts of storms and cyclones. Besides fish and other aquatic foods, communities collect non-timber forest products like wild fruits and vegetables from mangroves as well. Offshore lie biodiverse coral reef and seagrass bed marine ecosystems, providing coastal villages with an abundant supply of food.¹⁶

2.2.4 Watersheds and Freshwater Sources

Burma has five main rivers: the Irrawaddy, the Chindwin, the Salween, the Sittaung, and the Tenasserim. Endangered species such as the Irrawaddy dolphin and Blyth's river frog can be found in some of these waterways.¹⁷ Other notable rivers are the Kaladan, which runs from Mizoram, India, through Chinland and Arakan;¹⁸ and the Mekong, which forms the border between Shan State and Lao PDR.¹⁹ Regional and international investors have taken notice of Burma's plentiful water sources, both for hydropower potential as well as irrigated agriculture.

2.2.5 Oil and Gas

The first foreign investment project after 1988 when the government began to partially liberalize the economy was the development of the Yadana gas field in the Andaman Sea and the construction of a gas pipeline through ceasefire and conflict areas in Mon State and Tenasserim Division in eastern Burma. Since the end of 2004, the Burmese regime intensified the opening of oil and gas blocks to foreign companies. Today there are 49 onshore blocks and 26 offshore being explored and/or developed in Burma. Burma's oil and gas sector is associated with massive scale human rights abuses and environmental degradation.

In 2007, Soe Myint, the Director-General of Planning for Burma's Energy Ministry, stated that the country had more than 500 million barrels of onshore oil reserves, with another 100 million offshore.²⁰ That same year nine foreign oil companies were exploring for new oil deposits, increasing output from older fields, and attempting to restart extraction on previously shut down fields on 16 onshore blocks.²¹ According to the CIA Factbook, Burma has 50 million barrels of proven crude oil reserves as of the start of 2010, making it the country with the 50th largest reserves in the world.²²

In regards to natural gas, according to British Petroleum's 2010 Statistical Review of World Energy, at the end of 2009, Burma's proven gas reserves stood at 20.1 trillion cubic feet, or

0.57 trillion cubic meters, roughly 0.3 percent of the world's total gas reserves.²³ The CIA World Factbook cites Burma's gas reserves at only 283.2 billion cubic meters as of the beginning of 2010, but the actual proven reserves are likely higher than cited by both sources due to recent onshore gas discoveries.²⁴ SINOPEC's Burma-based joint venture with the Burma military junta – Burma Petroleum Co., Ltd. – reported the discovery of 909 billion cubic feet of onshore natural gas in Pahtolon field in Central Burma.²⁵ ²⁶ Extensive exploration activities are currently taking place both onshore and offshore, and these undiscovered reserves, such as the estimated 13 trillion cubic feet of gas in the offshore A-2 block, are set to push Burma's gas reserve levels even higher.²⁷ In 2009-10 natural gas accounted for 38% of Burma's export earnings, with all of the gas going to Thailand.²⁸

2.2.6 Minerals

Burma has rich mineral resource deposits including tungsten, tin, zinc, silver, copper, lead, coal, gold, and industrial minerals.²⁹ Antimony, limestone, and marble deposits also dot the landscape.³⁰ Gemstones including diamonds, rubies, jade, and sapphires can also be found in Burma. Burma is most famous for its high quality rubies and jadeite (the most expensive form of jade). It is hard to track small scale gem businesses and estimate the value of gem trade in Burma, however, according to industry estimates, Burma accounts for more than 90 percent of global trade of rubies by value.³¹

3. ENVIRONMENTAL LAWS AND POLICIES IN BURMA

OVERVIEW

Though Burma does have some legislation related to protecting people and the environment, the country lacks the necessary adequate administrative and legal structures, standards, safeguards and political will to enforce such provisions. In addition, while Burma is party to several international treaties such as the Convention on Biological Diversity (CBD),^v Burma has not incorporated the provisions contained in these agreements into domestic law. For example, national laws do not currently require environmental impact assessments (EIA) or public participation by local communities in the decision-making processes of large-scale development projects. There are no laws that comprehensively regulate pollution, no standards to adequately protect biodiversity, develop resettlement plans, or provide compensation. The lack of environmental protection legislation has left room for unabated ecological degradation.³² There are, however, the 1995 Community Forest Instructions (CFI), a drafted Environmental Law, and the Land Acquisition Act that, if systematically enforced, would improve environmental protection and the land-based rights of local populations.

This section reviews the administrative and legal structures set up to protect the environment, as well as ongoing activities by the government and civil society organizations based inside and outside Burma that are intended to promote sustainable development and environmental protection.

^v Burma became a party to the CBD in 1994. Article 14(1)(a) of the Convention requires an EIA and Article 8(j) mandates indigenous participation where there is a significant impact on biodiversity.

3.1 National Commission for Environmental Affairs

Environmental protection in Burma generally comes under the authority of the National Commission for Environmental Affairs (NCEA), formed in 1990.^{vi} Until 2005, the Minister of Foreign Affairs was the chair of NCEA which was a strong indication that the Burmese government created the NCEA merely as a tool to win international approval.³³ In 2005, however, the NCEA was transferred under the Ministry of Forestry (MoF), and the Minister of Forestry assumed the role of the NCEA chairperson.

The stated objectives of the NCEA are to set environmental standards, create environmental policies for using natural resources, issue rules and regulations to control pollution, and to create short- and long-term environmental policies which balance environmental needs and development requirements.³⁴ However, serious budget, staff constraints and lack of legislative mandate have compromised the effectiveness of the NCEA in meeting those objectives.³⁵ The budget is minuscule: in the fiscal year 2004-2005, the NCEA had a budget of only about \$12,000 USD (12 million Kyat³⁶), and most of it was used to pay salaries.

The NCEA has drafted two environmental laws: the Environmental Protection Law and the Environmental Impact Assessment Rules, both of which are pending approval by the government.³⁷

The NCEA was also the focal point for the Myanmar National Environmental Performance Assessment (EPA), a report done in collaboration with several international organizations such as the Asian Development Bank (ADB), United Nations Environmental Programme (UNEP), Institute of Global Environmental Strategies, and the National Institute for Environmental Studies of Japan. In 2006 the Myanmar EPA was published as part of a broader program called the National Performance Assessment and Strategic Environment Framework of Greater Mekong Subregion (GMS), which aims to promote sustainable development in the GMS through the creation of national and sub-regional environmental performance assessment systems and development of national and sub-regional capacities for implementing such assessments. The Myanmar EPA provides some useful baseline data covering seven key environmental concerns, including forest resources, biodiversity, land degradation, management of water resources, waste management, air pollution from mobile source and climate change.³⁸ However, in the EPA there is no mention of the many environmental concerns in Burma such as problems associated with mine tailings disposal, construction of large dams, large-scale commercial agriculture, gas-field development, or pipeline and road construction. The report also does not mention the traditional natural resource management systems practiced by ethnic people throughout the country.

^{vi} However, respective departments that are statutorily separate from the NCEA are responsible for acute environmental issues including forest degradation, water resource management and sustainability of agriculture. Tun Myint, 'Environmental Governance in the SPDC's Myanmar' in *Myanmar: The state, community and the environment*, Trevor Wilson and Monique Skidmore (eds), Australian National University, ANU E Press and Asia Pacific Press, 2007.

3.2 Environmental Policies and Laws

A national environmental policy was drafted by the NCEA in 1994. The National Environment Policy is as follows:

To establish sound environment policies, utilisation 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 environmental 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 the life of all its citizens. Every nation has the sovereign right to utilise its natural resources in accordance with its environmental polices; 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 interests of present and future generations. Environmental protection should always be the primary objective in seeking development³⁹.

There is, however, no formal environmental law or an institutional framework for the implementation of this policy. A set of provisions about environmental protection was drafted and re-drafted between 1997 and 2000 by the government with technical input from an environmental law expert funded by UNEP,⁴⁰ but it has not been made into law yet. If the law is approved, there will be more institutional space to regulate environmental quality and conduct EIA's and SIA's for infrastructure and investment projects funded by the government and private sector. However, lack of political will, limited human resources, and low levels of budget allocation for environmental protection and conservation are major challenges even if the environmental law is in place to implement.

The development of the environmental policy was followed by the drafting of 'Myanmar Agenda 21' in 1997, which follows a UN framework for a multi-pronged approach to sustainable development. The Myanmar Agenda 21 recognizes the need for Environmental Impact Assessments.⁴¹ Myanmar Agenda 21 calls for integrated management of natural resources and provides a blueprint for achieving sustainable development.

3.3 Impact Assessments in Burma

One of the most important internationally-accepted environmental protection methods is to conduct an environmental impact assessment (EIA) prior to implementing development projects. When done properly, an EIA identifies, predicts, evaluates, and mitigates the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made.⁴² The EIA is supposed to provide appropriate opportunities to inform and involve stakeholders in a project.^{vii}

^{vii} The International Association for Impact Assessment has guidelines on the objectives and principles of an EIA see http://www.iaia.org/publicdocuments/special-publications/Principles%20of%20IA_web.pdf

In Burma, no law requires an EIA or Social Impact Assessment (SIA)^{viii} before a development project is implemented. Public access to government information is restricted, and prior approval from agencies is required to release information about development projects.⁴³ Ongoing development projects in Burma such as construction of roads and dams, mining, logging, as well as coal, oil, and gas extraction do not have any standardized measure of negative impacts to the environment and the local people, and the implementing agencies are not required by the laws of Burma to make efforts to mitigate these impacts.

Anecdotal evidence shows that even on rare occasions when an EIA is conducted in Burma, it is not done to meet the substantive objectives of a proper EIA. A recent EIA, supported by a foreign company, was conducted by a Burmese conservation NGO about the construction of a hydropower dam in Burma, but the NGO refused to include any social factors as according to Burmese government orders.⁴⁴ The EIA did not impact the design of the dam or stem the tide of hydropower projects in the country.

In a recent article, an official with the Ministry of Mines proposed an EIA process for Burma.⁴⁵ The proposed process has several shortcomings. First, the process allows the Minister for the Environment (currently a theoretical position as yet there is no such ministry) to determine at the start, without any supporting evidence, that a project will have “no impact.” When such a decision is taken, an EIA is not required. This would provide an obvious loophole in any rigorous assessment of the potential environmental and social impact from a project. Furthermore, whereas the international good practice is for a third party to conduct the assessment study, under this proposal, the project proponent has the responsibility for preparing the EIA, which provides an easy mechanism to hide or ignore significant impacts. Finally, public participation is not mandatory, and occurs too late in the process. It is up to the government to determine if public participation is “required,” allowing the government to avoid public participation for controversial projects.

Another tool advocated by human rights and other civil society organizations is human rights impact assessments (HRIAs) to assess the impact of government and other policies on human rights, i.e. health.⁴⁶

3.4 Environmental Provisions in the 2008 Constitution

Under the new 2008 Constitution, the government “shall protect and conserve the natural environment” (Chapter 1, Section 45).⁴⁷ The national legislature can, but does not need to, enact laws to protect the environment and help restore areas degraded or damaged by mining and forestry activities or those that have experienced destruction of plants, wildlife, and habitat (Chapter 4, Section 96).⁴⁸ State and Division Legislatures also have the power to regulate environmental protection, but within the boundaries of legislation passed by the National Legislature (Chapter 4, Section 196).⁴⁹ In addition, every citizen has the duty

^{viii} SIAs should cover ‘all social and cultural consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs, and generally cope as members of society’ and ‘cultural impacts involve changes to the norms, values, and beliefs of individuals that guide and rationalize their cognition of themselves and their societies’ R.J. Burdge and F.Vanclay, F., ‘Social impact assessment: a contribution to the state of the art series’, *Impact Assessment*, 1996.

to “assist” the government in carrying out environmental conservation (Chapter 8, Section 390).⁵⁰

With regard to environmental protection, the 2008 Constitution does not guarantee to the people the right to a clean and healthy environment although many other national constitutions provide such a right.^{ix} The constitution does not have any clear language on sustainable development and recognition of the rights of civil society such as freedom of information, participation in natural resource management, customary land ownership, information in local languages, and equitable benefit sharing.

3.5 National Sustainable Development Strategy

The National Sustainable Development Strategy (NSDS) is part of a broader program of the UN Sustainable Development Commission set up after the World Summit on Sustainable Development in 2002. Every country including Burma that signed Agenda 21^x at the Earth Summit in Rio De Janeiro in 1992, agreed to develop an NSDS by 2010 in line with the Millennium Development Goals (MDGs). UNEP provided funding for Burma to develop an NSDS. The main aim of the process was to develop an NSDS in line with international standards by meeting the MDGs and ensure that environmental and social impacts are mitigated when implementing development projects.⁵¹ The NCEA in Burma took a lead in developing the strategy in consultation with the government and a small number of NGOs. Burma’s NSDS was published in August 2009. The three goals are sustainable management of natural resources, integrated economic development and sustainable social development. Specific strategies are outlined under each goal. For example, the goal for Sustainable Management of Natural Resources suggests strategies for forest resource management, sustainable energy production and consumption, biodiversity conservation, sustainable freshwater resources management, sustainable management of land resources, sustainable management for mineral resources utilization, and so on.⁵²

The NSDS was officially accepted by the Ministry of Planning. In theory, it is a guiding document for government ministries, departments and local authorities, UN organizations, and international and local NGOs. The main limitation, however, is that Burma lacks comprehensive national policies on land use, energy and environment, which makes it difficult to implement the strategies contained in the NSDS. There is also a need to consult more NGOs in the process. The United Nations Environment Program has stated that there are opportunities to review and further develop the strategy in the future.⁵³

^{ix} For example the Philippines’ Constitution provides: “The State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature” http://www.tanggol.org/environmental_laws/conex.html.

^x Agenda 21 “is a comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations System, Governments, and Major Groups in every area in which human impacts on the environment. Agenda 21.. was adopted by more than 178 Governments at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil, 3 to 14 June 1992”. <http://www.un.org/esa/dsd/agenda21/>

3.6 International Commitments

Burma has signed 31 international treaties related to the environment (see Table 1). It is unclear, however, how the contents of those treaties have been incorporated into domestic law. Below is a more in-depth discussion of the most significant conventions in the context of environmental protection in Burma today.

Table 1 – International and regional treaties concerning the environment to which Burma is a party (in chronological order)

	Name
1	Plant Protection Agreement for the Southeast Asia and Pacific Region
2	Treaty Banning Nuclear Weapons Tests in the Atmosphere in Outer Space and Under Water
3	Outer Space Treaty: Treaty on Principles Governing the Activities of States in the Exploitation and Use of Outer Space including the Moon and other Celestial Bodies
4	Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea-Bed and Ocean Floor and in the Subsoil there of (Seabed Treaty)
5	Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological and Toxin Weapons, and their Destruction
6	Vienna Convention for the Protection of the Ozone Layer
7	Montreal Protocol on Substances that Deplete the Ozone Layer
8	MARPOL: International Convention for the Prevention of Pollution from Ships
9	MARPOL: International Convention for the Prevention of Pollution from Ships as amended 1978
10	Agreement on the Networks of Aquaculture Centers in Asia and the Pacific Region
11	London Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer
12	United Nations Framework Convention on Climate Change (UNFCCC)
13	Treaty on the Non-Proliferation of Nuclear Weapons
14	ICAO: ANNEX 16 Annex to the Convention on International Civil Aviation Environmental Protection Vol. I, II, Aircraft Noise
15	United Nations Convention to Combat Desertification
16	Vienna Convention for the Protection of Ozone Layer
17	Montreal Protocol on Substances that Deplete the Ozone Layer
18	London Amendment to the Montreal Protocol
19	Convention Concerning the Protection of the World Cultural and Natural Heritage
20	Convention on Biological Diversity (CBD)

	Name
21	United Nations Convention on the Law of the Sea
22	International Tropical Timber Agreement (ITTA)
23	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
24	ASEAN Agreement on the Conservation of Nature and Natural Resources
25	Catagena Protocol on Biosafety
26	ASEAN Agreement on Transboundary Haze Pollution
27	Kyoto Protocol to the United Nations Framework Convention on Climate Change
28	Convention on the Prohibition of the Development, Production, and Stockpiling and Use of Chemical Weapons and on their Destruction
29	Stockholm Convention on Persistent Organic Pollutants
30	Ramsar Convention on Wetlands
31	Copenhagen Amendment to Montreal Protocol on Substances that deplete the Ozone Layer

3.6.1 Biodiversity Conservation and Indigenous Peoples

Convention on Biological Diversity

Burma ratified the Convention on Biological Diversity (CBD) in 1994. It is the first global agreement on conservation and sustainable use of biological diversity.⁵⁴ A significant article for indigenous people is Article 8j which states, "Signatories must respect, preserve, and promote indigenous knowledge, innovations, and practices relevant for the conservation and sustainable use of biological diversity."⁵⁵ ^{xi}

Despite political constraints the Burmese government has followed-up on the CBD. The government wrote all three required national biodiversity reports. In January 2006 a Memorandum of Understanding (MoU) was signed with the United Nations Environment Program Regional Office of Asia-Pacific (UNEP ROAP) in Bangkok for it to support Burma's NCEA with the development of the National Biodiversity Strategy Action Plan (NBSAP).⁵⁶ The NBSAP is part of a requirement of the CBD for signatories to integrate conservation and sustainable use of biological resources into national decision making, and mainstream issues across all sectors of the national economy and policy-making framework (Articles 6(b), 26 and 10(a)).^{xii}

^{xi} In the CBD parties are also called on to establish protected areas where special measures need to be taken to conserve biological diversity. The convention provides that important biological resources should be managed "whether within or outside protected areas, with a view to ensuring their conservation and sustainable use" (Article 8c).^{xi} The CBD also "protect(s) and encourage(s) customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements" (Article 10c).

^{xii} Article 6 creates an obligation for national biodiversity planning. It states that signatories should "develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or

A consultation workshop to start the NBSAP process was organized by the Forest Department in June 2006 in Rangoon. In perhaps the largest gathering in Burma ever regarding an environmental issue, out of 149 invitees, there were 119 participants from over 44 organizations, government ministries and departments, universities and institutes as well as representatives of international and national NGOs and the private sector.⁵⁷

At the meeting it was declared that the report “Investment Opportunities for Biodiversity Conservation in Myanmar,” published in 2005 by Birdlife International, UNDP-Burma and Critical Ecosystems Partnership Fund (CEPF), would be used as a baseline document for the NBSAP process. The report outlines key biodiversity areas, a list of threatened species, and conservation corridors, as well as identifies priorities for conservation investment for the next five years. The report, however, is entirely based on the biophysical sciences and technical expertise without any regard for social and cultural value, indigenous territories, or the political ethnic conflict rooted in Burma.⁵⁸

Burma has received funding for the “stocktaking process” in the formulation of the NBSAP from the Global Environment Fund (GEF), but due to personnel changes in the Forestry Department and the lack of a qualified resource person, the process is not going as fast as GEF and UNEP hoped.⁵⁹ A consultant for the NBSAP has however been appointed from the national NGO ECODEV (see section 3.7.1).

Moreover, Burma’s NBSAP process itself thus far has marginalized indigenous people’s contribution to biodiversity conservation. No indigenous peoples or environmental groups with indigenous representation inside or based outside of Burma have been consulted in the process of developing the NBSAP. This is in direct contradiction to the principles of the CBD, the NBSAP guidelines and GEF mandates.⁶⁰

United Nations Declaration on the Rights of Indigenous Peoples

Burma was one of 144 states that endorsed the United Nations Declaration on the Rights of Indigenous Peoples in September 2007. Effective implementation of this human rights instrument would significantly improve the situation for indigenous people in Burma and throughout the world.⁶¹ Article 32 is about Indigenous Peoples right to Free and Prior Informed Consent (FPIC): “States shall consult and cooperate in good faith with the Indigenous Peoples concerned through their own representative institutions in order to obtain Free and Prior Informed Consent prior to approval of any project affecting their land or territories”. Article 10 about forcible relocation of indigenous people, and the need for FPIC and Article 26 about land rights are also relevant articles for indigenous peoples in Burma.^{xiii} While it is applauded that the Burmese government signed this treaty, it is time

adapt for this purpose existing strategies, plans or programmes which shall reflect, inter alia, the measures set out in this Convention relevant to the Contracting Party concerned” and “integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies”. Articles 26 and 10(a) are also relevant calling for regular national reports and the integration of conservation and biological resources into national decision making.

^{xiii} “Indigenous peoples shall not be forcibly removed from their lands or territories. No relocation shall take place without the free, prior and informed consent of the indigenous peoples concerned and after agreement on just and fair compensation and, where possible, with the option of return” (Article 10), “1. Indigenous peoples have the right to the lands, territories and resources which they have traditionally owned, occupied

the government start to respect and follow the indigenous protection regimes advocated in this treaty, which is desperately needed in Burma. This agreement is one step forward in recognizing the rights and responsibilities of indigenous peoples and the positive role they can – and should – play in protecting the environment, and with it, their resource-based livelihoods.

International Labor Organization

The ILO Convention 169 also recognizes the rights of ownership and possession of peoples traditionally occupying land (Article 14), while the rights to natural resources – including participation in their use, management and conservation – are ‘specially safeguarded’ (Article 15).⁶²

3.6.2 CITES

Burma is a signatory to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). CITES signatories, including Burma, agree to regulate or prohibit trade in endangered species or animal parts such as bones, horns, or fur, according to the species’ level of endangerment listed in the appendices of CITES.^{xiv} In Burma, the Forest department serves as the CITES management authority. In 1994 the Protection of Wildlife and Wild Plants and Conservation of Natural Areas Law (State Law and Order Restoration Council Law No. 583/94.1994) was enacted. The law is supposed to be enforced by the Forestry department, and possession, sale or export of animals or their parts of species covered by this law is punishable by a fine of up to 50 000 Kyat (\$7680 USD) and/ or imprisonment of up to seven years.⁶³ There is, however, little or no enforcement of CITES regulations in Burma. Endangered species can be found in markets throughout Burma, with much of the demand coming from China, and more recently Vietnam.^{64 65} (See section 5.7).

3.6.3 Climate Change

Burma has been receiving funds from GEF to implement two projects: a Project for Initial National Communication (INC) under UNFCCC and a National Action Plan for Adaptation (NAPA). The INC is to implement Article 6 of the UNFCCC^{xv}. The current INC project is a stocktaking exercise for analyzing levels of greenhouse gas emission, climate change scenarios, associated risks and vulnerabilities, potential measures and technology transfer for mitigating climate change and the degree of public awareness on climate change issues. NAPA is a process under the United Nations Framework Convention on Climate Change (UNFCCC) for Least Developed Countries such as Burma to “to identify priority activities

or otherwise used or acquired. 2. Indigenous peoples have the right to own, use, develop and control the lands, territories and resources that they possess by reason of traditional ownership or other traditional occupation or use, as well as those which they have otherwise acquired. 3. States shall give legal recognition and protection to these lands, territories and resources. Such recognition shall be conducted with due respect to the customs, traditions and land tenure systems of the indigenous peoples concerned.” (Article 26). For full text see <http://www.un.org/esa/socdev/unpfii/en/drip.html>.

^{xiv} There are three appendices to CITES that are lists of species to be regulated.

^{xv} Article 6 is for education, training and public awareness. See http://unfccc.int/essential_background/convention/background/items/1366.php

that respond to their urgent and immediate needs to adapt to climate change – those for which further delay would increase vulnerability and/or costs at a later stage”.⁶⁶ The NAPA project in Burma is focusing on preparing national sectoral and multi sectoral activities to build adaptive capacities at national and local level for facing climate change risks. Burma is earmarked for funding of approximately \$US 16 million under GEF’s 2010 to 2014 program cycle (namely GEF5’s System of Transparent Allocation of Resources (STAR)). However, Burma’s access to funds from GEF5 is confined by the need in co-funding up to 40 to 60% of the total budget which is limited by Western sanctions policies. Nevertheless, attempts have been made inside Burma for formation of new authority focusing on climate change and environmental matters, including environmental activities linked with global movements and initiatives. At present, ECODEV is also serving as team leader of the GEF funded project for national communication under United Nations Framework Convention on Climate Change in order to implement the Article 6 of the convention which is to promote education, training and public awareness on climate change, and the executive director is the national consultant for the National Strategy and Action Plan on Biodiversity conservation (NBSAP).

In 2010 the Burmese government expressed interest in a UN collaborative initiative on Reducing Emissions from Deforestation and Forest Degradation (REDD), now referred to as REDD+.^{xvi 67} However, it was mutually agreed that due to concerns over the possibility of opposition from some members of the UN-REDD Policy Board, they would not formally proceed with an application to join at this time. UN-REDD is currently supporting representatives from civil society organizations from Burma to attend trainings in REDD “Readiness” such as a training in free and prior informed consent in Vietnam. In November 2010, two Ministry of Forestry officials and a UNDP official attended a workshop for regional actors in Bangkok. The workshop served to exchange lessons learned and experiences in preparing for REDD+.

3.7 Environmentalism in Burma

Note: Many groups and individuals inside are actively working on a range of environmental and livelihood-based issues inside Burma. Their work and safety could be jeopardized by being identified, so only groups with a high public profile or websites will be mentioned. For others, their work will be discussed without identifying their organization.

In discussing the activities of organizations working on environmental and livelihood-based issues both based in government-controlled areas of Burma (‘inside’) and those based in the Thai and Chinese border regions (‘border groups’), there are two approaches: the ‘traditional’ conservation approach and the rights-based approach. Organizations that are using a rights-based approach work from a perspective of sustainable development and livelihoods and subsequently focus on issues such as food security, land tenure and rights, and community development and organizing. Conservation organizations tend to focus specifically on environmental protection, although with varying approaches to achieve their

^{xvi} “Reducing Emissions from Deforestation and Forest Degradation (REDD) is an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development. “REDD+” goes beyond deforestation and forest degradation, and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks”. See <http://www.un-redd.org/AboutREDD/tabid/582/Default.aspx>

common goal. Organizations working on environmental issues also focus on environmental awareness, education and training, policy development, advocacy and networking.

3.7.1 Organizations based inside Burma

The space for engaging on environmental issues – broadly defined – in Burma has opened up considerably over the past decade, with a growing number of international, national and grassroots organizations now operating in different parts of the country on a wide range of related projects. A broad array of organizations are working on what can be considered “environment” issues, such as conservation, livelihood development, agricultural commodity chains, farmer-to-farmer schools, smallholder plantation development, land tenure and food security, community forestry, and forest restoration throughout government-controlled areas in Burma, and in a few cases, areas controlled by ethnic political groups. There are currently approximately 40 international NGOs working on “environment issues” throughout the country including agriculture, horticulture, fisheries, income generation, integrated farming systems, agro-forestry, food security, wildlife conservation, biodiversity conservation, environmental education and water and sanitation initiatives.⁶⁸ This number does not include the extensive number of churches, community-based organizations (CBO), and national and grassroots organizations working on these issues.

Burmese environmental organizations have been implementing “environmental” activities at local and national levels for up to a decade now, using both traditional conservation approaches as well as rights-based approaches. One such organization, Forest Resource Environment Development and Conservation Association (FREDA), is officially registered with the government to implement an extensive program on forest conservation and restoration, gaining prominence over the years to become the country’s most recognized conservation NGO. FREDA employs a traditional conservation model but with increasingly community-oriented approaches. FREDA focuses mostly on community reforestation, especially mangroves, and agro- and aqua-forestry in the Irrawaddy delta. FREDA has works with the FD on international sustainable forestry initiatives, as well as timber certification mechanisms for the country. Recently FREDA has been involved in an Environment Steering Committee with the government, UNDP and UNEP to support local initiatives around Inle Lake where there is a growing awareness of the effect of chemical fertilizers, pesticides and herbicides on livelihoods and local ecosystems.⁶⁹

BANCA, a Burmese conservation NGO, was established in Rangoon in mid-2000s as a local partner for Birdlife International to address bird and habitat conservation in Burma. BANCA has initiated many conservation projects in different parts of the country, as well as conducted extensive in-depth ecological research with a team of Burmese scientists in areas rich in biodiversity to identify critical habitat for protection.

Several other Burmese NGOs operate in the country with head offices in Rangoon, mostly working on forest conservation and restoration. Most of them are headed by former high-level forestry officials, and use a more traditional conservation approach but increasingly with community-based approaches. These organizations focus on mangrove reforestation in the delta region after Cyclone Nargis struck in 2008, greening the Central Dry Zone, and community forestry initiatives throughout the country. Many Burmese NGOs focus their efforts on local livelihoods and community empowerment.

“ECODEV which stands for ‘economically progressive ecosystem development’ is a group of Myanmar development professionals, intellectuals and social entrepreneurs”.⁷⁰ It is registered under the Myanmar Partnership Act and the Myanmar Company Act. The mission of ECODEV is to network for private public partnerships in order to realize its vision of “Private Sector Led Sustainable Development” in Burma and beyond. All of its development programs focus on nurturing “Healthier Environment” by a “Stronger Society” with “Responsible Business Investment” through “Strategic Partnership Development”. As part of its attempt to promote environmental governance in Myanmar, ECODEV has undertaken number of initiatives which include the development of the process of the Environmental Performance Assessment a report commissioned by UNEP the ADB, published in 2006 (see section 3.1), the empowerment of grassroots communities to secure land tenure and resource-use rights of communities through community forestry, and evidence based research for effective advocacy. ECODEV takes key positions in civil society networks including the Food Security Working Group, Mangrove Environment and Rehabilitation Network and Kachin State Conservation Group. At present, ECODEV is also serving as team leader for the INC project (see section 3.6.3), and the executive director is the national consultant for the NBSAP (see section 3.6.1).

The Metta Development Foundation (Metta) is an NGO established in 1998 to assist communities recovering from the devastating consequences of conflict and humanitarian emergency. Metta works in 10 states and regions on a wide range of projects aimed to enhance land tenure and food security, facilitate farmer-to-farmer field schools, encourage the establishment of community forests, and other sustainable community-based projects. Metta bases its work on a community empowerment model by working closely with communities over a long term, gaining them respect from their colleagues.

Shalom Foundation (Nyein) was established in 2000 initiated by Kachin religious leader and involved by religious and civil society leaders from various ethnic states and the wider Burmese community. It aims to work on peace and development initiatives in Kachin State after the cease-fire process, which has now evolved into facilitating livelihood development projects such as community forestry, community-based research, peace-building trainings, and constructive dialogue amongst different parties. Shalom works closely with Kachin communities, and the wider community on issues pertaining to peace, conflict, and sustainable development.

Besides Burmese conservation and livelihood development NGOs, there are also many international NGOs working on similar issues, with head offices in Rangoon and in some cases branch offices in provincial capitals in states/divisions where they operate projects. Most of these organizations work from a rights-based approach. Some of the more active organizations include World Concern, GRET, Deutsche Welthunger Hilfe (DWHH, formerly German Agro Action or GAA), Adventist Development and Relief Agency (ADRA), SwissAid, Save the Children, Oxfam (GB), CARE, MercyCorps, Danish Church Aid (DCA), Consortium of Dutch NGOs (CDN), Action contra la faim (ACF) and ActionAid. While they operate differently and invest their resources in different projects across the country (although mostly in ethnic areas and the Irrawaddy delta after Cyclone Nargis), they all seem to share a common goal: improving local livelihoods.

Although to a lesser extent, some international NGOs with offices in Rangoon work from a more traditional conservation approach, most prominently Wildlife Conservation Society (WCS) which is responsible for setting up several protected areas in the country, the best-known being the Hugawng Valley Tiger Reserve in Kachin State. Some smaller international conservation organizations also operate a few projects in the country, but without offices in Rangoon.

As a reflection of growing strength and popularity, environmental organizations are increasingly coming together as networks to foster inter-organizational cooperation and solidarity. The Food Security Working Group (FSWG) is one such network that since 2003 has brought together Burmese and international organizations that work on livelihood development projects that directly relate to food security issues in Burma. They work on collaborative research projects such as gender and agriculture, upland land tenure, farmer-led agriculture trainings, and community forestry. In 2010 FSWG published a briefing document on the upland land tenure security situation in the uplands of Burma, which brought together a diverse collection of people from private, non-profit, and government sectors to discuss upland food insecurity and land tenure reform.

After Nargis a new network called Mangrove Environment Research Network (MERN) composed of 17 local NGOs was formed to co-ordinate these efforts with a focus on aquaforestry. The network focuses on conservation and livelihood improvement initiatives. Activities include reforestation, awareness to farmers and fisherman about over use of chemicals, biodiversity conservation, local organizational development, and alliance building with other key stakeholders for local economic development initiatives.

In addition to these established Burmese organizations, a handful of dedicated Burmese (and to a lesser extent foreign) environmentalists and social workers collaborate with Burmese organizations, using their expertise and connections to help implement projects, either as paid consultants or volunteers. There are also individuals and teams of Burmese (and some foreign) researchers working with organizations to conduct surveys and interviews to quantify and qualify ecological and livelihood degradation in the country, without whose work NGOs in Burma and the international community would not understand as well the state of the environment in the country. Finally it is important to recognize the commitment from religious organizations and individuals (Buddhist Sangha and monks as well as Christian churches and pastors) that address environmental issues in their local communities. Either through explaining how the religion holds the earth and all its life sacred or through mobilizing the community to carryout environment-related projects in their area, religion plays an important yet often neglected aspect of environmentalism in Burma today.

While most of these organizations do administrative work from their main office in Rangoon and implement projects from their provincial offices in government-controlled territories, a few organizations also provide local relief and community development in non-government controlled border territories. These organizations are either based in Burma on the China border, or as is the case for one, based in Kunming with access to Burma border communities, or implement projects on the border from their provincial offices. However, most of the work for communities caught in the crossfire from decades of on-going war and conflict is addressed by groups based in Thailand (see section 3.7.3).

3.7.2 UN Interventions on Environmental Protection

UNDP has been working in Burma since 1994. They currently work in 60 townships across the country. UNDP's initiatives "target the most vulnerable communities and work to improve opportunities for sustainable livelihoods"⁷¹ in areas of "food security, primary health care, environment, HIV/AIDS, and training and education".⁷²

Although UNEP does not have an office in Rangoon, they do collaborate on various UN-Burma projects that fall within its mandate. They are also becoming more active in the country and are looking to employ a part-time staff based at the UNHABITAT office in Rangoon in 2011.⁷³ As mentioned, its activities in the past include involvement in the Environmental Performance Assessment, National Biodiversity Strategy Action Plan (NBSAP), providing funding for an environmental law expert to draft the Environmental Law, participating in formulating the National Sustainable Development Strategy and the Inle Lake Initiative (with FREDA). In addition, UNEP is working with the World Health Organization (WHO) on an Ozone Depletion Project in Rangoon which assesses the level of contaminants in the air to identify sources and take measures to prevent air pollution such as encouraging the decrease in the amount of leaded petrol used in cars.^{74 75}

Burma's government has also expressed interest in the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN REDD) program, mentioned above.^{xvii 76}

3.7.3 Ethnic Environmental Organizations based in Thailand

Environmental groups based on the Thailand-Burma border work in all the ethnic states. A major focus is to increase the recognition of rights of local and indigenous peoples to use and manage their natural resources for sustainable development, to promote environmental protection and human rights through advocacy about large-scale development and natural resource extraction projects, and corporate and government accountability. These groups work primarily in areas under control of ethnic armies and in ceasefire areas. Not all groups work on every aspect, a summary of activities is explained below. Short briefs about individual BEWG members are included at the beginning of the report.

This section includes the work of Arakan Oil Watch (AOW), Arakan Rivers Network (ARN), Bridging Rural Integrated Development and Grassroots Empowerment (BRIDGE), Burma Rivers Network (BRN), Ethnic Community Development Forum (ECDF), Earth Rights International (ERI), Kachin Development Networking Group (KDNG), Karenni Evergreen, Karen Environment Committee (KEC), Karen Environmental and Social Action Network (KESAN), Lahu National Development Organization (LNDO), Network for Environmental and Economic Development (NEED), Pa'Oh Youth Organization (PYO), Shan Sapawa Environmental Organization and the Shwe Gas Movement. Those which are members of BEWG have organizational descriptions at the beginning of the report under 'About the Burma Environmental Working Group'.

^{xvii} See footnote xv.

Community Development

Empowerment of communities inside Burma to conserve natural resources and improve livelihood security and sustainability for current and future generations is the central focus in a number of border-based groups' activities. A rights based approach is used to empower communities and local leaders on environment conservation and social development. Projects include the establishment and protection of community forests, support for locally-produced traditional medicines, community-based food and water security initiatives that support local food production and climate change adaptation mechanisms, formal and informal environmental education, and HIV-AIDS education and surveys. Youth development is seen as especially important by many groups and is pursued through internship and education opportunities in within these organizations, youth forums exploring subjects such as the resource curse, and network-building across ethnicities, issues and regions. Groups are increasingly designing community development initiatives that address gender inequality and amplify women's voices and roles.



Figure 1 Community forest awareness training, Khoe Kay, Salween River, Karen state. Karen youth learning indigenous knowledge on community forest conservation. KESAN 2009.

Environmental Education

Environmental groups based on the Thailand-Burma border provide education and community awareness and capacity on a range of environmental issues. Education themes include biodiversity, land tenure, environmental conservation, climate change, traditional agriculture and medicines, alternative energies, organic farming, environmental impact assessment, good environmental governance, resource documentation, informed consent, revenue transparency and sustainable development. Education methods include training through youth forums, workshops, internships and established environmental schools both within and outside Burma's borders. More informal information dissemination occurs through traditional community networking, traveling storytellers and video, audio and printed media produced in local languages. Some groups actively foster local ethnic languages which have been banned in the Burmese educational system, as a central means to achieving environmental education.

Policy Development

Policy development is not just a task for the current government or the government of a future democratic Burma, but for regional and international frameworks, international financial institutions and governments, and businesses and corporations operating inside Burma. Groups work with local and regional civil society organizations to articulate environmental and social and economic development concerns and formulate environmental policies for policy makers in exile, the current government, companies, and non-state actors. Border-based environmental groups widely recognize the need to strengthen community initiatives through development of policy and identification of development priorities with local stakeholders in ethnic areas.

Advocacy

There is no freedom of speech in Burma, making it difficult for organizations based inside Burma to publicly expose negative environmental and social impacts of large scale-development activities such as the construction of large-scale dams, mining, resource concessions, and oil and gas extraction. Border-based environmental groups therefore conduct research and do advocacy on these issues because they are able to work in a safer environment. In addition to large-scale infrastructure development projects, they advocate about community development, environmental education and policy development initiatives in local, regional, national and international arenas, building alliances and working with other civil society organizations. They publicize their research and advocacy through many reports documenting such abuses. Groups network with national, regional and international organizations on issues ranging from revenue transparency to indigenous people's rights, rivers and biodiversity, mega-development projects, and International Financial Institutions.

4. LAW AND POLICY ON FORESTRY AND AGRICULTURAL LAND

4.1 Forestry Laws and Policies

4.1.1 Ministry of Forestry

The Ministry of Forestry (MoF) is responsible for forest land management, environmental protection, timber extraction and forest policy in Burma – following the Forest Policy 1995. The top positions, including the minister and now often time director generals (DGs), are staffed by military officials with no technical training or knowledge, while the departments under the ministry are made up of trained foresters and other professionals. Five departments come under the control of the MoF: the Forest Department (FD) with its Nature and Wildlife Conservation Division; the Myanmar Timber Enterprise (MTE), the logging and income-earning arm; the Dry Zone Greening Department (DZGD) for reforestation in central Burma; the Planning and Statistics Department; and the National Commission for Environmental Affairs (NCEA). In 2007-08 fiscal year the forestry sector earned the government 83.5 billion Kyat, but which only represents a ½ percent of the country's total GDP, according to national statistics.⁷⁷ The government-controlled export of teak logs reached its maximum volume and value in 2006-07 at nearly 300,000 tons worth just over \$200 million USD. The total value of government-exported teak logs from 2003-04 to 2007-08 reached over \$1 billion USD.

Within the MoF there exists tension between the diverging agendas of technical expertise and community-managed forests, as well as between the separate goals of conservation and timber extraction. Forest conservation and commercial timber extraction are managed by different departments (FD and MTE, respectively,) which carries obvious problems and conflicts.

The private sector is now allowed to work in cooperation with the Myanmar Timber Enterprise (MTE) under the MoF for exporting value-added, semi-processed wood products only. But the private sector has been cooperating with MTE for logging and arranging business deals with foreign buyers, even though it is then exported via MTE. And since 2005 the government allows Burmese private investors to establish tree plantations, including teak but only with special permission since it is still a state-owned tree. It appears that private tree plantations are becoming a more popular form of investment by Burmese foresters, although as of yet is not a popular trend compared to agribusiness.

Myanmar Timber Enterprise (MTE) generates the income necessary for the MoF to function, but as a result carries more political influence and resources compared to Forest Department as well as applies logging pressure on the very forest resources the rest of the ministry protects. MTE is well known to not follow the measures set out in the Burma Selection System (BSS) and Annual Allowable Cut (AAC).⁷⁸ MTE, due to severely limiting human, finance capital, and technical resource, often subcontract out concessions to the private sector to carry out logging operations. However the subcontractors (e.g., Htoo Trading, among many others) then must sell their set volume of timber to the MTE at a given price, even if it is for export to private foreign companies. However, the state has a monopoly on

teak trees. In effect, then, MTE controls the logging and timber trade, but it is in fact carried out by the Burmese private sector, where both entities profit.

Annual Allowable Cuts were based on partial surveys done in the early 1960s, which were then extrapolated to the whole country, despite much of the country then mired in civil war. This is a major flaw of the established AAC figures even if precisely followed.⁷⁹ Based on the foreign exchange earnings expectation, a target volume is calculated which is then translated downwards into logging quotas for each logging district. These have little bearing on capacity of the forest, the calculated AAC, and therefore the sustainability of forestry operations. The AAC occasionally changes by the regime to maintain annual revenue but not actually a measure of changing timber stock. According to the FD's Planning and Statistics Division, the 2010 AAC for teak is set at 147,300 trees (176,760 tons) and for other hardwoods 1,131,461 trees (1.584 million tons).^{xviii} Overall, since 1970 teak production has exceeded the AAC by at least an average of 15 percent, according to even official figures,⁸⁰ which is assumed to actually be much higher.

4.1.2 Forest Law and Policy

The 1992 Forest Law supports conservation, sustainable forestry and socio-economic benefits while also partially decentralizing and encouraging the private sector and community participation in forest management. The 1995 Myanmar Forest Policy and the updated 1996 Forest Working Plans are responsible for implementing the 1992 Forest Law. Specifically, the law and policy advocate for a participatory approach to forest management, including community forestry for supplementing livelihoods. The 30-year National Forestry Action Plan for 2001 only seeks to strengthen conservation goals and enforcement of laws against illegal extraction of forest products, without any mention of the need to include villagers as stakeholders in the nation's forests. No specific legal land rights are available to local people's claim to use or access forest resources, severely impinging on communities food and forestland tenure security.

Forest Reserve and Protected Public Forest together form the Permanent Forest Estate (PFE), which according to the Forest Policy 1995 it is being targeted for 30 percent of the country's total land which is thus off limits for local livelihoods. In addition the protected area system (PAS) is slotted to cover 10 percent of the country's total territory. However, as of 2003, only about 22 percent of total land area has been given full legal protection under the Forest Reserve System, which is only about half of the existing forest area according to government data.

In addition to PFE, a very crucial addition that has the potential to greatly enhance local forest resource security is an additional 10 percent of the country's total land is to be managed for multiple land use mixing, including agroforestry and community forests.

4.1.3 Community Forestry

Following the 1992 Forest Law and 1995 Forest Policy, the government legally recognizes people's co-management in forestry with the creation of the 1995 Community Forestry

^{xviii} The FD calculates the volume as on average ^{xviii} 1.2 tons per teak tree, and 1.4 tons per hardwood tree.

Instructions (CFI). The overall principles in CFI are for local communities to fulfill basic livelihood needs for firewood, farm implements and small timbers as well as reforest degraded forest lands. The community forestry user groups (FUGs) collaborate with NGOs and district FD officials in managing the CF. Although initially created in 1995, only since the mid-2000s did CF establishment really begin to gain momentum in Burma, and mostly in the north. This is due to the increasing land tenure threats, namely agribusiness concessions being demarcated in farmer's upland forests and *taungya* (Burmese word for upland swidden practices). Once the CF is officially granted by the district Forestry Department and other relevant agencies, the FUG has more protected user rights over that land, making it much more difficult for the land to be granted to an outside party. Establishing a CF is one of the rare land-based resistance strategies available to villagers, whose traditional land management practices (*taungya*) are not a recognized. A legally-established CF better ensures legally protected land use (see sections 4.2 and 5.5 for more details on land confiscation for agribusiness). Villagers establishing CFs, is thus more about keeping village land, not necessarily about explicitly conserving forests.

The process of establishing community forests over the past decade has been slower than anticipated, with the annual rate of establishment at only about 8,000 acres, despite a national target of 1.5 million acres by 2030.⁸¹ By 2010, just over 100,000 acres of community forests have been legally established (recognized and recorded by the central Forestry Department) in the whole country, over half of which is just in southern Shan State (192 community forests established by 2010).⁸²

When community forest instructions are implemented most Forest User Groups seem to be planting mostly high-value timber species, such as teak, Pyinkado, and Padauk, with little focus on agroforestry strategies or local forest needs such as firewood, nor attention to gender dynamics or ensuring participation from the most marginalized households. As a result this is causing problems with food security for the villages. Therefore while CF is one of the country's most promising legal avenues to protect village land and provide a platform for village participation in land governance, new problems have arose that still need attention.

4.1.4 Case Study: Community Forest in a Kachin Village⁸³

In a Kachin village, which will not be identified due to security reasons, 1,400 acres of community forest were established within the village territory in 2007. Originally the land used for the community forest operated under collective customary rules and regulations, but due to some degree of community breakdown, the land operated more as an open-access commons, without any direct state control or tax. The village put together a community forestry user group, who then applied to the district Forestry Department for establishing a community forest.

Swidden cultivation, or *taungya*, was carried out on the nearby forest hill before it became a community forest. But now that the community has an official community forest permit from the Forest Department, they plant mostly hardwood trees, with intercropping of annual crops for the first few years of tree establishment. Once they can no longer do any intercropping, the villagers say they will go to a different plot of land in their village territory to grow food crops (there is no shortage of land in the village).

The species of trees that they planted include teak, *yeminay*, *pyinkado* (ironwood), *taungdama*, etc., mostly for timber but also a few that can be used for firewood. Some of the tree seedlings they get from the forest ('wildlings'), some from the Forest Department (teak and *pyinkado*), and some grow in their own tree seedling nursery located along the nearby river.

They are worried about food security because much of their labor is now occupied with maintaining the community forest, such as weeding. According to the community forestry user group, they have experienced many worrying problems as a result of their community forest:

1. Time and energy is spent growing trees, not crops (time competition).
2. They have to use their own money to buy some of the tree seedlings (those not provided by the Forest Department). For those species they are not growing themselves and the Forest Department does not provide, they buy them from a nearby village who grows them. This is putting a financial burden on households.
3. There is now not enough food to support households. The year that the community forest was established the UN's World Food Program had to give food handouts to the village.

The community forestry user group summarizes these trade-offs: "We started to have a rice shortage problem since last year when we started the community forest. We expect to continue to have rice shortages in the future. This is directly because of the community forest, because now we do not have enough labor to do *taungya*. Since adopting the community forest practices we do not have enough labor for *taungya*, because we have to manage trees and less crops can now be planted because now we have to share space with trees."

Despite these problems arising from the community forest, the village still insists on its value because they want to protect their territory from confiscation from encroaching private companies in search of land for agricultural development. They are using community forestry as a legal mechanism to protect their land. Soon after the allocation of the community forest, the government allocated a 10,000 acre rubber and teak plantation to a Burmese company that is located within the village territory. Since the community had already applied for their CF, that land was not included in the concession area – it is now surrounded by the concession. The villagers see their community forest activism as successful in keeping some village land under the control of villagers in the face of agribusiness.

4.2 Land Laws and Policies

4.2.1 Ministry of Agriculture and Irrigation (MoAI)

In 1992 the agriculture and forestry sectors institutionally split, creating a separate ministry for each. The Ministry of Agriculture and Irrigation (MoAI) comprises 13 departments. One of the most important departments is the Settlement and Land Records Department (SLRD), which is responsible for surveying and mapping the land, providing land use certificates, and facilitating land concessions. The other important department is the Department of Agricultural Planning (DAP), who is responsible for making sure productivity orders from

the central government are fulfilled on the ground. Also of significance is the Burma Perennial Crops Enterprise (MPCE), which is responsible for sugarcane and perennial crops, such as rubber and palm oil.

The General Assembly (GA), under the Ministry of Home Affairs, is the highest level of authority in the district that collects land revenue as assessed by the SLRD. The *Land Management Committee* (LMC) is a crucial agency for government land management in Burma, from the village up to the central level. The Central LMC is headed by the Minister of the MoAI, with other members including MoF, the Secretary of the SLRD, and DGs from relevant departments within these ministries. However, it appears that military officials have sufficiently penetrated the LMC which has lent towards corruption and serving the interests of influential people.

During the past decade the MoAI has gained in prominence as the ministry with jurisdiction over huge land areas of the country, and indeed the water that irrigates it. The market liberalization policies Burma began in 1988 seems to be benefiting MoAI much more than MoF as now private agricultural concessions can be granted to well-placed agribusinessmen.

4.2.2 Customary Land Rights

Both statutory (national state laws) and customary laws (local, traditional, non-state social systems) are followed in Burma, sometimes simultaneously in the same place. Overall, it can be generalized that in the uplands of ethnic areas customary land practices prevail, and the lowlands follow statutory laws. However, there are of course many exceptions; for one the ethnic uplands have been terrorized by war and conflict for generations, which has led to fleeing, internally displaced persons, militarization and compromised traditional practices—all of which have weakened traditional social systems and their land management practices. The situation now is that customary land practices appear to be on the wane. In ceasefire areas the state is extending their control over land and populations, with their attendant land categories (e.g., forest and agriculture rather than agro-forestry systems). And in active war zones local ethnic populations are kept from practicing their traditional swidden cultivation due to the constant threat of warfare and fear.

Upland ethnic populations now find themselves stuck in the crossfire of the rough transition to an opening market capitalism where land is transferred from smallholder farmers to large private companies, both Burmese and foreign. As previously customary laws were honored and the state had not reached the uplands in most ethnic states, most households in the rural uplands do not have any land registration titles. During the British colonial times a few formalized customary rules were enacted and in some small ways recognized for certain areas of the uplands of northern and western Burma. For example, the *Kachin Hills Manual* (specifically Chapters 3 and 7) respected customary authority of Kachin headmen, and for the Chin specific laws were created to address their customs, called the *Chin Hills Regulation 1896*, and the *Chin Special Division (Extension of Laws) Act, 1948*.

The SPDC does not legally honor customary rights and laws, with inadequate provisions in the new constitution to uphold customary traditions. In practice, however, there is a messy informal overlap between customary and statutory laws and practices, where SLRD officers

record customary agricultural land plots for their surveys and maps, but at the same time is not honored when desired by an influential developer backed by the state. It is this grey area with respect to the customary-statutory spectrum that causes land tenure insecurity for millions of farmers in Burma, especially in the ethnic uplands.

Land tenure remains very weak in Burma, especially in the uplands where customary practices are still often followed instead of statutory law.⁸⁴ A fundamental problem is that no law formally recognizes traditional upland land use. This means that if a farmer wants to practice customary shifting cultivation, then that practice will not be formally recognized by the government, and thus there is no way to legally protect this traditional land management practice. The Community Forestry Instructions, while a good opportunity, are often not implemented as a traditional land management strategy and thus change the way local people use, access and manage land. They are jointly managed with the Forestry Department and often promote growing timber rather than food.

4.2.3 Statutory Land Laws

The *Land Acquisition Act*, which is still in effect today, legally gives the government the right to take over any land, but with compensation to its original owners. The 1953 *Land Nationalization Act* and the 1963 *Tenancy Law* gave legal power to the state to seize all land (and therefore all land owned by the state, as is still the case today) and redistribute according to socialist principles. Legal practice in Burma today generally reverts to the 1953 *Land Nationalization Act*, which recognizes some private ownership of agricultural land (section 38), although it restricts sale or transfer (sections 9-12). However, in sections 9-12, the same Act provides for the State to confiscate fallow land (also a type of ‘absentee ownership’), a major problem for smallholder farmers and companies alike. The law does not permit outright private ownership of land, and so all land must be leased from the state, as is still the situation. In practice, however, the land is either allocated by the customary owner to a relative or to a paying farmer. These post-colonial laws rely upon colonial traditions where rights to land remain contingent on the land being continuously used in a ‘productive’ way or else the state has the right to confiscate it (unless a ‘fallow tax’ is paid by more wealthy farmers) and put it to more efficient use – a situation we see today with large-scale concessions granted to the private sector. This is in spite of the still active *1963 Law Safeguarding Peasant Rights* which forbids farmer’s land being confiscated, harking back to the socialist era which advocated for peasant rights to land.

In 1988 after the infamous protests and the breakdown of the socialist economy, the SLORC (the name of the government at that time) began to open up the economy in such a way we could call it a “military command economy” where the emerging private sector could begin to operate but only favored companies in good relation with the military leaders, and under their careful conscription. Following this new trend, SLORC enacted the *Prescribing Duties and Rights of the Central Committee for the Management of Cultivable Land, Fallow Land and Waste Land, 1991* (or *Management of Cultivable Land, Fallow Land and Waste Land*, or more simply the *Wastelands Law*). This law sought to encourage the development of so-called ‘wastelands’, or basically land with no land title, through enlisting the private sector.^{xix} To oversee the implementation of this law the government formed the *Central*

^{xix} Registering to cultivate “virgin land” is the same process as for ‘wasteland’. But “virgin land” is controlled

Committee for the Management of Cultivable Land, Fallow Land and Waste Land the same year (herein called the Land Management Committee, or LMC). The duties of this central committee is to systematically scrutinize all applications submitted to grant the right to cultivate wasteland and fallow land by state-owned economic enterprises, joint ventures, and corporations and private individuals for commercial reasons.

The LMC may assign private agricultural blocks of up to 5,000 acres for selected perennial industrial crops such as sugar cane, oil palm and rubber, and 1,000 to a maximum of 3,000 acres for orchard crops. If this land is developed, more land can be granted, up to a possible 50,000 acres with a maximum lease period of 30 years. The company must, within 4 to 5 years from the date of being granted the land, fully cultivate the whole area of their land concession, or else it can be taken back by the government (although this has never been reported). Also part of the contract is exemptions from taxes for a determined period of time. The private entity is granted permission to export a certain percentage of the harvest (up to 50 percent), with the rest to be sold on the domestic market. Non-citizens may apply for land for agricultural investment, as approved by the Burma Investment Commission (BIC), although this is very rare as taxes and other fees are exceedingly high with a difficult and long bureaucratic process. Instead foreign companies work with Burmese companies, either as a formal joint-venture agreement, or more commonly, informally to get the most preferential tax breaks and ease with which to invest. The *Transfer of Immoveable Property Restriction Law 2005* made the allocation of land to a foreign entity illegal, but this is now no longer the case as the government only very recently began encouraging foreigners to invest in land development by leasing a 100% foreign-owned land concession.

In the lowlands farmers often rely on informal social systems to secure continued land use and access; however more well-placed farmers (with usually higher incomes and connections to authorities) are able to apply for land use certificates which increase land tenure security – although it certainly does not guarantee against land confiscation. The first registration form is a '105', which acts as 'non-permanent holding register' with the SLRD. After several years (officially three) of continual cultivation on that plot of land (no fallowing allowed), and pending relationships with the SLRD officials, the household can obtain a '106' land registration permit with a 'permanent holding register'. Some NGOs in Burma are facilitating households to obtain these land use certificates, although the impact is very low, it is a time-consuming and expensive process, and still does not guarantee against land threats, such as confiscation by businesses and the military.

Processes such as these and the policies that support them discourage traditional upland farming practices (*taungya*) which keep soil fertile. Other practices which don't allow land to fallow affect soil fertility and therefore require chemical fertilizers which are damaging to communities and the environment.

As part of the land allocation process to private companies agricultural concessions are issued without any further land survey or an environmental impact assessment (EIA), as no such laws are in place. Although the authorities coerce the companies to boost

by MoF, not MoAI, so the process not only involves SLRD, but also MoF who are often not happy with cultivation of this land as they then lose jurisdiction over this land, not to mention usually a negative impact on ecological integrity which the MoF remains more concerned about compared to MoAI.

productivity in the concessions, oftentimes the allocated land is not fully utilized due to its sheer huge size, or in many other instances the company leaves after logging the forestland and selling the wood on the black market. The existing land allocation rules, as regulated by the LMC, do *not* specify *against* allocating small land plots to small-scale farmers; however no wasteland has yet been allocated to smallholder farmers as a lever of rural livelihood development or more radical land redistribution efforts, despite some claims as such. The justification by the government for not doing so is that neither smallholders nor the landless have access to capital for developing the land.⁸⁵ The reasons farmers, especially small-scale farming households (under 10 acres) do not have access to capital is because households cannot use their land as collateral for loans. Without proper rural credit available to farmers throughout the country, the collapse of the national banking system, and a government suspicious about micro-credit financing, farming households are often left no option but to take out very high interest rate loans (up to 20 percent) by local money lenders. While it is actually illegal for land to be forfeited for failure of loan repayment, in actual fact landlessness soars in Burma due to farmers losing land to the vicious cycle of debt.

4.2.4 Case Study: Yuzana Concession in Hugawng Valley

Yuzana Company, owned by U Htay Myint, was granted a 200,000 acre agricultural concession in Hugawng Valley bordering and within the Hugawng Valley Tiger Reserve in western Kachin State in 2006.^{xx} Yuzana made an agreement with the then Northern Regional Commander Maj. Gen. Ohn Myint on the concession area, and then the township SLRD was brought into the negotiations. The Forest Department was excluded. The land that the SLRD demarcated to Yuzana was inclusive of both villager's customary farming and village land (even though some of the land was registered and marked on SLRD maps) as well as the Hugawng Valley Tiger Reserve. The concession land includes forest, wetland, and flooded land, as well as villager's paddy farms. The Forest Department made Yuzana keep a 10 km forested corridor for tigers to potentially pass through the valley from one mountain to the next.

Reportedly nearly 14 villages are included within the concession area, with an estimated 5,000 villagers alone in just one part of Yuzana's concession.⁸⁶ The country's largest private land concession has attracted growing discontent from forcibly relocated villagers. Yuzana has planted tens of thousands of acres of cassava for the Chinese biofuel market, while sugarcane is of less interest at this time due to a lower market price compared to cassava. However Yuzana has a sugarcane seed bank to prepare for commercial planting in their concession beginning in 2011. The company has constructed processing plants, storage facilities, dormitories for laborers, warehouses, etc.

Yuzana is not using local labor but rather Burman labor from Central Burma and Nargis-affected villages in the Irrawaddy Delta. However, after a few months laborers often leave for gold mining where they could make more money, so Yuzana is trying to use a smaller number of laborers through the use of large tractors and harvesting machines from Thailand. Subsequently, Yuzana has hired Thai drivers to operate the vehicles.

When tension was building between the government and the Kachin Independence

^{xx} Different media sources quote various sizes of the concession, most often 200,000 acres but sometimes also 300,000 acres, and a few even cite 400,000 acres.

Organization (KIO) leading up to the national elections, Yuzana allegedly armed about 800 Yuzana employees, many of whom are former soldiers in the Burma Army, with military training provided by Infantry Battalion 297 in Jahtuzup village. Private security hired by Yuzana and Burma Army soldiers guard the factory zone, while about 200 soldiers from Infantry Battalion 297 in Jahtuzup village patrol the middle concession area.⁸⁷

Much of Yuzana's concession is forest land, where technically the FD has jurisdiction over the trees, although Yuzana has user rights to the land according to their lease. Local villagers report that Yuzana is selling high-value timber within the concession, presumably on the black market, and that only the non-valuable species are burned or hauled away for villagers to use as firewood. According to one report, in June 2009, almost 50 trucks of hardwood logs per day were seen leaving the valley to Mogaung train station. The clear-cut logging within Yuzana's concession is destroying the tiger habitat and one of the world's most valuable lowland rainforests and wetlands. In particular, the no. 1 Tiger Conservation Camp near Nawng Mi village has been logged.⁸⁸

The land confiscation and transformation in Hugawng Valley has not been without coercion and villager's backlash. The Hugawng Valley Development and Agricultural Planning Committee (HVDAPC), composed of 19 representatives from five different villages and over 800 farmers, signed a petition letter in 2007 sent it to Senior General Than Shwe over the impact of the Yuzana concession on their lives and livelihoods and their lack of adequate compensation.⁸⁹ Despite their grassroots organizing efforts, by February 2010 over 150 households out of about 1,000 households in a total of 6 villages (Warazup, Nansai, Bankawk, La Ja Pa, Awngra and Jahtuzup) were forced off their lands and relocated to a Yuzana 'model village' with poor farming land without fishing grounds.⁹⁰ One NGO has so far documented 3,600 acres of land confiscated in 11 villages.⁹¹ Many of them were coerced into taking compensation funds, although some resisted as they found it inadequate.

The situation escalated when in July 2010 a group of the aggrieved farmers filed a lawsuit on behalf of all the farmers whose land was taken against Yuzana due to their grievances. Farmers rejected Yuzana's offer of payments of 80,000 Kyat (\$80) per acre (300,000 Kyat per acre is claimed to be a more accurate value) to a maximum of 500 evicted farmers if they dropped the case, and pushed ahead in the Kachin State court.⁹² A few hundred villagers have been pursuing an International Labor Organization (ILO) investigation in parallel⁹³ – although it has borne little fruit yet. In October, however, the court cleared Htay Myint from any wrong doing and instead placed Pu Kyi, Htay Myint's brother, as responsible.⁹⁴

At this time, Ms. Bawk Ja, the appointed leader of the farmers bringing suit in the court case, decided to take her fight into the national political spotlight by contesting the November national elections as a candidate from the National Democratic Force (NDF) in Hpakan Township. She thought contesting the elections would give her added protection as she continued her fight in the courts. Her opposing candidate was Maj. Gen. Ohn Myint, the former northern military commander with deep business relations in the contested mining township.⁹⁵ After the 'pre-cast votes' were counted, she lost.

In early January 2011 the Myitkyina court ordered Htay Myint to pay 80,000 Kyat per acre of paddy and 150,000 Kyat per house confiscated, although only some farmers were eligible

to receive compensation.⁹⁶ This is the same amount originally offered to the villagers. After elections Ms. Bawk Ja went into hiding for protection after many authority figures tried to apprehend her for questioning and arrest.⁹⁷ Additional reported Yuzana company abuses in the area include rape.⁹⁸



Figure 2 Yuzana company bulldozing land for a cassava mono plantation, Hugawng valley tiger reserve. KONG, 2010.

4.3 Economic development and natural resources in Burma

4.3.1 Political Economy of Land Development

Since the early 1990s the Burmese generals have slowly dismantled the socialist apparatus to rebuild a partially capitalist market economy, but with a lingering socialist ideology, laws and policies. Article (35) of the 2008 Constitution states that, “The economic system of the Union is a market economy system.” Sean Turnell, an economist focused on Burma, notes that Burma lacks basic market institutions such as the rule of law and sound property rights, and operates according to a set of parallel rules of informal economy set by the state and economic elites such as “arbitrary procedures for dispute settlement, nepotistic patron-client relationships between the military, state and business and extra legal allocations of natural resource concessions”.⁹⁹ The result has been neither reaping the proposed equity of socialism nor the economic lifeline of capitalism; instead a rather disastrous collusion of the two political economic systems has left farmers and urban poor highly vulnerable to some sectors operating in the market economy but without adequate laws and policies to protect them.

For example, the state still owns all land and resources in the country, with most villagers having no formal land title for their customary agricultural land. New policies have been passed, however, allocating land concessions to private entities which do not respect customary land or informal land holdings. The result is an increasing number of land plots and greater acreage falling under the control of companies at the expense of smallholder farmers, who have no legal recourse to hold onto their land against encroaching businessmen (see section 4.2). This 'neither-socialism-nor-capitalism' scenario in Burma is especially dangerous due to the political climate in the country as well as the absence of any safeguards to protect farmers from the onslaught of capitalism or mechanisms to help them benefit. Conditions are now in place for repeating history in the mid-1900s with peasants defaulting on their loans and subsequently losing their land to Indian Chettiars – which led to social upheaval and eventually triggered Burma's experiment with authoritarian socialism.

Various laws and policies have been enacted and implemented in the 1990s and 2000s which have led to the private sector, both domestic and international, to engage in the resource extraction sectors, including most recently large-scale agricultural land concessions (see section 4.2 on land and agricultural laws/policies for more information on the different laws and policies which have ushered in the involvement of private investment in Burma). It seems that the recent spate of semi-privatization is a strategy by the military generals to still generate a means of economic and political support and influence in a post-election Burma, as private concessions are all allotted to regime-favored Burmese companies in a completely non-transparent nor 'free-and-fair' manner.

Burmese Agribusiness Companies

Overall two different political-economic trajectories are taking place in Burma: emerging opportunities for Burmese businessmen to invest in land and resources in Burma; and secondly, bilateral resource extraction agreements with the Burmese leaders and foreign governments and corporations. Both scenarios are beginning to converge into a situation of much higher flows of domestic and transnational finance capital into various resource sectors, including land as a valuable asset. While of course the massive foreign resource extraction concessions, such as in oil, gas and hydropower, should continue to receive careful attention and scrutiny, domestic processes supporting private investment, especially land as a valuable resource in itself, is highly important yet relatively unstudied. Since 2008 after Cyclone Nargis the generals, lobbied by the Burmese private sector, appear to be changing their approach to how land and resources should be used and managed by Burmese private companies. It is suspected the post-election government will latch onto economic growth to bolster its domestic and international legitimacy and popularity.

Agribusiness in Burma is perhaps the newest form of private-public partnerships in the country. The rural population that engages primarily in agriculture is 70-80% of the country's total population, with the agricultural sector accounting for about 35 percent of the country's GDP.¹⁰⁰ Many factors have helped form such an agribusiness environment, such as post-Nargis agricultural aid and recovery, new limited government loans to Burmese companies to engage in large-scale agricultural production, a desire for Burmese companies to advance modern agricultural techniques to increase yield (and therefore profit), and the central government's recent declaration of Burma being a "food surplus country" with new priority on exporting agricultural commodities.

Nearly all agricultural concessions in the country are run by Burmese companies. There are very few 100 percent foreign-owned agricultural operations functioning in Burma due to very high taxes and an extremely restrictive business environment. However, it is suspected that many of them have foreign investment backing, depending on the size of the concession, its location, and the crop being planted (e.g., mainland Chinese for rubber in the north, Malaysian Chinese for oil palm in Tennasserim, etc.). With the generals' recent push for increased agricultural commodity export, 30-40 favored Burmese companies were selected to help realize this new policy directive, which resulted in large-scale agricultural concessions being allocated to them. By 2010 a total of 1.7 million acres had been reported as allocated to 216 companies in eleven states and divisions. While nearly half of the total acreage allocated was in Tennasserim (in support of oil palm plantation development, mostly capitalized by U Htay Myint's Yuzana Company), the next highest amount of acreage allotted by states and divisions was Kachin State at nearly 400,000 acres (1/2 of which is Yuzana's sugarcane concession in Hugawng Valley Tiger Reserve).¹⁰¹

However, these concessions are located in marginal lands and with no support from the government. Much of the land is often not developed by the company for its specified agricultural production, and oftentimes when the company establishes the plantation, yields are considerably low. As a result, these same Burmese companies are now engaging in contract farming so to compensate for the lack of return from their large concessions that required massive financial investments, since they obtained agricultural commodity export quotas along with their concessions. The company provides the inputs (loans for chemicals and seeds) while the farmer provides the land and labor. The businessmen can then export the agricultural produce purchased from farmers, which is how they can compensate for their financial loss in developing their awarded concession. Another contract farming arrangement that is emerging is farmers working on the company's concession, in exchange for rent – but this offers very little benefit to farmers at the expense of the new landlord.

These new dynamics in the country's agricultural sector are making big changes in the way that agricultural land and the rural labor force is used and managed. This represents a trend of further marginalization of farmers from working their land towards being wage laborers for large and powerful Burmese companies.

The way agricultural land development is unfolding in the northern ethnic states of the country (Kachin and Shan States) is very different than in Burman areas in the Central Dry Zone, delta regions, and Tenasserim Division. In Kachin and Shan States, there is very little activity by these well-placed Burmese companies based in Rangoon. It is mostly conducted by Chinese businessmen and investors, often times behind a local Chinese-Burmese businessman, mostly based in Myitkyina and Lashio. The military authorities in the area, especially regional military commanders, play an important role in administering contracts for larger land concessions. In areas controlled by ethnic political groups, then the Chinese businessmen must work through higher levels of those ethnic political parties. Nearly all Chinese agribusiness investment in Kachin and Shan States is subsidized by China's national opium crop substitution policy.¹⁰²

In 2006 the Chinese government increased financial incentives to encourage Chinese businesses investing in opium substitution development in northern Burma and Laos. This

includes state-backed subsidies for Chinese businessmen investing in agricultural plantations in northern Burma, including tariff-free import quotas. The Myanmar government includes in their annual statistics a category for 'Annual and Perennial Crops Substituting for Opium Poppy in Border Area', the only indicator issued by the government on acreage sown by opium crop substitution projects. For annual crops, a total of over 1.5 million acres were sown by 2006-07. Perennial crops have been projected to reach over 600,000 acres in 2007-8, over 50 percent markup from the year before with nearly 400,000 acres, which was over 110 percent increase from the year prior.¹⁰³ As can be seen, the dramatic and continual increase in area planted does indeed coincide with China's opium crop substitution policy being redesigned in 2006 with further state support and brought to northern Myanmar by Chinese businessmen.

Whether in the northern ethnic areas, the Central Dry Zone, the delta region, or the far south, farmers in Burma are losing their land, livelihoods and dignity. Even government data illustrates the trends that smallholder farmers' land is getting smaller and fewer in number, while very large landholdings are growing exponentially. While the Burmese government continues to support favored Burmese companies to engage in the regime's various agricultural schemes, no policies have been enacted to support smallholder farmers in Burma. Furthermore, no laws or policies exist to deal with the increasing occurrence of farmers being evicted from their subsistence land to make way for private land concessions.

Foreign Direct Investment

A host of agreements have been signed with foreign governments and corporations on resource extraction projects, especially in the oil and gas, hydropower and mining sectors, as later outlined in this report. In particular, Chinese investment in various sectors has soared in the last decade, with 2010 witnessing unprecedented economic cooperation between Burma and China. During recent visits by three of the nine members of the Politburo Standing Committee, the respective leaders signed 35 economic agreements. And when Senior General Than Shwe visited Beijing in September 2010, he reputedly wanted to learn about China's economic reform.¹⁰⁴

Although skewed by massive resource extraction projects recently signed, the amount of Chinese investment between just April and August 2010 represented two thirds of China's total investment in the country in the past two decades. Chinese companies have invested \$8.2 billion USD in the resource sector in March 2010 alone, including \$5 billion in hydropower, \$2.15 billion in oil/gas sector, and nearly \$1 billion in mining.¹⁰⁵ This investment is part of a Chinese government 30-year interest-free loan in September 2010 amounting to 30 billion Yuan (\$4.2 billion USD) to Burma for economic development to help fund hydropower projects, road construction, railway development and information technology development.¹⁰⁶ Not only high-profile agreements on resource extraction projects, but also border trade remains a very important facet to the two countries, with bilateral trade in the first four months of 2010 jumping over 75 percent, although this is due to increasing Chinese export goods into Burma.¹⁰⁷ Yunnan relies on Burma for three-fourths of its cross-border trade, amounting to just over 12 percent of its annual foreign trade. While Burma is Yunnan's largest export market, it is also the second-largest import market, especially relying on imported agricultural commodities, Burma's most significant export product.¹⁰⁸

Of course China is not the only investor in Burma, although certainly the most highly profiled, and will certainly be the number one foreign investor after some of its recent investments in oil, gas and hydropower go online. Korea and Thailand, among other countries, also provide ample FDI in Burma from their massive resource extraction projects (see more in section 4.3.2).

These figures however give an incomplete understanding of the degree to which foreign government officials and companies are involved in resource extraction contracts. None of this data records informal business deals, illegal imports and exports (not through government-controlled check points), nor investment in areas controlled by ethnic political groups with armed wings, such as United Wa State Party (UWSP) and Kachin Independence Organization (KIO). Due to greater restrictions and very high taxes, companies obtain land concessions by informally supporting a Burmese company, which is then not earmarked as foreign investment.

4.3.2 Economic development, conflict and natural resources in ethnic areas

Control over natural resources is a major cause of conflict in ethnic areas in Burma. For example, in eastern Burma there has been increased militarization and widespread displacement where there are plans, backed by Thai and Chinese investors, to build a series of dams on the Salween (*Thanlwin* in Burmese) River. For example, in June 2009 an offensive in Karen State close to the Hatgyi dam site on the Salween River drove over 3,000 Karen refugees into Thailand.¹⁰⁹ Observers linked the offensive to the need for the State Peace and Development Council (SPDC) and the Democratic Karen Buddhist Army (DKBA) to gain territorial control of the areas around the dam site.

Armed conflict over natural resources likely will continue given these trends. The majority of Burma's remaining valuable natural resources are located in areas where ethnic ceasefire and non-ceasefire groups operate. Foreign direct investment in Burma is concentrated in energy and extractive industries¹¹⁰ and recently there has been a heightened interest from countries in the region for more investment opportunities. Given the lack of sound economic policy and social and environmental regulations, an increase in foreign investment could have a major negative impact on the environment and communities living in these areas. Planned oil and gas pipelines backed by China through Arakan State, Magway Division, Mandalay Division, and Shan State have already resulted in increased militarization and displacement of communities along the pipeline area.^{111 112 113} The projects, currently under construction, risk contributing to armed conflict in Shan State and destabilizing economic and regional security. The proposed path of the pipelines in the contested territories of Northern Shan State is set to traverse areas occupied by the Kachin Independence Army's (KIA) 4th Brigade, the Kachin Defense Army (KDA), and the Shan State Army-North (SSA-N) 1st Brigade.¹¹⁴ There are already reports of fighting¹¹⁴ between the Shan State Army-North 1st Brigade and the Burma Army in the vicinity of the pipeline route.¹¹⁵

This mirrors the development model imposed during the construction of the notorious Yadana and Yetagun gas pipelines in Tenneserim Division.¹¹⁶ The pipelines were constructed in the 1990s by French, American, Thai, Malaysian, and Japanese oil companies in partnership with the Myanmar Oil and Gas Enterprise (MOGE) and the Burma Army through areas

traditionally controlled by ethnic Karen and Mon armed groups – the KNLA and MNLA, respectively. To make way for the pipelines, the Burma Army confiscated land and committed forced labor, torture, and killings while acting as security forces for the oil firms. Many of these abuses continue today by battalions providing security for the oil companies and the pipelines.^{117 118} In 1995-1996, there were at least three attacks in the Yadana pipeline area by the KNLA, two of which targeted the pipeline specifically. The Burma Army responded by inflicting violence on innocent villagers and executing a village headman and eleven other civilians.¹¹⁹ Since then, numerous killings in the area have been documented.¹²⁰

Burma has recently increased bilateral economic investment in energy projects with other countries – most significantly China, India and Thailand – on projects in ethnic areas. Other ASEAN countries including Malaysia and Singapore, and the Republic of Korea are also key counterparts (for more information see section 5 of this report).

Pre- and post-election political developments did not ease tensions between ethnic ceasefire and non-ceasefire groups and the government. Leading up to the elections the government applied heavy pressure on ethnic cease-fire groups to transform into border guard forces (BGF) as well as blocking certain ethnic political parties from entering the election. The government also subdued ethnic political parties by disenfranchising residents in 300 villages in several townships in Kachin, Karenni, Mon and Shan States and four townships in the Wa's self administered division.^{121 122} Furthermore, armed groups have begun to reorganize. In September 2010 ethnic armed groups from Kachin, Shan, Mon, Chin, Karenni and Karen areas agreed to provide military assistance to each other if needed. Indeed, fighting broke out between the SPDC armed forces and DKBA Brigade 5 – a breakaway faction of the DKBA that refused to transform into a BGF - in Myawaddy and Three Pagodas Pass in the wake of the elections in early November 2010, forcing thousands to flee across the border into Thailand. Approximately 30,000 refugees have fled across the border into Thailand since the elections, including hundreds from directly upstream of the dam site (for more information see section 5.1).^{123 124 125 126 127}

While indicators point to a likelihood of increased conflict in ethnic areas (even war as ceasefire deals fall apart from some groups), there is also a possibility of decreased violence due to economic motivations. Investment could result in lessening conflict as local deals are made between businesspeople, the government and local ethnic leaders. In the ceasefire agreements of the early 1990s, the military regime commonly offered co-operative arrangements to ethnic leaders to exploit natural resources if they agreed to a cease-fire. However, while more ceasefire deals may dampen overt violence, as can be seen from previous ceasefires that violence is transformed into new types of conflict, such as through social upheaval, increased drug use, migration, land confiscation, etc.

Regional politics could also play a role in subduing conflict. China has made border stability a top priority in its engagement with Burma and border ethnic groups, especially with the United Wa State Army (UWSA), Kachin Independence Army (KIA), and National Democratic Alliance Army (NDAA), demonstrating its concern that threats to border stability would threaten its strategic and growing economic interests.^{xxi}

^{xxi} Border stability was a priority during two high level visits to Burma in 2009 and 2010, and again during Than Shwe's visit to Beijing in September 2010. China also facilitated a series of 13 negotiations between the

4.3.3 The Role of International Financial Institutions in Burma

Burma currently has a substantial foreign debt to multilateral lenders, most of it which is formally in arrears^{xxii}. Burma started borrowing from the World Bank in 1956, but there has been no World Bank loan since July 1987. The outstanding loans to the World Bank's International Development Association total \$719 million USD.¹²⁸ Since 1998, Burma has been in "non-accrual status" with the World Bank, meaning that the overdue debt must be cleared before there can be any new lending. Similarly, since Burma became a member of the Asian Development Bank (ADB) in 1973 it received loans totaling \$530 million USD, while the country owes the ADB \$325 million USD. While not receiving any direct development financing from international financial institutions (IFIs), Burma receives assistance through a number of avenues. The International Monetary Fund conducts "Article IV consultations" which review a range of economic policies of its member countries. Staff from the World Bank and ADB have joined the consultations in the past. The last consultation was held in January 2011.^{129 130}

The ADB has not provided any loans to Burma since 1986-87. However, the ADB has provided and continues to provide other kinds of assistance through several channels. The first is the Greater Mekong Subregion (GMS) economic cooperation program^{xxiii} in which the ADB plays a facilitating and supporting role in mobilizing private sector investment. The purpose of the program is to facilitate regional growth and development. The ADB funds Burma's participation in GMS-related activities and projects through their Regional Technical Assistance Grants (RETA).^{xxiv}

In 2009 the ADB released a discussion draft energy strategy for the Greater Mekong Subregion entitled 'Building a Sustainable Future: The Greater Mekong Subregion'.¹³¹ The study concludes that energy integration for all forms of energy including gas is the least cost solution to meeting energy demand in the region. This is the first GMS energy strategy to include natural gas. As a major source of gas in the region, Burma is included in the model. Current bilateral trade with Thailand is mentioned and the study outlines in detail the controversial Shwe gas project, which is documented to have already resulted in human rights abuses (see section 5.2).

An assessment of biofuels in Burma, supported by the ADB's GMS, promotes the development of a long-term biofuel strategy with a focus on *Jatropha*. A report entitled "Status and potential for the development of biofuels and rural renewable energy Myanmar" was developed as part of the Strategic Framework for Biofuel Development in the Greater Mekong Subregion which promotes bio-fuels as a solution to energy deficiency in the GMS.

Kachin Independence Organization (KIO) and the government between April 2009 and April 2010, encouraging dialogue and restraint. International Crisis Group, "China's Myanmar Strategy: Elections, Ethnic Politics and Economics", Update Briefing, Asia Briefing No 112, Beijing/Jakarta/Brussels, 21 September 2010.

^{xxii} An arrears is a debt which remains unpaid.

^{xxiii} The GMS program comprises Cambodia, the People's Republic of China, Lao People's Democratic Republic, Myanmar, Thailand, and Viet Nam. For more information visit: <http://www.adb.org/gms/>

^{xxiv} From 1 January 1968 to 31 December 2009, consultants were involved in 20,087 contracts for ADB TA projects worth \$2.52 billion. During the same period, consultants from Myanmar were involved in 23 contracts for ADB TA projects worth \$1.28 million. ADB, "ADB and Myanmar Fact Sheet", http://www.adb.org/Documents/Fact_Sheets/MYA.pdf, last accessed 7 November 2010.

(for more information, see section 5.5).

Another GMS initiative related to Burma is the 'East-West Economic Corridor' (EWEC) (or 'Asia Highway') which is a plan to establish a land route connecting the Indian Ocean and the South China Sea through Burma, Thailand, Laos, and Vietnam. According to the ADB, the main vision of the EWEC is to "create an economic corridor that will stimulate the type of economic growth that reduces poverty and raises the standards of living in the areas covered by the corridor."¹³² The original plan was to complete the main infrastructure components of the program by 2007. To date, the majority of infrastructure has been completed, but the ports in both Vietnam and Burma have yet to be finished. The road between Thingannyinaug and Myawaddy in Burma, which is part of the EWEC, is mostly complete except for a 40 kilometer stretch through a conflict area in Karen State, where there are ongoing human rights abuses.¹³³ The building of this stretch is controversial as it would provide increased access to the area for the Burmese military. Furthermore, the road bisects several protected areas in the northern part of the Western Forest Complex^{xxv} and construction would result in logging of teak forests, threaten wildlife and destroy rare and threatened tropical forest ecosystems.

As part of the EWEC, a border economic zone (BEZ) is slated to be established in Mae Sot in Thailand opposite Myawaddy in Karen State. An industrial and export processing zone also is to be set up in Moulmein (capital of Mon State). According to the ADB's East West Economic Corridor strategy action plan 2009, "the Industrial Estate Authority of Thailand (IEAT) has supported the creation of a 384 hectare industrial estate in Myawaddy. Two-thirds of that area would be designated as an export processing zone (EPZ), and electricity would be supplied from Mae So[t] since local sources are unreliable. In support of these efforts, a trade center is in the process of construction."¹³⁴ With many of the buildings complete, in July 2007 the Thai government was reconsidering the launching of a special economic zone between Mae Sot and Myawaddy, but recent conflict in Myawaddy will likely put a further delay on these plans.¹³⁵

The other GMS program that involves Burma is the GMS Mekong Power Grid, which is promoted under the 'Regional Power Interconnection and Power Trade Arrangements'. According to the plan, first proposed in 1994, a series of hydropower schemes in Laos, Burma, Cambodia and Yunnan Province, China, will export electricity to Thailand and Vietnam. A regional transmission grid will be built to connect these schemes. The total cost for transmission and generation is \$43 billion USD.^{136 137} International Rivers research shows that "so far the planning process has been poor with literally no participation by civil society groups, and little consideration of the impact of the dams on the environment or livelihoods. Both national and regional electricity planning processes to date have failed to meet international standards, such as the principles of Integrated Resource Planning. As a result, electricity demand, in particular in Thailand and Vietnam where much of the dams' electricity will be consumed, is over-estimated and the potential contribution that renewable and

^{xxv} The Western Forest Complex includes the Kayah-Karen Montane Rain Forests, which extend south into the Tenasserim (Tanintharyi) Division. The region contains mainland Southeast Asia's largest remaining tropical and sub-tropical moist broadleaf forests. To help protect these species, the World Wildlife Fund has added the Kayah-Karen Forests to its list of the planet's 200 most important eco-regions. <http://www.earthrights.org/publication/east-west-economic-corridor>

decentralized energy, energy efficiency and demand side management could make is not fully pursued".¹³⁸ The ADB supports the plan for regional integration of power by hosting regular regional meetings between governments, funding studies, and financing several transmission lines.¹³⁹ While, not directly funded by the ADB the master plan includes the Tasang dam in Shan state. The main investors are EGAT International and the Three Gorges Group Corporation (see section 5.1).

Besides the GMS, the ADB is involved in the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) which consists of Bangladesh, Bhutan, India, Burma, Nepal, Sri Lanka and Thailand. The extent of assistance from the ADB to Burma as part of this program is not clear.¹⁴⁰ However, Burma is currently the focal point for the energy and agriculture committees and the latest Ministerial Meeting of BIMSTEC was held in Naypidaw in January 2011.¹⁴¹

A regional economic co-operation strategy that the ADB helped design and support under the Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy (ACMECS) paved the way for a plan for Thai contract farmers to manage and cultivate more than 7 million hectares of land in Burma for sugarcane, oil palm, cassava, beans and rubber.¹⁴² A memorandum of understanding signed in December 2005, designated four areas in Karen and Mon States. The contract farms were all to be overseen by the state-run Thai National Economic and Social Development Board.¹⁴³ In 2006, 29 Thai investors were allowed under the original MoU to export their products to Thailand duty-free.¹⁴⁴ Agribusiness and the Thai government were the key drivers of the project, however in 2010 the Ministry of Agriculture told the Focus on the Global South^{xxvi} that contract farming in Burma was the least successful amongst the 3 neighboring countries because the Burmese government didn't want Thai traders to trade with ethnic groups along the border so did not facilitate the issuing of Certificate of Origin for them.¹⁴⁵ According to Focus on the Global South, investors were mostly small and medium traders that had already been doing trade across the border in Tak and Kanchanaburi. The 0 tariff benefitted them as did the legalization of the ongoing trade. The bulk of produce brought into Thailand from Burma during 2006-2008 under ACMECS were peanut, mungbean and sesame. Only one sugar company invested in growing sugarcane in about 6000 rai of land and that was the biggest agribusiness investor available in reports (in Thai), except for CP (corn growing, feedmills, livestock) which has been in Burma for almost 20 years.¹⁴⁶

As mentioned earlier, UNEP and the ADB commissioned the 2006 the Myanmar Environmental Performance Assessment was published as part of a broader program called the National Performance Assessment and Strategic Environment Framework of Greater Mekong Subregion (GMS). It provides some useful baseline data covering forest resources, biodiversity, land degradation, management of water resources, waste management, air pollution from mobile source and climate change.¹⁴⁷

More recently, both the ADB and World Bank gave support for relief and reconstruction after Cyclone Nargis through ASEAN. After the cyclone hit, ASEAN, the UN, and the Burmese government set up the Tripartite Core Group to co-ordinate needs assessments and receive

^{xxvi} Focus on the Global South is a program of progressive development policy research and practice that works on regional and global policy analysis, micro-macro linking and advocacy work www.focusweb.org

aid from donors. The ADB and World Bank sent a number of experts to provide technical assistance for the initial needs assessment of cyclone hit areas. Based on the resulting report ‘The Post-Nargis Joint Assessment’ (PONJA), the UN issued a call to the international donor community to make contributions of \$1 billion USD for recovery work in Burma over the next three years. The World Bank gave a grant of \$850,000 USD for “disaster assessment and recovery activities.”¹⁴⁸ Civil society groups based on the Thai-Burmese border raised concerns that while the PONJA report detailed the impact of the cyclone and resulting recovery needs in many sectors and cyclone-affected areas, it was not comprehensive or objective as the government limited the scope and assessment of the report.¹⁴⁹ In February 2009, the Tripartite Core Group published a follow-up report “Post-Nargis Response and Preparedness Plan,” which estimated \$691 million USD would be needed for “emergency relief and early recovery towards medium-term recovery.”^{150 151}

In December 2009, at the invitation of UNESCAP (United Nations Economic and Social Commission for Asia and the Pacific), former World Bank Chief Economist Joseph Stiglitz conducted a trip in Burma to advise on economic policy. The focus was on the rural economy and sustainable agricultural development. At the end of the trip he met with senior government officials, policy makers, development practitioners and scholars at ESCAPs Second Development Partnership Roundtable and Development Forum in Naypidaw. The four main recommendations were: examining credit policies and increasing farmers access to credit, social protection for farmers (including crop insurance and employment guarantees), moving from a labor intensive system to a more technology and knowledge based system (which requires education), and transparency in financial systems and allocating national revenue to where it is most needed.¹⁵² Stiglitz highlighted gas and hydropower and potential and actual revenue sources, and pointed out the need for well functioning institutions as critical to success.^{153 154} Critics pointed to the decades of economic mismanagement; lack of comprehensive planning; and the need for political and space and willingness for genuine economic reform before economic policy changes are made. Sean Turnell, Associate Professor in Economics at Macquarie University in Sydney pointed out that is impossible for the economy to be partially open to reform.¹⁵⁵ Furthermore, neoliberal economic reforms such as those which Stiglitz and the World Bank advocate are promoting unconditional private land rights which can be bought and sold on a land market, which have in other countries throughout the history of privatization hurt smallholder farmers.

5. THREATS TO ENVIRONMENT AND LIVELIHOODS

The majority of Burma’s income comes from selling off natural resources, including billions of dollars from gas and hydropower development. Investment comes from countries within the region— most significantly China, India and Thailand. Malaysia, Singapore, Japan, Vietnam and Korea are also key investors looking to increase investments after the elections. These resource extractive investments damage the environment and threaten local resource-based livelihoods, particularly in ethnic areas.

In 2010 Transparency International rated Burma alongside Afghanistan in second last place (only Somalia was regarded as worse) in its corruption perceptions index.¹⁵⁶ No laws exist in Burma that demand public participation or transparency in decision-making and financing

of public projects, protect farmers from large-scale investment that leads to land confiscation, require social and environmental impact assessments, provide labor regulations for workers on the projects, or allow farmer's associations or unions. Laws are used not to protect people's rights, but to serve the economic interests of the Burmese government primarily through extracting wealth.

There has been a continuing increase in militarization, large scale resource extraction and infrastructure development in Burma. These factors are causing widespread displacement and human rights abuses throughout ethnic areas. This is part of a systematic plan of Burma's government attempting to gain control over natural resource-rich ethnic areas to create wealth, and to consolidate its political power base.

Analysis of development in Burma should therefore also take into serious consideration the role of militarization connected to development, and the implications it has for both the surrounding land and populations contained therein. Securing resource-rich lands for large-scale resource extraction projects or infrastructure development increases Burmese military and police presence which has serious consequences for local populations. Oftentimes communities are implicated in forced labor and portering, forcibly relocated without compensation, loss of traditional farmlands and their livelihoods – without any employment or other economic benefits. Militarization is not only linked with so-called development projects, but also with conservation. As the case study with the Hugawng Valley Tiger Reserve clearly illustrates, declaring areas as conservation zones also leads to military securitization of the surrounding area and population. Both development and conservation result in the Burmese military-state controlling territory, introducing new governance regimes that restrict local populations' freedoms and wellbeing.

The market may open up further to foreign investment after the elections, but without any protections offered to those most vulnerable, there could be dire consequences for Burma's natural resources, environment and rural populations, particularly in ethnic ceasefire and non-ceasefire areas where the majority of natural resources remain. Recently there has been a heightened interest from neighboring countries to invest further in Burma. For example, in September 2010, the Chinese government agreed to give a 30-year interest-free loan of 30 billion Yuan (\$4.2 billion USD) to Burma for economic development to help fund hydropower projects, road construction, railway development and information technology development.¹⁵⁷ On November 2, 2010, 5 days before the elections in Burma, Thailand's largest construction company Italian-Thai Development was granted a long-term concession to build a deep-sea port in south-eastern Burma. The project includes an eight lane highway through a conflict area where the KNLA operates in Tennasserim Division, connecting to Kanchunaburi in eastern Thailand.¹⁵⁸ The project is part of the South-South economic corridor linking the proposed deep-sea port to Thailand and Malaysia. The contractor also plans for it to be a logistics and trading hub for the region, although finance has not yet been secured for the project.

India's bilateral relationship with Burma is escalating, with trade up 26% and reaching \$1.19 billion USD in 2010.¹⁵⁹ Ties between the two countries were tightened during a 5-day visit by Burma's military chief Senior General Than Shwe to meet officials in Delhi in July 2010. According to Burmese government sources, the visit was officially "religious in nature" but

also to discuss border security and sign agreements on economic co-operation.^{160 161} State owned Indian companies are currently investing in and planning to invest in a number of projects including the gas and hydropower sector, communications and technology and the Kaladan Multi-Modal Transport Project.^{xxvii}

5.1 Large Dams

Burma's largely rural population relies heavily on rivers and streams for their livelihoods and culture. These are now under serious threat from dam development. An estimated 48 hydropower projects are currently being planned, constructed or already exist in Burma on major rivers including the Salween/Thanlwin, Irrawaddy, Chindwin, and Sittaung, as well as their tributaries.^{162 xxviii} Based largely in border and ethnic regions, 25 of those projects involve mega dams, will cost more than an estimated US\$35 billion dollars¹⁶³, will produce an estimated 40,000 MW in total, and will bring in revenue estimated at US\$4 billion dollars annually. These hydropower dams are expected to export up to 90% of their combined generation to neighboring countries instead of supplying local populations who face serious ongoing energy shortages.¹⁶⁴ Mega-dams have already been built in several ethnic areas, such as the Lawpita Hydropower Project in Karenni State and Lower Paunglaung and Kengtawng dams in Shan state.^{165 166}

There is a rush amongst Burma's neighbors to build and operate hydropower projects. In the first seven months of the 2010 – 2011 fiscal year one third of total foreign investment in Burma went into the hydropower sector.¹⁶⁷ Corporations and governments from China, India, Thailand and Bangladesh have signed memoranda with the Burmese government. A contractor from Switzerland, Colenco Power Engineering has signed an agreement to provide consulting services for in-house engineering services on hydropower projects in Myanmar (including the Tamanthi Dam in Western Sagaing Division and the Upper Paunglaung dam in Shan state).^{168 169} There are still a number of projects that it is hard to obtain information on. Building dams inside Burma offers an opportunity to acquire cheap electricity for neighboring countries, while investors are not accountable for the negative economic, social and environmental impacts of the dam building. Investment revenue from the sale of electricity will continue to provide financial and political support to the Burmese government.¹⁷⁰ Many of the proposed dams are located in civil war zones in ethnic areas where there is increased militarization and villagers face widespread human rights violations including forced relocation and labor, and in some cases, torture, rape and execution.¹⁷¹

^{xxvii} The Indian government signed an agreement with the Burmese military government for the Kaladan Multi-Modal Transit Transport Project in April 2008. The project will connect the eastern Indian seaport of Kolkata with Sittwe port in Arakan State by sea; it will then link Sittwe (the capital of Arakan state) to the land-locked region of Mizoram in northeastern India via river and road. It is anticipated that the transport system will remain fully owned by the Burmese state, but be primarily used by Indian companies to increase trade in agricultural products with Southeast Asia and link the land-locked Mizoram region to the sea. Construction of the port at Sittwe has already begun and if the project proceeds as planned it will have extensive impact on local livelihoods, and extreme environmental damage. A perceived need for higher levels of security in areas surrounding the Kaladan Project, as well as at other locations designated for large development projects (hydropower and gas/oil) has resulted in a significant rise in the military presence in Western Burma and Arakan State in particular www.arakanrivers.net.

^{xxviii} While there are 25 dams documented by Burma Rivers Network (BRN) members in the BRN "Save Burma's Rivers" briefing available at <http://www.burmariversnetwork.org/resources/publications/13/499.html>, if all planned and constructed dams in Burma are counted, the number is much larger.

As a result of dam-building hundreds of thousands of people will be left without their land, homes and livelihoods, and become internally displaced or migrate to neighboring countries. Thousands have already been forcibly displaced without compensation from militarization.¹⁷²

The dams will have a serious impact on food security and health vulnerability. Refugees and migrant workers will struggle for their survival in neighboring countries. Internally displaced villagers will be forced to find land to farm and other sources of food in surrounding forests. The dams will also decrease food security through their negative impact on fisheries and river bank farms. There are concerns about health vulnerability in a country with one of the worst health systems in the world. Direct health concerns including increases in disease such as malaria, dengue and lymphatic filariasis (as dam reservoirs provide breeding grounds for mosquitoes) and toxic releases in dams which are close to mining sites.¹⁷³

Many of the dams in Burma threaten internationally-recognized biodiversity yet almost none of the sites have been assessed for environmental impacts, apart from a few as requested by foreign investors to merely rubberstamp the project. One study of the biodiversity of the Weigyi dam area on the Salween River documented 194 plant and 200 animal species, including 42 endangered species. The Myitsone Dam at the confluence of the Irrawaddy River in Kachin State will flood an area larger than Singapore in one of the world's hottest "hotspots" of biodiversity, displacing over 15,000 people. Dams located in biodiverse areas will flood rich lowland areas where hundreds of unique cultivated species could be lost forever.¹⁷⁴

5.1.1 Dam projects: A closer look

Irrawaddy Myitsone Dam

The planned Irrawaddy Myitsone dam project is located at the confluence of the Mali and N'Mai Rivers, which forms the start of the Irrawaddy River proper in Kachin State. The Myitsone will displace 15,000 people, mostly ethnic Kachin, and destroy Mali-N'Mai confluence, which the Kachin regard as their cultural heartland.¹⁷⁵ The dam is being constructed by China's state-owned China Power Investment Corporation (CPI) and Burma's Asia World Company. The dam will produce 6,000 MW of electricity. Six other dams are also planned to be built on the Mali and N'Mai Rivers.¹⁷⁶ Most of the electricity produced by the dam projects will be sold to China.

A series of bomb blasts happened near the Myitsone dam sites in April 2010.^{xxix} By 25 January 2011, 50 families surrounding the dam site had been forcibly relocated from their houses. Although more families are set to be forcibly relocated to make way for the dam, it is uncertain at this point what the final number will be.¹⁷⁷ Security for the project is being provided by the Burmese military and increased efforts are being made by the military to control the area.¹⁷⁸ Since the bombings there has been restricted movement in and around the dam site and it has been hard to obtain information. Following the opening ceremony

^{xxix} No-one claimed responsibility for the bombings, however a farmer viewed by many as a scapegoat was arrested. One hypothesis is that it was the work of the Kachin Independence Army (KIA), which took action as a part of their refusal to become a regime-led border guard force. Another hypothesis is that it could have been an act of the Burmese government to set up the KIA.

to build the dam held in December 2009, the capacity rating of the dam was increased from 3,600 MW to 6,000 MW.

It has been estimated that the dam will submerge about 766 square kilometers of old-growth rainforest situated in the Mizoram-Manipur-Kachin rainforest region, one of the world's rich biodiversity hotspots and focus areas for conservation.¹⁷⁹ As the estimation of submerged area was made before the massive capacity rating increase, total submerged area may be much greater now. The Central Irrawaddy River Basin is also a strategic staging and wintering destination for migratory waterfowl from Tibet and other regions north of the Himalayas. The dam will likely cause a decrease in both water quality and fish populations, possibly causing the extinction of birds found nowhere else on earth and putting greater stress on the critically endangered Irrawaddy dolphin.¹⁸⁰ The situation is further compounded by the reservoir discharge of accumulated mercury from gold mining operations in the area. Also, the dam will change nutrient flows to the Irrawaddy Delta, where 60 percent of Burma's rice is produced.¹⁸¹

Shweli River Dams

In Shan State, a MoU has been signed between a China and Burma to construct a three-tier dam cascade along the Shweli River. The Shweli 1 was completed in late 2008. The project is owned by a Chinese consortium that includes the Yunnan Machinery Equipment Import and Export Company Limited and a subsidiary of China Southern power Grid Corporation (CSG). The dam was built by China's Sinohydro Corporation. Hundreds of villagers were forced to labor for the project without payment and local women were forcibly married to the Burma Army troops that entered the area to secure the dam. Before the project's start, there were no restrictions on villager movement. However, new Burma army camps 'securing' the dam area have limited villager access to their farmlands and tea plantations. Villager access to electricity from the project is uncertain as is affordability to villagers if power becomes available. Two other dams are planned downstream. ¹⁸²

Salween River Dams

On Burma's section of the Salween River, seven dams are currently proposed, the Tasang, Kun Long, Nong Pa, Ywarthit, Hatgyi, Weigyi, and Dagwin. The proposed Salween dams are all located in conflict areas where military fighting still takes place. Dozens of villages will be directly impacted and/or relocated from the dam's floodplain. In addition, the Hatgyi and Ywarthit dams are located close to fault lines.¹⁸³ In a phenomenon known as River Induced Seismicity, it is also possible for dams to cause earthquakes.¹⁸⁴ Of the Salween Dams, the two most advanced are the Hatgyi in Karen state and the Tasang in Shan state. Both of these dams are in the Thai governments power development plan (PDP).

An MOU for the largest of the Salween Dams, the Tasang (7,110 MW) was signed in November 2010. Investment was increased from US \$6 Billion to US \$10 Billion. The main investors changed from MDX Thailand to EGAT International and Three Gorges Group Corporation.¹⁸⁵ The Tasang Dam will submerge 870 km² of land in Shan State. Between 1996 and 1998 decades of military conflict in the area gave way to the forced relocation of 60,000 people in the dam area and areas adjacent to the dam. An estimated 14,800 of those people

comprise the Keng Kam cultural group which the realization of the dam project threatens to wipe out. Ongoing rampant logging in the Tasang Dam project area and its surrounds to service Chinese and Thai hardwood markets further threaten the future of local ecologies and the people who depend on them.¹⁸⁶

In April 2010, an MOA was signed with the Burma Ministry of Electric Power, and China and Thailand for the Hatgyi dam in Karen state (1360 MW).¹⁸⁷ The dam is being built by the Energy Generating Authority of Thailand (EGAT) and funded by China's Sino Hydro Corporation. The signing of the MOA came despite a report by a committee (set up by Thai Prime Minister Abhisit after pressure from civil society to investigate human rights and environmental violations in the dam area) stated that the government should instruct EGAT to conduct an EIA in Thailand in compliance with Thai legal standards. A previous EIA was deemed incomplete.¹⁸⁸ There has been increased militarization around the dam site. In June 2009, an offensive in Karen state close to the Hatgyi dam site drove over 3500 Karen refugees into Thailand. The fighting was linked to the need for the State Peace and Development Council (SPDC) and DKBA (a breakaway group of the Karen National Union) to gain territorial control of the areas close to dam site. After the November 7, 2010 election in Burma, conflict again escalated in Karen state. Many units of the Democratic Karen Buddhist Army who refused to become a border guard force and are headquartered adjacent to the Hatgyi dam site, are now actively fighting the regime's troops, and together with the KNU, now control large swathes of territory in the vicinity of the dam, and elsewhere in Karen State. Approximately 30,000 refugees have fled across the border into Thailand since the November 2010 election, including hundreds from directly upstream of the dam site.

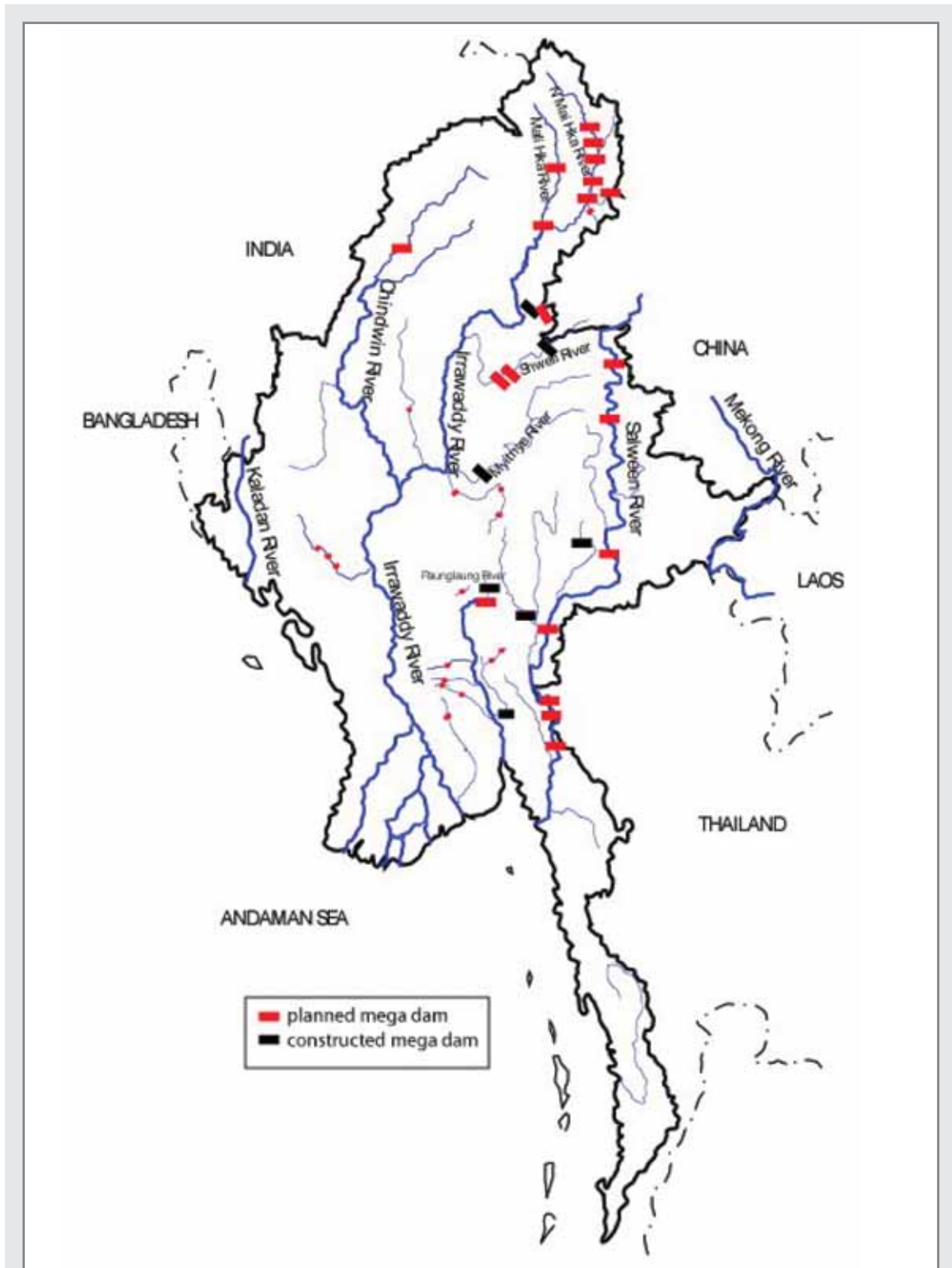
¹⁸⁹ ¹⁹⁰

Dams past and present

Karenni State's Lawpita power plant and connected Moby and Datawcha dams built to supply electricity to Rangoon, Burma's capital at the time, represents the first large scale hydropower project built in Burma. Power plant related development and militarization of the area saw 114 villages flooded¹⁹¹; 12,000 people displaced; an estimated 18,000 landmines planted; a local population subjected to forced labor, sexual violence, and extrajudicial killings; and prioritized water scheduling leading to crop destruction. Eighty percent of the local population still has no access to electricity.¹⁹²

The nearby Upper Paunglaung Dam, being built to boost the power supply to Burma's new capital, Naypyidaw^{xxx}, is again abusing local people's rights "in the same way, as they find themselves dispossessed of their lands and their resources being siphoned off at gunpoint".¹⁹³ Forced resettlement without informed consent or compensation, and the submersion of fertile farmland and forests faces local peoples and species. As with other large dam projects, unique local cultures and ethnicities are also threatened with extinction. Connected abuses already documented in the region include forced labor, forced conscription, restrictions on land use and renewed conflict.¹⁹⁴

^{xxx} The Lower Paunglaung Dam completed in 2005 is currently supplying electricity to Naypidaw.



Burma Rivers Network, Dams in Burma, “Save Burma’s Rivers”,
<http://www.burmariversnetwork.org/resources/publications/13/499.html>

(Note: this map does not include all the planned and constructed 48 dams such as the planned Laymro, Sai Dun, Tha Htay Chaung and Ann Chaung dams in Arakan state and the planned Pawn and Thabet dams in Karenni state)

5.2 Oil and Gas Extraction

Burma is rich in oil and gas resources, which are located both on- and off-shore. Today many investors, much like in the hydropower sector, are gaining access to these energy resources, including governments and corporations from China, India, Thailand, South Korea, France and USA. Chinese companies are the fastest growing investors in Burma's oil and gas sector.¹⁹⁵ Foreign investment provides crucial support to the Burmese government and increased energy security for countries such as China but local communities gain no benefits or compensation.

Export of natural gas is the most lucrative industry in Burma, currently accounting for 12.5% of Burma's GDP.¹⁹⁶ According to the International Monetary Fund, it has, however contributed to less than one percent of the budget revenue, with much of the revenue reportedly never entering Burma.¹⁹⁷ Gas accounts for over 70% of all foreign exchange reserves, with sales totaling around \$3 billion USD annually.¹⁹⁸ Had this income gone into the state budget it would have accounted for 57% of the total budget revenue.¹⁹⁹

The first foreign investment project after 1988 when the government began to partially liberalize the economy was the development of the Yadana gas field in the Andaman Sea and the construction of a gas pipeline through ceasefire and conflict areas in Mon State and Tenasserim Division in eastern Burma. The project was managed by the military government's state owned company, the Myanmar Oil and Gas Enterprise, in partnership with Total (France), Unocal (US) and PTT Exploration and Production (PTTEP Thailand). Most of the gas is bought by the Petroleum Authority of Thailand (PTT) and relatively little of the gas or revenue generated benefits people of Burma or the country's own energy security.²⁰⁰ Burma's gas and oil is being exported while at the same time most people in Burma lack energy for electricity or cooking.²⁰¹

The construction of the pipeline in the late 1990s resulted in human rights abuses and much environmental destruction. These included militarization of the area; forced relocation of communities without compensation; confiscation of agricultural lands; forced labor and forced portering to construct military camps and military infrastructure; sexual violence; and clearing of land and road construction along the pipeline corridor and potential supply routes. Unocal, the US-based company managing the project at that time in partnership with France-based Total and the Burmese military regime, faced lawsuits for complicity in human rights abuses through the Alien Tort Claims Act. In early 2006 Chevron (which absorbed Unocal) agreed to multi-million dollar settlements, but human rights abuses by pipeline security forces such as extrajudicial killings, forced labor and uncompensated land confiscations are ongoing and were documented in late 2009.^{202 203} It was recently reported that there has been increased militarization around the pipeline area in a ceasefire area in Mon state, due to tensions over whether or not the New Mon State Army will agree to become a military-government led border guard force.²⁰⁴

This investment in natural gas extraction came in at a crucial time for the government, which in the late 1990s was economically isolated by the international community. The pipeline has continued to provide a significant contribution to the government's long-term financial viability. A recent report by EarthRights International estimated that from 1998-

2009, the Yadana Project generated a total of over \$9 billion USD—over half of which, about \$4.6 billion USD, went directly to the military government.²⁰⁵

There is no independent oversight for revenues from the oil and gas sector. The revenues are recorded by Burma's public accounts in Burmese Kyat at the official exchange rate, which over-values the currency by up to 200 times. An earlier report had revealed that portions of gas pipeline revenue were in two of Singapore's largest offshore banks, and that these accounts could be used for any purpose.²⁰⁶ The project is widely regarded as the single largest official source of income for the regime which spends over half of government spending on the military.²⁰⁷ ²⁰⁸ Gas revenues are most certainly being used to purchase weapons and military equipment, and may be funding the military government's alleged nuclear weapons program which includes an estimated \$3 billion USD spent on a network of military tunnels.²⁰⁹

The regime is set to earn more with the Shwe Gas project, which alone is projected to earn at least \$1 billion USD a year for the regime for the next 30 years.²¹⁰ In Arakan State, western Burma, plans for onshore and offshore natural gas and oil production, construction of a 2,800 km pipeline corridor to accommodate dual oil and gas pipelines stretching to Yunnan Province in China, and the development of a deep sea port are now underway. Gas fields were discovered by Daewoo International Ltd., a South Korea-based company, off the coast of Arakan State in the Bay of Bengal in 2004. The three fields, collectively labeled *Shwe*, the Burmese word for gold, have an estimated 4.5- 9.1 trillion cubic feet of gas.²¹¹ The large-scale natural gas project is being developed with Daewoo International Ltd. (51 percent stake) in consortium with the Korea Gas Corporation (KOGAS), ONGC Videsh Ltd. of India, GAIL Ltd. of India, as a joint venture with the Myanmar Oil and Gas Enterprise (MOGE).²¹² The Chinese government signed an agreement with the Burmese government in mid 2009 which made China the sole buyer of the gas reserves.²¹³ The pipelines are being built by China's largest oil and gas producer – the China National Petroleum Corporation (CNPC). The sale of the deposits will most likely become the military government's single largest source of foreign income.

The gas pipeline is scheduled to be fully operational in 2013. China is also set to benefit from the oil transport pipeline, which will enable oil to be imported to China from the Middle East and Africa. The 2,380 km crude oil pipeline will run from Maday Island in the Bay of Bengal off the coast of Arakan to Kunming, China. It is estimated to cost \$1.5 billion USD and will transport 12 billion cubic meters of crude oil per year to China. The China National Petroleum Corporation started the construction of a seaport on Maday Island in October 2009. The construction of the seaport is expected to be finished within two to three years, and the port is slated to be busier than China's Shanghai seaport. China's crude oil tankers will dock there on their way from the Middle East and Africa.²¹⁴

Experience from the development of the Yadana and Yetagun gas pipelines in eastern Burma demonstrate that pipeline construction and maintenance is tied to a series of human rights abuses.²¹⁵ The human rights and environmental impacts are already being felt. In mid-2009 there were reports of forced land confiscation, relocations and human rights abuses due to the construction of China's crude oil port at Maday Island in Arakan State.²¹⁶ No compensation was provided to local residents for the land that was taken for the project.

More human rights abuses in western Burma and along the pipeline's route to China are likely in the near future. Over 8,500 soldiers are currently stationed along the pipeline route, and it is expected that as construction progresses more soldiers will move into the area including 'special battalions' with experience in 'pipeline security' operations. In June 2010 Burmese junta issued a letter to hundreds of villagers in western Burma ordering them to vacate their land.²¹⁷

Over 400 million people live in the catchment area of the Bay of Bengal, subsisting at or below the poverty line. These projects are threatening the livelihoods of thousands of local farmers and fishermen and destruction of the environment. Mining operations for seaport construction in late October 2009 around Maday island killed hundreds of fish and destroyed important local fishing grounds where local people have been fishing for centuries.²¹⁸ Oil spills from tanker traffic, and oil exploration and production threaten fisheries and the largely intact ecosystem of the Arakan coast. Natural gas production and transport could result in the leakage of chemicals and potential gas blow outs which cause environmental damage.²¹⁹



Figure 3 Daewoo clearing pipeline route for the offshore gas terminal, Arakan state. SGM, 2011.

5.3 Mining

Burma has a number of rich mineral resource deposits including tungsten, tin, zinc, silver, copper, lead, coal, gold, and industrial minerals.²²⁰ Antimony, limestone, and marble deposits also dot the landscape.²²¹ Gemstones including diamonds, rubies, and sapphires can also be found in Burma's soil. Burma is also the largest jade producer in the world.²²² Ninety percent of China's jadeite, the highest quality of jade in the world and only found in Burma, comes from the mines at Hpakant, Kachin State.²²³ After signing a ceasefire with the Kachin Independence Organization (KIO) in 1994, the Burmese government assumed control of these lucrative jade caches.²²⁴

The Burmese government maintains that 'all naturally occurring minerals found either on or under the soil of any land on the continental shelf are deemed to be owned by the state'.²²⁵ The mining sector is directed by the Myanmar Ministry of Mines whose various branches investigate potential mineral deposits and grant mining concessions to close partners including regional commanders, the Burmese private sector, and some ceasefire groups. Since 1988, when the economy was opened up to foreign investment, the Ministry of Mines began to encourage local and foreign investment in the mining industry.²²⁶ Very little information on the hundreds of official and unofficial mining concessions given by Burma's Ministry of Mines to local and foreign investors (mostly Chinese enterprises) in the past 20 years is available to the public. Many of these mining companies have friendly ties to non-state armed groups all across the nation.²²⁷ One reason that the extent of China's stake in Burma's mining sector is incredibly complicated to gauge is that a sizeable portion of mining operations in the country are smaller in scale, remote, and difficult to access.²²⁸

It is difficult to obtain data on the income that the government receives from mining exports. For example, officially, Burma annually exports \$60 million worth of pearls, sapphires, jade, and rubies, mostly to Thailand and China.²²⁹ However, some experts believe that government figures downplay the actual magnitude of the gem trade by a factor of 10.²³⁰

Due to the lack of laws and regulations protecting the environment against the impacts of mining, mining poses a grave threat to the mountainous regions in the north and delicate coastal areas where tin is collected. Up until about 20 years ago, mining operations were relatively small in scale and cause minimal impacts to the environment.²³¹ Traditional methods of mining for gold, gems, and other valuable minerals rely mostly on shovels, picks, pans and screen.²³² For the past two decades, there has been a shift towards large-scale—and much more environmentally destructive techniques.²³³

Gold mining is particularly rampant in Kachin State, in northern Burma, especially along the Irrawaddy and Chindwin Rivers.²³⁴ In 2007, the Kachin Development Networking Group (KDNG) reported the following impacts of industrial mining in Kachin State:

Land, including forests, is indiscriminately cleared for hydraulic and pit mining operations. Pit mining guts the remaining soil, leaving it pock-marked...while hydraulic mining blasts away soil[,] causing erosion on river banks. Wastes from the mining process, including mercury contaminated rocks and soil,

are discarded throughout the [demolished] landscape. Grazing grounds and habitats for animals are destroyed as well as any plant life that could [previously] grow in the areas.²³⁵

Copper mining is the most destructive form of mining. Open pit mining which is used in Burma requires that the landscape be stripped of surrounding forests and vegetation and natural drainage be drastically altered. This greatly destabilizes the topography.²³⁶ Burma's largest mine is the Monywa Project, an open pit copper mine located in Sagaing Division in central Burma. Local people at Monywa can no longer farm their land due to high levels of sulphuric acid in the soil and water, pushing some to artisanal mining^{xxx1}, and creating a local economic shift—which has occurred elsewhere in Burma—from a subsistence-based to a cash-based economy.²³⁷ The shift to artisanal mining further adversely affects the environment and increases inflation, making it difficult for people to meet their basic needs. It is also not economically sustainable as it requires no capital inputs and thus no added return on inputs; it is a vehicle for the perpetuation of poverty.²³⁸

The Monywa mine comprises of four copper sulfide deposits. The first three pits are nearing depletion. In June 2010 the managing director of state-owned company UMEHL (Union of Myanmar Economic Holdings Limited) signed a deal with Chinese weapons producer Norinco Investors to invest in the last copper deposit, 'Letpadaung'.^{xxxii} The Letpadaung copper deposit has been estimated to hold as much as 3,800,000 tons of copper enough to produce 125,000 tons a year for 25 years.²³⁹

As of November 2010, excavation of Burma's second largest iron deposit on Pinpet mountain in Taunggyi Township, southern Shan State seems imminent as bulldozers have begun clearing the area.²⁴⁰ The project site is near a conflict area where the Shan State Army South and Pa-Oh National Liberation Army are resisting the Burmese military. The situation remains unstable.²⁴¹ The mountain is home to 7,000 mainly ethnic Pa'Oh and Shan villagers. Another 35,000 living along a nearby tributary are endangered by possible pollution from untreated water and heavy metal laden tailings.²⁴² The mountain has 70 million tons of hematite and limonite ore.²⁴³ Stakeholders involved include the Tyazhprom export Company (Russia) and Danieli Company (Italy). Farmers at the site are being displaced and there are fears of further forced relocation. Construction of an iron factory has begun. In June 2009 7,000 acres of farmland was confiscated for the factory compound. In September 2010, farmers in one village were offered 5,000 kyat (\$5.34 USD) per acre but they refused to accept the inadequately small amount. In March and April 2010, villagers were forced to sell 300 acres of land at a price far below market rates for a new building.

^{xxx1} Artisanal mining is driven by poverty and is characterized by rudimentary, traditional methods. It is labor intensive and occurs informally, always as a means of subsistence. It requires little to no capital inputs.

^{xxxii} The other current investor is the Monywa Trust which received assets from Ivanhoe Mines Ltd of Vancouver in 2007 on condition that it finds a buyer for Ivanhoe's share of the mine. Ivanhoe Mines originally estimated that \$500 million USD would be needed to develop the resource extraction project and sought Asian partners apparently unsuccessfully to join in the venture. Norinco's deal was reported in the Myanmar Times in August to be a billion dollars. If the Myanmar Times story is correct, the price tag for getting the copper ore out of Letpadaung is double the original estimate. Courier Information Service, "Letpadaung Copper Project to Receive Billion Dollar Investment" August 16, 2010.



Figure 4 Polluted water from Tigyit coal mine, flowing into upper Balu creek then Inle lake. PYO 2010.

A 250-mile pipeline transferring natural gas to the iron factory has destroyed villagers' farmlands along the route.²⁴⁴ Hundreds of farmers have lost their land for the Kehsi Mansam coal mine and coal power plant in Tigyit, both in Shan State, which, alongside the natural gas pipeline and a hydropower plant in Keng Tawng will provide energy to operate the factory.²⁴⁵ Iron ore samples at the site have tested high for arsenic content, raising fears that the mining operations will impact farmers at the foot of the mountain as their fields may be covered with toxic waste soils. Reuters News Agency revealed in July that China's Taiyuan Iron and Steel Group (TISCO) signed an agreement to work together with the China Nonferrous Metal Mining Group (CNMC) in developing a major nickel mining project at Tagaungtaung, Mandalay Division. The cost of the project is estimated at \$800 million USD.²⁴⁶

Burma has over 16 large-scale coal deposits, with a total of over 270 million tons of coal resources. The Tigyit coal mine in south eastern Shan state, just 13 km from Inle Lake, is Burma's biggest open pit coal mine, producing 2,000 tons of coal daily. There is also a coal fired power plant in Tigyit which is slated for use at the Iron mining factory in Taunggyi. Polluted water from the mine and waste from the power plant flow via the Balu creek into Inle Lake, however as yet there has been no study on the impact of the project on the lake. Implementation of the mine and powerplant began in 2002 by China National Heavy Machinery Corporation and Burmese companies Eden Group and Shan Yoma Nagar. Two

villages were forced to relocate, and over 500 acres of farmland was confiscated. Air and water pollution is threatening the agricultural livelihoods and health of nearly 12,000 people that live within a five mile radius of the project sites.²⁴⁷

Mining in Shan State has brought about the many environmental and human rights transgressions including forced uncompensated relocation of ethnic communities and the forced sale of land. In Seng Pin in 2004, about 150 Akha, Sam Tao, and Lahu families from five villages were forced to move by the ceasefire National Democratic Alliance Army (NDAA) to make room for 200 Chinese families working at a coal mine there. Similarly, in April 2006, nine villages located nine miles outside of Kengtung were ordered to relocate to facilitate coal mining operations.²⁴⁸ Thai, Chinese, Russian, Italian, South Korean and Japanese companies all operate in Shan State in concert with the Burmese government, Burmese companies and ethnic armed groups.^{249 250 251 252}

At least seven coal mines are active in southern and eastern Shan State with at least eight more in various unconfirmed states of operation. Active mining in the state also includes one iron mine, two manganese mines, three gold mines, one zinc mine, two platinum mines, and one ruby mine. Shan State has both a history of mining and is rich in minerals yet untapped. In rare cases local communities are able to halt or avoid destructive mining activities on their lands through collective action. In other cases companies may hold government, but not locally granted rights to a mine but are unable to work the deposit due to conflict and an unstable political and business climate.^{253 254 255 256 257}

The full extent of pollution from these mines into Mekong tributaries and their surrounding environments is unknown. Food security impacts on the Shan, Ah Kha, and Lahu villagers living downstream from mining operations, and water pollution are already being felt. One villager stated “I can’t see the catfish because the water is dirty.”²⁵⁸

In 1997, the SPDC began to give gold mining concessions to Burmese businessmen in Shwegyin Township, Pegu Division. By 2005 there were over 40 mining companies in the Shwegyin area. Land was often confiscated and villagers were denied access to upland farms. The area was heavily militarized to protect the companies. Villagers had no alternative source of livelihood so formed small groups and sold their land to invest in machinery and obtained gold mining permits. Traditionally villagers in this area depended on rivers and forestlands for their livelihoods and cultural practices. Now cultural practices and knowledge of small-scale mining techniques is being lost. The local environment has also been severely affected. Mining operations have drained water sources, increased soil erosion, and rivers polluted with mercury and other chemicals. Mercury is highly toxic to the environment and poses serious risks to public health.²⁵⁹ The vast majority of toxic wastes from gold extraction processes is disposed of untreated directly onto land and into waterways, effectively poisoning the soil and compromising water quality. Mercury^{xxxiii} and other toxics are biomagnifying^{xxxiv} in food chains and accumulating in the tissues of living organisms, with negative effects on flora and fauna, local biodiversity, and human health.²⁶⁰

^{xxxiii} Liquid mercury is very poisonous to people and animals, causing many governments to ban its use. However, it is still widely utilized throughout the gold mining process to separate gold particles.

^{xxxiv} The increase of concentration of a substance, such as pesticides or other toxics, in humans and animals due to their consumption of other organisms lower on the food chain.

Local livelihoods have been further impacted by an electricity producing dam on the Shwe Gyin river. Despite flooding, many small scale operations continue to pursue gold from rafts. In nearby Mawtamaw area, a member of the Karen Environment Committee reports that small scale gold mining provides a means through which local people are able to buy basic daily necessities. However, the SPDC, the KNU and the companies involved remain the major beneficiaries of gold mining in Shwegyin Township.²⁶¹

5.4 Deforestation

The most recent data from the Forest Department lists percentage of natural forest (both closed and open forests) in 2010 at 47 percent (only 23 percent of which is closed forest), with about 67 million hectares of total forestland.²⁶² A recent FAO study claims the percentage change of the total forest area between 1990 and 2000 was -6.9 percent, and that between 2000 and 2005 was -3.7 percent. From 1990 to 2005, the total forest area changed at the rate of -10.3 percent.²⁶³ From two periodical assessments on forest cover of Myanmar, it was found that annually over 100,000 hectares of natural forests were lost during the period from 1975 to 1989 while forest area lost in later years from 1989 to 1998 were over 450,000 hectares per annum, equaling a 1.4 percent annual forest loss during that period. This is the equivalent of clearing more than 75 soccer fields of forests an hour.²⁶⁴ It shows that rate of deforestation after 1989 had been four times higher than that of before 1989. However, many organizations question the validity of those figures. In the 1990s, deforestation in Burma was estimated by the Rainforest Action Network to be much higher - from 800,000 to 1 million hectares a year.²⁶⁵ Burma has been marked as the country with one of the highest deforestation rates in the world.^{266 267 268}

According to a recent presentation by the Forest Department, "The major acceleration after 1989 coincided with the opening of the forestry sector to the private sector in the aftermath of the economic reforms of 1988." In addition to commercial logging activities (legal and otherwise), forests are also being decimated by private agricultural concessions, which in fact sometimes act as a cover for logging with little agricultural crops even planted. Forest degradation can be linked to *taungya* practices too, although it depends on the type of forest, agricultural practices, population density and traditional land management strategies, among other complex variables.

5.4.1 Logging

A 2009 report by Global Witness "A Disharmonious Trade: China and the continued destruction of Burma's northern frontier forests" states that while logging may have decreased in northern Burma, it is still a major source of finance for the military to continue repression of ethnic communities:

In 2007-08, timber was the SPDC's fourth most important export commodity earning it \$538 USD in legal foreign exchange. Foreign exchange earnings, derived from the sale of timber and other natural resources, are important to the regime because international trade is almost exclusively conducted in hard currency, usually U.S. dollars. By buying timber from official SPDC sources, even timber produced in accordance with Burma's forest laws,

companies are contributing directly to the finances of the military regime with all the consequences that that entails. The link between timber revenue and the regime's violent repression on civilians will only be broken once the human rights abuses stop.²⁶⁹

The country's forests have become a source of significant income for the government and armed opposition groups, where both legal and illegal logging is still ongoing. Since the eruption of civil war in Burma, all parties involved in the current conflict have relied on the extraction of natural resources, primarily logging and mining, to fund their armies. The scale of logging rose dramatically after the State Law and Order Restoration Council (SLORC) emerged in 1988, and again after ethnic political groups signed ceasefires with the junta. The most serious destruction from logging has occurred in ethnic areas along the borders with China and Thailand, namely, Kachin State, Shan State, Karenni State, Karen State, and Tenasserim Division.²⁷⁰ China, Thailand, and India are Burma's biggest timber importers.²⁷¹

Previously, these areas contained untouched forest reserves with a variety of hardwood and tropical rainforests and included many important watershed areas. Dozens of logging concessions were sold by the SLORC to numerous Thai logging companies in the early 1990s, and logging was the government's primary source of gaining long sought-after foreign currency. Revenue from logging was extremely lucrative, averaging at that time \$200 million USD a year.²⁷²

At the same time, logging has also provided income for ethnic armed opposition groups. Many of the logging concessions sold were located in areas controlled by these armed groups, including the Karen National Union (KNU), the New Mon State Party (NMSP), the Karenni National Progressive Party, and the Mong Tai Army.²⁷³ After the signing of ceasefire agreements, logging radically increased in Kachin State and in northern Shan State, as ceasefire groups like the Kachin Independence Organization (KIO), the United Wa State Army (UWSA), the Shan State Army-North (SSA-N), and the New Democratic Army-Kachin (NDA-K) began predominantly relying on selling timber to continue to fund their armies, administration and development programs.²⁷⁴ For example, the KIO lost their territorial control over Hpakant jade mines as conditional under their 1994 ceasefire agreement with the regime. They then turned to the other valuable tradable resource under their control – timber.

After the litany of ceasefire agreements with ethnic political groups operating along the China border, Chinese companies then joined Thai loggers in vigorously cutting down forests, including highly-prized teak.²⁷⁵ In 2004, John Buckrell, then the spokesperson from Global Witness's Burma program, stated, "Logging in the Kachin State is severe and chaotic, and it is clear that local population has benefited little in economic terms."²⁷⁶

In northern Shan State, SPDC militia groups and about seven ceasefire groups are involved in logging.²⁷⁷ Indiscriminate logging has destroyed many of Shan State's forests, and only a few strands of teak still remain.²⁷⁸

From mid 2008 to July 2009, the Burmese government sold logging concessions to 11 Burmese timber firms in KNU-held Tenasserim Division.²⁷⁹ The KNU has also granted logging

rights to Thai and Burmese companies. While the general consensus is that the KNU does not want to allow further logging in their areas, they reluctantly conceded to a few of these companies due to economic necessity.

According to Minority Rights Group International, in Karenni State “logging of teak and other timbers is often either done illegally, or permitted by Burmese authorities in complete disregard of any pre-existing land or usage rights of the indigenous Karenni.”²⁸⁰

5.4.2 Case Study: Logging in Kachin State

Logging business continues in Kachin State with little or no benefit to local people. Recent field research confirmed that a few Chinese businesspeople, some high ranking KIO officials, and some well-connected Kachin and Burmese businesspeople get the most benefit from the logging trade. KIO officials often give concessions, with bribes given to SPDC's area military commanders to facilitate the deals. Chinese businesspeople then facilitate getting the logs to China by working with local villagers and traders to transport the logs across the border. Teak and other highly valuable hardwoods, such as ironwood and rosewood, in Kachin State have all but gone through selective logging for these desired expensive species. Now some local people have started cutting less valuable wood to produce charcoal to supplement their meager income, along with selling big banyan trees which are being replanted along the road in China. As a result, many areas in Kachin State have become



Figure 5 After depletion of the majority of large trees, small trees are being cut down by local business people and exported to China, Kachin state. Local researcher 2010.

deforested. The field research showed that compared to 2002-2007, logging business decreased in Mai Ja Yang by 2010 because there are no more big and valuable trees left there. However, the logging trade has extended to N'man Yang, Mambaw, and Sinbo and beyond, especially areas under road construction, often by Chinese companies.²⁸¹

As eastern Kachin State becomes more deforested, companies are going further west, such as in the Triangle Area and in Sagaing Division, to find remaining valuable trees. Some trees are also coming from Hugawng Valley from Yuzana's massive agricultural concession. But as the government has greater control over Kachin State, even logs that are cut there often go through SPDC-controlled border check points or down to Rangoon for export. These new developments have come at the expense of the KIO taxing both the cutting and the cross-border trade of logs, leaving them with thus funds to continue their struggle.²⁸²

5.4.3 Rotational Agriculture and Fuel-wood Demand

While logging is the primary reason for forest loss and fragmentation in Burma's mountainous border regions in the North and East, forest conversion, charcoal production, and fuel-wood collection are leading causes for deforestation in the lowlands of central and southern Burma. The World Bank estimates that three-quarters of Burma's energy needs are met by fuel-wood and charcoal to meet such needs as cooking, lighting, and heating. While some indigenous peoples like the Karen claim to practice traditional agricultural methods that do not destroy forests, the rotational farming systems of Karen and other ethnic groups like the Karenni, Kachin, Chin, and Shan are largely—and perhaps unfairly—blamed by the Burmese government for contributing to heavy forest loss.²⁸³ According to Burma's Forestry Department, in 1998 almost 23% of the total land area was affected by shifting agriculture.²⁸⁴ Officially, the government regards such deforestation caused by swidden agriculture to be a manifestation of "social disadvantages" and poverty, and does not recognize the sustainable livelihood and land management techniques of rural communities in ethnic areas.²⁸⁵ In fact swidden cultivation, depending on how it is practiced and population levels in the area, can contribute to biological diversity and enrich the ecosystem. This scientific evidence, however, is overlooked as part of the government's aim to eradicate shifting cultivation in order to resettle upland subsistence communities into military-surveillance lowland villages. One of the clear objectives of the Ministry of Agriculture and Irrigation (MoAI) is to end *taungya* cultivation in favor of permanent agriculture.²⁸⁶

5.4.4 Mangrove deforestation

Often dominating the coastlines of tropical and subtropical areas, mangroves are a bridge between terrestrial and marine environment providing perfect conditions for extremely diverse and productive ecosystems. The mangrove forests transfer organic matter and energy from the land to the sea, forming the base of marine food webs. They are also home to a wide variety of marine and terrestrial life, and serve as nurseries for coral reefs and commercially important fish species. In addition, mangrove forests play a vital role in trapping sediments, thereby stabilizing coastlines and protecting coral reefs and seagrass meadows. The three main areas of mangrove forests in Burma are located in Arakan State, Irrawaddy (Ayeyarwady) Division and Tenneserim Division. Mangroves can also be found on the coastlines of Mon State and Rangoon Divisions.

The Myanmar Environmental Performance Assessment (EPA) details that since the early 1920s, as one of the main British colonial development policies, wide swathes of mangrove forests have been eliminated for paddy farming, and later shrimp farming. The forests also provide firewood for local communities, and a source of charcoal for the population. In 1924, there were 253,018 hectares of mangroves in the delta forest reserve, but this was dwindled down to just 111,939 ha by 2001.²⁸⁷ In the 1980s, fuel wood extraction for charcoal production began to take its toll on mangroves, and was subsequently banned in the 1990s, although the practice continues. Habitat destruction reached its peak in 2001, with 35,836 hectares lost that year, an amount equivalent to 24% of the total mangrove forest area in 2000.²⁸⁸

Previously the main cause of mangrove deforestation (particularly in the delta area) was rice cultivation. According to the Mangrove Action Project, 85% of mangroves in the Irrawaddy Delta have been lost to rice farming.²⁸⁹ Shrimp farming is now considered the leading cause of mangrove deforestation along the coastline. The EPA states that “shrimp farming is the main contributor to the loss of mangrove in the delta area”. The Network on Environmental and Economic Development (NEED) estimates that about 65% of Arakan State’s mangroves have been cut down to make room for commercial shrimp farms, and to a lesser extent, brick-making for Burma Army battalions.²⁹⁰

Along Burma’s Andaman coastline, traditional fishing communities are becoming further entrenched in poverty as their means of livelihood and nourishment is being wiped out.²⁹¹



Figure 6 Confiscated land for shrimp farming causing mangroves to die, Rathedaung township, Arakan state. NEED-Burma 2011

A case study Myebon Township, Arakan State showed that the livelihoods of local people who traditionally farmed shrimp in mangrove forests have been affected by the increase in commercial shrimp farming. They now have to apply for permits, while their catching areas have also been limited by the encroaching commercial shrimp farms, which clear large areas of mangrove to establish ponds that are intensively farmed. Many villagers now work on Thai trawlers or have left to find jobs in neighboring Thailand.²⁹²

After Cyclone Nargis the UN Food and Agriculture Organization stated that parts of Burma's coast had been largely cleared (for fish ponds, agricultural land and establishment of settlements, and over-exploitation of the mangrove resource) in recent decades and that this left coastal communities more exposed to cyclone damage as the coastline lacked a protective forest buffer.²⁹³

The government and NGOs have embarked on a number of mangrove reforestation initiatives over the past 10 years. After Nargis these efforts were stepped up and recently a new network called Mangrove Environment Research Network (MERN) composed of 17 local NGOs was formed to co-ordinate these efforts with a focus on aquaforestry. The network focuses on conservation and livelihood improvement initiatives. For example, as part of the aquaforestry program in Irrawaddy Division, farmers will breed fish, prawn and mud crabs.²⁹⁴

5.4.5 Impacts of Deforestation on Local People and the Environment

Unabated and widespread forest loss is a source of much suffering for local communities, the ecosystems they rely upon for their livelihoods, and the surrounding wildlife. Deforestation threatens the livelihoods and cultural practices of indigenous peoples who depend on forests. Logging, mining, hunting, and other extractive industrial activities that take place in the forest do not totally eliminate all tree cover, but instead strip the forest of desired tree species and leave behind softwoods, malformed and diseased trees, easy-to-burn forest slash^{xxxv}, strangling vines, and fast-growing introduced weeds. Local biodiversity is further degraded, as timber companies destroy and fragment several of the last known extensive rainforests of Southeast Asia, home to many endangered species. Logging has also been shown to be directly responsible for floods, soil erosion, landslides, sedimentation build-up behind dams, river siltation, increased dry season water shortages, stunted farm productivity, and declining topsoil fertility.

While Burma's valuable forests are being exploited, very little benefit, economic or otherwise, are shared with local communities.²⁹⁵ In addition, depleted forests are generally ignored and not reforested.

5.5 Large Scale Agricultural Concessions

Over the past decade, and especially since 2008, the Burmese government has promoted the establishment of large-scale monoculture plantations in Burma. Most government initiatives promote industrial crops such as *Jatropha*, palm oil and rubber, as well as annual

^{xxxv} Forest slash refers to the unusable residue left on the land after logging operations. This includes tree branches, tops, bark, unusable logs, uprooted stumps, and broken or uprooted trees.

crops such as cassava, sugarcane, and paddy rice. These government-led initiatives are channeled through military-favored companies such as Yuzana, Htoo Trading, Dagon, Max Myanmar, and are threatening human security, ecological integrity, land tenure and food security, and the overall livelihoods of local farmers. This is part of a wider trend throughout the Mekong region over the last decade of foreign-invested plantation development.

Agricultural development in Burma has received a new boost with the government's partial liberalization of the agricultural sector. Following the 1991 Wastelands Law, a private company is able to lease up to 5,000 acres for up to 30 years (with a possible extension), or up to 50,000 acres for perennial crops. In reality, however, land blocks often are given all at once, and sometimes far exceeding the 50,000 acre max. While most of the agricultural investment is in government-controlled areas, in some cases agricultural concessions are granted by a ceasefire group within its semi-autonomous territory.

Nearly three-fourths of the country's population live in rural areas, and almost the same percentage of people are dependent on land as the primary means for livelihood.²⁹⁶

In government-controlled areas, 40-60% of farming households rely solely on small farms under 5 acres or 2 hectares (under minimum subsistence levels), with some areas (such as eastern Shan State) recording much higher percentages.²⁹⁷ About one-quarter of all households in non-conflict areas (SPDC-controlled) in Burma are landless, but that focuses mostly on Burmese lowlands. One report examining land tenure insecurity in upland ethnic areas found between 8-50% landlessness in southern Shan State and 35% in parts of Kachin State.²⁹⁸ See table below for government data. Landlessness varies greatly with geographical area and socio-economic standing, with significant differences between rural-urban, lowland-upland, and wealthy-poor, among other factors.

No. of HH-based Land Holdings by Size of Holding.

	Size of Land Holding	1993	%	2003	%	Growth (%)
	Union Total	2,729,258	100%	3,338,152	100%	22%
1	Under 1 Acre	187,494	7%	471,782	14%	152%
2	1 Acre and under 3	713,889	26%	766,422	23%	7%
3	3 Acres and under 5	563,175	21%	635,806	19%	13%
4	5 Acres and under 10	759,028	28%	796,439	24%	5%
5	10 Acres and under 20	413,695	15%	504,426	15%	22%
6	20 Acres and under 50	90,997	3%	157,945	5%	74%
7	50 Acres and Over	986	0%	5,332	0%	441%

Source: *Report on Myanmar Census of Agriculture 2003 (Union)*, p 38.

MoAI is following liberalization trends in allowing private entities to lease agricultural land plots. As such "national companies and associations in the private sector are encouraged and granted rights to develop these areas for the cultivation of paddy, pulses, oilseeds, industrial crops, rubber, oil palm, etc."²⁹⁹ In 2001 more than one million acres were allocated

to nearly 100 enterprises and associations (CSO 2003). By 2008, almost 200 companies were granted 1.55 million acres for commercial farming. And by 2010 the total concession area has expanded further to nearly 1.75 million acres allocated to 216 different private Burmese businesses (national only, not foreign). While nearly half of the total acreage allocated was in Tenasserim Division (in support of oil palm plantation development), the next highest amount of acreage allotted by state/division was Kachin State with 11 companies receiving nearly 400,000 acres. In southern Shan State, over 65,000 acres were allocated to 12 companies, and over 40,000 acres to nine companies in northern Shan State.³⁰⁰ The following table lists the number of companies and total acreage awarded for each state/division, as provided by MoAI.

Granted Area for Large-scale Commercial Farming, updated Jan 31, 2010.

State/Division	No. of companies	Granted Area (acre)
Kachin	11	393,292
Kayin	1	2,161
Sagaing	27	95,557
Tanintharyi	37	671,053
Bago (East)	9	5,859
Bago (West)	7	13,913
Magwe	38	202,492
Mandalay	16	10,300
Yakhine	14	2,602
Rangoon	7	30,978
Shan (South)	12	65,772
Shan (North)	9	40,937
Ayeyarwady	28	193,353
Total	216	1,728,269

Source: DAP, *Myanmar Agriculture in Brief*, 2010:82.

Government data illustrates trends in increasing acres of land being transferred from smallholder farmers to private companies. What is termed “non-household special land holdings” (i.e. land owned by private companies) increased by 900 percent from the mid-1990s to mid-2000s, and 325 percent for total area of private landholdings.³⁰¹

Large land holdings has clearly increased, which can be accredited to the expansion of the cultivation of what the government now labels as ‘wastelands’ under the 1991 Wasteland Law. The ‘wastelands’ are farmlands without government registration titles, which very few farmers can obtain; in effect then customary farmland is forcibly confiscated and granted to the private company. The table below illustrates these worrying land privatization trends.

No. of HH and non HH-based Holding.

Holdings	1993	2003	% change
1. Total Number of Land Holdings	2,729,820	3,343,793	22
1.1 Household Based Land Holdings	2,729,258	3,338,152	22
1.2 Non HH Based Special Land Holdings	562	5,641	904

Source: Report on Myanmar Census of Agriculture 2003:19

Without the systematic mapping of lands suitable for large-scale industrial agricultural concessions and transparent allocation of this land, this contentious and ill-conceived program is open to abuse by officials and infringing on farmers' livelihoods and customary land rights. There is a complete lack of transparency and accountability within the top-down land allocation process, sidelining the farmers and other state line agencies in place of military authorities.

In Burma, cropping intensity and yields is higher for smallholders compared to large concessions, despite government rhetoric on leasing wastelands to private companies to reach food surplus quotas. Even a government document recognizes that "non-household based land holdings such as private companies who applied for large amounts of land areas for cultivation had not yet utilized the whole area for cultivation".³⁰² This is because many of the large Burmese companies have been coerced by the regime leaders into developing the concession, despite not wanting to get involved in this campaign because of the very high initial investment costs born entirely by the company. In this sense, the companies do 'foot-dragging' strategies to avoid investing more capital into developing the concession. It is also well known that some companies involved in the logging business who receive agricultural concessions log the land, sell the timber on the black market, and then vacate the land without ever planting any crops. Companies that have the financial resources and connections to potentially make large profits try to develop their entire concession.

Confiscating smallholder customary farms to make way for large-scale private land concessions has a tremendous impact on the socio-economic conditions of the surrounding area, at the regional scale, and even at the national level. Farmers who are forcibly evicted from their family farms often go further afield to look for new fields to cultivate, which they clear on forested hillsides or use an existing swidden from a relative, either for free or with an arranged payment. These new farming plots are often at least a half's day walk from the village, requiring that the cultivators stay at the field site for long periods during planting and harvesting time, creating what local researchers call 'satellite villages'.

Food security is being rapidly eroded from land confiscations. If a household cannot find a new plot of land to farm nearby, then they must become wage laborers, both for on- and off-farm labor. While new land concessions require wage laborers to prepare the field, plant, weed and harvest, companies often do not hire local farmers – who were kicked off their customary land – in ethnic areas. Instead they often hire labor migrants mostly from the Central Dry Zone and the cyclone-affected delta area. Few locals are hired for these jobs, thus minimizing any local economic benefits. This is causing hostility with the local ethnic populations, who feel the concessions and associated labor migration as part of a post-war military strategy.

There are major environmental concerns with regard to monoculture agricultural plantations. Land management systems that maintain biodiversity are the most effective strategy to adapt to climate change and enhance food security. Mono-plantations degrade these socio-ecological benefits. An agricultural concession entails clear-cutting the land and then bulldozing the area to prepare for planting the seedlings, which often involves burning any remaining unmarketable woods. The burning, churning of soil, and lack of trees has deleterious effects on the local climate and contributes to global warming by releasing, instead of absorbing, carbon dioxide. Other concerns include disruption of natural water cycles, overuse of water for irrigation, soil and water pollution as well as human poisoning from chemical inputs, and loss of wildlife from habitat destruction, infrastructure development, and increased hunting pressures from migrants.

5.5.1 Profiled Agricultural Commodities

Rubber plantations

Rubber is now the most widely planted industrial crop in Burma today. The Burmese military government has a 30-year rubber crop development goal of 1.5 million planted acres. From just over 550,000 acres planted in 2005-06, sown acreage jumped up to over 725,000 acres the following year when Chinese subsidies were available. In just under five years – from 2004-05 to 2008-09 – the acreage of sown rubber in northern Burma more than doubled from just over ½ million acres to 1.057 million acres.³⁰³ Total acreage planted then increased to 1.14 million acres in 2009-10 and expected to reach 1.23 million in 2010-11.³⁰⁴

While most of Burma's rubber production still centers on traditional rubber-growing areas in southern Burma, especially Mon State (first promoted by the colonial British), there has been a major expansion of large-scale rubber plantations in eastern Kachin State as well as northern Shan state including the Wa autonomous region. Rubber plantations in government-controlled territories are more concentrated along roads, such as on the old Burma Road in northern Shan State. But in Wa Autonomous Region the Wa authorities have covered whole mountains in rubber, making Wa territory the "center of the rubber revolution in northern Burma".³⁰⁵ About 90 percent of the rubber produced is exported to China and five ASEAN countries—Malaysia, Singapore, Vietnam, Thailand and Indonesia.³⁰⁶

China is a major player in the country's rubber sector in the north – both in terms of financing and overland imports. Investors from other countries are also showing recent interest, especially for land in the south. Chinese investment in plantations of rubber and other crops such as corn, cassava, rice, tea, sugarcane and watermelon in Burma has been underway since the mid-2000s, largely financed through China's national Opium Crop Substitution policy. The Chinese national program is implemented through Chinese businessmen who receive state-backed funds. Zao Noam claims in his article that "Chinese companies sometimes [operating in Burma] work with a Burmese company which is either owned directly by a government military official or an armed ethnic group official, or has very good connections to military officials. A Chinese company normally provides technical expertise along with seedlings, fertilizer and capital expenditures, while the local government and/or cease-fire group authorities provide land, often confiscated from farmers, and labor,

often forced. Chinese businessmen usually pay for labor through local authorities rather than directly to the farmers, who usually earn only a fraction of what is paid”³⁰⁷

The crop substitution program is intended to subsidize farmers’ non-poppy livelihoods but is actually destroying those alternative livelihoods in rubber production areas.³⁰⁸ The manner in which China’s opium crop substitution policy is being implemented is not aiding local alternative livelihoods as intended. Furthermore, and more worrying, it appears to actually be partly contributing to the recent spike in opium poppy cultivation in northern Burma. Rural upland farmers whose land was confiscated and without employment options are perhaps sometime resorting to one of the few options remaining – cultivating poppy at higher elevations unsuitable for rubber.

Chinese are not the only investors. In April 2010 the Vietnam government signed agreements in twelve key investment areas in Burma after a bilateral visit. As part of the government deals, a MoU was signed for a 120,000 acre rubber concession located between Taungup Township and Ma Ei Sub-Township in Southern Arakan State.³⁰⁹

Large scale rubber plantations are displacing small-scale farmers from their uplands, where food crops are grown and which since the banning of poppy production has become the sole source of household income. Displaced local farmers and their families are facing serious food insecurity and are not being hired back as laborers. Instead, particularly in Kachin state, laborers from other parts of the country are hired. According to businessmen, Burmese with previous experience tapping rubber are preferred – so that Burman Burmese from the south are migrating into northern Burma for seasonal work, causing hostility with local ethnic farmers.³¹⁰ In other cases, especially in Wa Autonomous Region where rubber plantation development as part of the opium crop substitution policy is most intense, local farmers are often used as seasonal labor. However, there are allegations that this is either forced labor as dictated by the local Wa army official overseeing the plantation, or a very small payment is offered which only covers food and cigarettes for the day.^{311 312} The workers are paid, on average, 2,500 Burmese kyat (\$2.50 USD) per day.³¹³ The rest of the money paid by the Chinese businessman is pocketed by the local military officials overseeing the concession.³¹⁴

Due to strong Burmese military and ceasefire group control over the rubber concession allotments, poor farmers are left out of this potential new opportunity for small-holder rubber plantations like that in Mon State. However, farmers in Kachin and northern Shan State lack credit and loan opportunities, as well as secure land rights to economically and socially benefit from the recent rubber boom, which takes at least seven years before trees produce latex.³¹⁵ The inability for rural farmers to benefit from rubber is summarized by Noam: “A high initial investment is required without any return for at least seven years when the rubber trees are tapped, and small-scale farmers are unable to receive loans, because without poppy cultivation they no longer have any collateral. In addition, rubber growers depend on China for the volatile cash crop market, leaving farmers extremely vulnerable to the fluctuating and unpredictable Chinese domestic rubber market—as evidenced by the temporary rubber price crash after the recent global market meltdown”.³¹⁶



Figure 7 Rubber plantation, near Lashio, northern Shan state. Local researcher, December 2010.

A recent documentary by Kwekalu, a Karen media group, exposed in December 2009 over 250 acres of land were taken in Ler Pa Doh village, Kaserdoh township, Tennasserim Division for a rubber plantation. The documentary reveals that a Burmese company, Bi Pwo Twe, forced villagers to sell the land at a below-market, company price. If villagers didn't sell the land they feared that the land would be taken by force. Consequently, the land was sold under its value and many villagers had their land (which was primarily orchards) taken just when the trees were bearing fruit. One villager explained: "On my land the trees had already bared fruit. They told me if I don't sell the land then I would have to leave. They said they would take and pay for 3 acres but they took more than 3 acres." Another villager complained: "They didn't pay up to the value of my land!" Villagers are now displaced and living in temporary huts on upland farmland near their former orchards. The company plans to confiscate more land, and villagers are concerned they will become refugees as they have no place to go.³¹⁷

Jatropha

In December 2005 Burma's military government began to implement a nation-wide crop campaign to plant five million acres with *Jatropha curcas* for biodiesel production. *Jatropha curcas* is one of a series of feed stocks such as soy, palm oil, sugar cane which can be processed into biodiesel. The oil from its nuts can be mixed with diesel, and used as a low-grade fuel; but not until the 5th year or later can the trees offer commercial use. There is

uncertainty surrounding the environmental and economic feasibility of *Jatropha* as an energy crop as there has not been any comprehensive research conducted.³¹⁸ Nevertheless, each state and division was ordered to plant 500,000 acres of *Jatropha*, taking off 2 million from the national target to accommodate that it is an impossible quota for smaller states/divisions, some of which are only nominally controlled by the government. Since 2006, teachers, students, children, farmers, nurses, civil servants, and prisoners have been forced to plant the tree along roadsides, at schools, hospitals and religious compounds, including on their own farmlands.³¹⁹ Further, Burmese companies are involved in large-scale *jatropha* plantations much like for rubber.

Jatropha can be planted on marginal soils and does not have to compete directly with food crops; however in Burma it is being planted on farm land which then directly impinges on people's food security. The *Jatropha* national campaign has resulted in forced labor for planting and confiscation of farmlands. Farmers are bound to production quotas enforced by strict laws. Interviews reveal that people have been fined, arrested, and threatened with death for not meeting quotas, damage to plants, defying orders, or criticism of the campaign. Over eight hundred "jatropha refugees" have already fled to Thailand from southern Shan State alone.³²⁰ Large scale plantations (of up to 2,500 acres) have ignored local climate and soil conditions and been planted haphazardly, with poor techniques and bad seed stock, resulting in crop failure rates ranging from 25-75%.³²¹

According to interviews, Burmese companies are only exporting the nuts instead of using it as a domestic biodiesel source as a substitute for importing oil. Foreign investment in *Jatropha* has also been noted in interviews, originating mostly from Malaysian Chinese, mainland Chinese, Singapore and Thailand – but the plantations are managed by Burmese companies.^{322 323}

Palm Oil

Oil palm is no exception to the government's recent push for further developing the country's agricultural sector hand-in-hand with the private sector. The oil palm sector has specifically been targeted because the government wants to decrease their reliance on edible oil palm imports from Malaysia, which amounts to over 20,000 tons per month. So the Burmese government now encourages the country's private sector to boost domestic production so to decrease imports and associated costs. Oil palm in Burma is so far used as a much more affordable edible oil, which costs about half the price of other cooking oils, such as sesame and groundnut. No plans currently exist to use it as a biofuel, however.

The country's oil palm industry is centered in Tennasserim (Tanintharyi) Division starting south of Tavoy (Dawei), which is most suitable for the preferred climate of oil palm. This southern extension of Burma is also where the world's last remaining intact lowland Dipterocarp rainforests reside, including the infamous Gurney's Pitta bird. This is perhaps the most threatened ecosystem in Southeast Asia as Malaysia and Indonesia have already converted their rainforests into oil palm estates. In order for the companies to develop their oil palm estate, they must clear-cut the land, selling the larger valuable logs on the black market, and burning the rest. Sometimes the companies never even plant oil palm, the concession awarded being just a cover for very lucrative logging operations.

According to government figures, 500,000 acres of oil palm concessions had already been awarded to Burmese companies in Tennasserim Division by 1999. By 2009-10, the total concession area had doubled to just over 1 million acres to about 40 private Burmese companies, although the majority of concession areas are controlled by only a handful of companies. However, only a fraction of the total awarded concessions have actually been planted. According to government statistics, about 250,000 acres have actually been planted since 2008-09, which represents a 25 percent increase since 2006-07. There has been a steady increase in oil palm every year this decade with an overall 250 percent increase since 2000-01.³²⁴

The vast majority of the oil palm plantations are owned by Burmese businessmen, with only a small percentage owned by the government. The military and smallholder farmers also cultivate a much smaller acreage of oil palm.

The main Burmese company developing the industrial oil palm sector is clearly Htay Myint's Yuzana Oil Palm Cultivation Company, a subsidiary of the infamous Yuzana Company. He was the first to be awarded a private oil palm concession in 1999, now totaling 120,000-150,000 acres in Tanintharyi Division. Yuzana Co. is already harvesting and processing oil palm from their plantations with their high-capacity crude and refined processing factories finished a few years ago in the area. The other companies already harvesting palm oil also sell their product to Yuzana Company, who has now effectively monopolized the domestic oil palm sector.

Companies make contracts with Burman labor from mostly the central Dry Zone, shipping them to Tennasserim Division using the government-owned Myanmar Star Shipping. However, about fair percentage of them only then slip across the border into Rayong, Thailand – a common illegal entry point for Burmese migrants.

It is unclear the degree to which Burmese companies are self-financing their oil palm investment. In the mid-2000s the Myanmar Economic Bank gave a big loan to Burmese companies investing in the oil palm sector but the conditions were not overly favorable. Since then no more loans have been provided to companies investing in oil palm.

Apparently there is no formal foreign investment in Burma's oil palm sector, although it is suspected that some of the Burmese companies with extensive oil palm concessions are financially backed by foreign investors, particularly Malaysian Chinese. It is believed that foreign investment will soon flood into the country's oil palm sector, however. Already there is specific interest already expressed from Thailand, Malaysia, Korea and China, with pending contracts for several foreign companies being discussed. The Burmese government now encourages such foreign investment as they will obtain good profit from the high taxes charged to foreign companies, as well as help reach their export quotas.

Agribusiness as now practiced in Burma employs destructive profit-maximizing farming techniques only benefiting military-favored Burmese companies, foreign investors, and governments, but which seriously impacts on local food security and livelihoods as well as the environment. Companies do not have the resources capable of producing consistently high yields on such large expanses of land, which is evidenced by the slump in agricultural productivity despite millions of acres now allotted to companies. Smallholder farmers are

regarded as using land most efficiently, and are best suited to working appropriately in any given environment, unlike national agricultural programs with state quotas.

5.5.2 Case Study: Degradation of Inle Lake

The second largest freshwater lake in Burma, Inle Lake, is a famous tourist destination just south of Taunggyi in Shan State. It is located 890 meters above sea level in the Balu Chaung valley between the Sinduang (to the east) and Letmaunggwe, Thandaung and Udaung mountain ranges (to the west).^{325 326} Thirty streams feed into Inle Lake, which then head downstream eventually reaching the Moby Dam and the Lawpita Hydropower Plants. Lake depth varies with the season and is said to lie somewhere between seven meters and four meters although one more recent estimate puts it two meters lower than any previous estimate.^{327 328 329}

Environmental and cultural significance of Inle Lake has long been recognized. Inle Lake and its surroundings became a legally protected bird sanctuary in 1985. The government set up the Steering Committee of Inle Lake Conservation in 1992.³³⁰ In 1998, Inle Lake was named one of the representatives of the Earth's 200 most valuable eco-regions.³³¹ Inle Lake is also home to the Phaung Daw Oo Pagoda and the Intha people, famous for a style of boat rowing that uses the leg, the hallmark of the tourist industry there. In 2006, Inle Lake and its surroundings were named home to nine indigenous fish species including the locally prized Inle Carp (locally called "nga-phein"), a nesting place of the Sarus Crane and habitat for a wide diversity of migratory and resident bird species.

In the past twenty years the population in the 560m² Lake Inle area has grown by nearly 40% to over 140,000 in 2005.³³² Besides the Intha ethnic population, the area also has many communities of Shan, Pa'oh, Danu, Taungyo and Burmans. Livelihoods in the region include agriculture, fishing, textile cottage industries, tourism, fish farms, metal smithing and motor driven transportation. Traditional floating gardens are also a unique livelihood practice in this ecosystem.^{333 334 335 336 337}

The presence of widespread hydroponic agriculture on Inle Lake has given rise to an economically important tomato crop with a distribution chain reaching into Thailand.³³⁸

Despite the implementation of a wide variety of improvement and rehabilitation projects since 1992, the lake is shrinking every year.^{xxxvi} Furthermore, in 2010 the water level of the lake dropped to its lowest level in 50 years.³³⁹ Low lake water levels and shrinking open lake area directly impact lake ecological systems and the ability of local people to carry out lake based livelihoods. Lake water quality is also degrading due to the use of chemical fertilizers and pesticides for hydroponic agriculture. Lake water is no longer safe for drinking and lake-borne ecologies are struggling to adjust to high chemical and nutrient levels. Twenty years of exposure to the neurotoxins in chemical pesticides and fertilizers and a lack of knowledge on how to safely use pesticides are directly affecting local people's health.^{340 341}

^{xxxvi} Reasons for shrinking are debated. There is speculation that it has mainly has to do with the floating gardens and less with upstream sedimentation and general watershed issues, Others argue that "upstream" threats in the watershed are mainly to blame - shifting cultivation, irrigation and deforestation. Changing climate change patterns are also another possible factor.

“Inle Lake deterioration is the serious concern for the local people, business men and other different stakeholders. ... Huge problems lie ahead and the water level has gone down quite steep. ... The problem is urgent it will not go away soon. The problem requires massive infrastructure resources not just money but technical and for those of us who believe individual and collective to make the difference and do this together from donors to private sector, NGOs and government.” – in opening remarks 30 July 2010 meeting of The Environment Thematic Working Group Meeting.

UN agencies, government and national conservation NGO FREDA have set up an environment steering committee. One of the initiatives is to co-ordinate the identification of environmental protection activities to implement around Inle Lake with local communities. The Global Environment Facility will fund 0.5 million for 10 projects around the lake.^{342 343 344}

5.6 Illegal Wildlife Trade

Illegal trade in wildlife is rampant in Burma. Many wildlife species, oftentimes endangered, are smuggled through Burma’s porous borders, especially along border with Yunnan Province, China. One of the most charismatic species smuggled is the Asian elephant, which are especially prized for their ivory. Up to 250 elephants have been smuggled to Thailand to work in the tourism sector in the past decade, mainly through Three Pagodas Pass.³⁴⁵

A recent report by the NGO TRAFFIC observes that non-government controlled areas in the north of Burma bordering China, India and Thailand, play a major role in facilitating regional trade in big cats and other endangered species: “Parts and derivatives of big cats and live animals are sourced in Myanmar, Thailand, Lao PDR, Malaysia and India and trafficked across national borders into these non-government controlled areas where they are stored, wholesaled and retailed to local and international buyers”³⁴⁶.



Figure 8 Black Bear being traded at Sop Lwe, Mekong river, Shan State. Wild animals are sold and sent through Lao to China and Vietnam. LNDO 2010.

In the Chinese border town of Mong La in Shan State, species for sale in the market included black bears, macaques, small primates, pangolins, and rare birds.³⁴⁷ Hides, leopard and tiger skins, deer horn, and live Burmese star tortoises and cobras can also be found there. Some of these live animals are on the International Union for the Conservation of Nature's "Red List" of critically endangered animals.³⁴⁸ Other wildlife from Shan State bound for China includes otters, chameleons, grass lizards, snakes, crickets, dung beetles and geckos.³⁴⁹ Such black market goods can also be found in many of Burma's border markets.

5.7 Climate Change

According to a recent ADB report, the Southeast Asia region is highly vulnerable to climate change "with its extensive, heavily populated coastlines; large agricultural sectors; and large sections of the population living under \$2 or even \$1 a day."³⁵⁰ In recent years there has been an increase of droughts, floods, tropical cyclones and heat waves; if no action is taken the people and environment in the region are likely to suffer (on average) more than the rest of the world.³⁵¹ The Intergovernmental Panel on Climate Change (IPCC) reports that low lying coastal areas, small islands and deltas like those of the Irrawaddy, Salween, Sittaung and Kaladan rivers in Burma are at serious risk of sea level rise, especially during cyclones and floods. Sea level rise will eventually displace millions from the densely populated and fertile plains and coastal communities.

Climate change is also expected to increase water shortages and droughts in some areas. There is evidence that the Himalayan glaciers that feed Burma's main rivers are slowly melting.³⁵² This means that over time Burma's rivers will soon lose significant amounts of water flow and volume. Combined with the flow-changing effects of dozens of dams in Burma and China, water will become increasingly scarce, resulting in more damage to both biodiversity and local livelihoods.

The Berlin-based climate watchdog, Germanwatch, ranked Burma as the second worst country affected by extreme weather events caused by climate change from 1990 to 2008. The group said that "poorer developing countries are often hit much harder ...these results underscore the particular vulnerability of poor countries to climatic risks, despite the fact that absolute monetary damages are much higher in richer countries."³⁵³ The report also ranked Burma as the worst-hit country in the world in 2008 due to the impact of Cyclone Nargis, which devastated the Irrawaddy delta in early May that year, killing an estimated 150,000 people. About 2.5 years later, Cyclone Giri hit the western coast of Arakan State on October 22, 2010 which is considered to be the second worst damaging cyclone after Nargis in Burma on record. At least 45 people died, 70,975 left homeless, 15,000 houses completely destroyed with a total of at least 200,000 people affected and 7,081 hectares of agricultural land destroyed.³⁵⁴

Burmese weather experts point out that climate change has been shortening and shifting Burma's monsoon pattern since 1977.³⁵⁵ Reduced rain bringing storm activity in the Bay of Bengal and increased frequency and intensity of extreme weather events has led to an increase in heat indices and a decrease in annual rainfall.³⁵⁶ ³⁵⁷Between January and July 2010 southern and eastern Shan State, Karen, Mon and Karenni States, as well as lower

Sagaing, southern Pegu, Irrawaddy and Tennasserim Divisions had about 20% less rain than in an average year.³⁵⁸

Dr. Tun Lwin, a former director general of the Department of Meteorology and Hydrology, says his analysis shows that extreme weather events, such as tornados, storms and lightning, have increased in frequency since 2006. There was not a single tornado in almost 50 years' time since 1958. But in the period from 2006 to 2009 the number of tornadoes was 16, 11, 8, and 16 in the respective consecutive years. Another indicator of extreme weather is that the number of lightning-caused deaths increased to as high as 100 between 2006 and 2009.³⁵⁹ The weather expert explained that the main cause of extreme weather events is that the monsoon period has shortened, the pre-monsoon and post-monsoon periods have become longer, the likelihood of cumulonimbus clouds to form is higher which in the end creates tornadoes, strong winds, lightning and isolated heavy rain.³⁶⁰ The Myanmar Times also reported that 2010 summer set new heat records in some areas of the country because of the effect of El Nino in 2009-2010.

Compared to industrialized countries, and even developing countries, Burma's carbon footprint is minimal, mostly because of the lack of industry and very few cars on a per capita basis. Widespread deforestation in the country, however, means that it has contributed to large volumes of carbon, an important factor in global warming. In addition, the large shallow reservoirs of the dams produce methane, which is a powerful greenhouse gas.³⁶¹ Rice cultivation in fields that are kept flooded through the whole growing period also produces methane gas.³⁶²

Although Burma is not a big contributor to greenhouse gases, the country could play an important role in climate change mitigation, for example through REDD mechanisms. However initiatives such as these are controversial. REDD, or reduced emissions from deforestation and degradation, developed in 2005 from a group of countries called the Coalition for Rainforest Nations.³⁶³ It is based on the idea making payments to governments, companies, and forest owners in the South to discourage deforestation and forest degradation.³⁶⁴ In 2007 at the Conference of the Parties to UNFCCC in Bali (COP-13), an agreed text on REDD was outlined, known as REDD+. REDD+ includes not just discouraging deforestation and forest degradation but 'conservation', 'sustainable management of forests', and enhancement of carbon stocks.^{xxxvii}

As explained earlier in this report, in 2010 the Burmese government expressed interest in REDD+ but it was mutually agreed that they would not formally proceed with an application to join at this time. UN-REDD is however currently supporting representatives from civil society organizations and Ministry of Forestry officials to attend REDD+ trainings and workshops (see section 3.6.3).

There is much debate surrounding REDD programs. REDD-Monitor, a website that shares information about how REDD is developing explains that REDD is one of the most

^{xxxvii} Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries", see UNFCCC COP 13, <http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf#page=8>

controversial new issues in the climate change debate, and that REDD+ has activities that could have negative impacts on indigenous people, local communities and forests:

- “1. “conservation” sounds good, but the history of the establishment of national parks includes large scale evictions and loss of rights for indigenous peoples and local communities.
2. “sustainable management of forests” could include subsidies to commercial logging operations in old-growth forests, indigenous peoples’ territory or in villagers’ community forests.
3. “enhancement of forest carbon stocks” could result in conversion of land (including forests) to industrial tree plantations, with serious implications for biodiversity, forests and local communities.”³⁶⁵

Point 3 was addressed in a safeguard outlined in the Cancun agreement at the UNFCCC COP 16 in Cancun in 2010.^{xxxviii} If there are adequate safeguards and political will to implement REDD+, then communities may benefit from the program. However, so far indigenous peoples rights have not been adequately recognized or protected in any agreements on REDD.^{366 367}

6. CONCLUSION

In order to take steps towards ecologically and socially responsible development in Burma, Burma must have a sound policy framework for environmental protection and sustainable development that enables citizens to take part in decision making about their own development, and ensures responsible private sector investment. Until then, new foreign investors investing in energy, extractive and plantation sectors should refrain from investing. Existing investors should immediately cease all project-related work - particularly in sensitive areas throughout Burma - until adequate safeguards are in place to ensure investment does not lead to unnecessary destruction of the natural environment and local livelihoods. At the same time, International NGOs and UN agencies should ensure people are recognized as key actors in their own development, rather than passive recipients of commodities and services; and civil society organizations should empower communities throughout Burma to understand their rights.

^{xxxviii} “Actions are consistent with the conservation of natural forests and biological diversity, ensuring that actions referred to in paragraph 70 of this decision are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits”, see annex 1 paragraph 2 (e), UNFCCC COP 16 http://unfccc.int/files/meetings/cop_16/application/pdf/cop16_lca.pdf

In this Report.

Disclaimer: "The list on the page 15 is intended as a list of peoples living in Burma.

BEWG as a collective does not take a stand on which of these groups are indigenous or ethnic or simply part of the population living in Burma right now "

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