Draft Environment and climate change policy brief

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This desk study has been written by Olof Drakenberg and Hanna Wolf at Sida's Helpdesk for Environment and climate change at the request of AnnaMaria Oltorp and Tomas Lundström, Sida. The purpose is to provide background information on how environment and climate change aspects relates to proposed Swedish Result Areas and point to possible areas for environmental mainstreaming for Sida to consider. The Helpdesk has identified some possible actors, programs or policy processes. It should be noted that the list is only indicative.

Table of contents

Summary: key environment and climate change challenges and underlying drivers 2
Result Area 1 Strengthened public institutions to promote democratic governance 3
Result area II: Respect for human rights, freedom of speech and accountability 6
Result area III: Broad public participation in the Peace process 9
Result area IV: Improved health for children and women with particular focus on sexual and reproductive health 11
Annex 1 Enviro Analysis Myanmar ADB Country Partnership Strategy 15
Annex 2 Helpdesk summary of land rights in Burma 20
1. Current Trends and Risks 20
2. Agricultural Lands 21
3.Forestry Lands 22
Annex 3 Linkages between climate change and human rights 22

Contact:
Olof Drakenberg olof.drakenberg@gu.se
Hanna Wolf hanna.wolf@slu.se

Summary: key environment and climate change challenges and underlying drivers[1]

"Myanmar's current growth pattern is placing huge pressure on its environment and, if continued, will certainly be unsustainable given the country's continued population increase, expected rapid industrialization, increased consumption of and demand for natural resources for food production and trade, and increased energy consumption." ADB - Myanmar in transition, 2012

Burma is rich in renewable and non-renewable natural resources and is known for its high level of biodiversity. Oil, gas industries account for about 50 % of government revenues[2] but have a relatively small impact on local employment or local economy. Two thirds of the population derives their livelihoods from agriculture, including forestry and fishery. Loss of forest resources, land degradation, biodiversity losses, waste management and climate change represent key environmental challenges. Impacts include loss of livelihoods and bad health that reduce participation in education and economic activities.

Concerning forests, the underlying drivers are unsustainable levels of commercial logging, illegal logging, conversion of forests for agriculture and extraction of fuel wood, representing more than 80% of primary energy. As regards land degradation, key causes include growing population pressure in upland areas, mono-cropping practices and excessive forest harvesting and tenure insecurity. The causes for biodiversity losses are similar including conversion of protected forests and other forests and weak control of commercial exploitation of flora and fauna. Current problems include improper pricing of natural resources, inability to collect taxes and fees, and inequitable use of funds collected. Cronyism and capture is a significant feature in the economy. [3]

Properly managed these resources can help finance much needed investments in basic services and infrastructure to the benefit of the population. The fact that many natural resources are found in conflict regions such as the Kachin state (hydro power, timber) further complicates management of these resources and can contribute to instability.

Burma is one of the world's most vulnerable countries to climate change[4] and the capital Rangon was recently ranked among the five most vulnerable cities[5]. A large part of the population live in low lying areas prone to flood risks as experienced during Cyclone Nargis that in 2009 killed about 130 000 people. The dry zone in central Burma covers about 10% of the area and a third of the population. The area is food insecure and water scarcity is already a large problem that is expected to grow due to climate change with fewer and more intense rains[6].

Currently the country is undergoing reforms including promotion of foreign investments and infrastructure development. Given weak institutional capacity and high levels of corruption there is an apparent risk that short term benefits of powerful economic interest will take precedence over the public interest of a resilient society and respect of human rights. Reforms and efforts to strengthen the rule of law, democracy, freedom of expression, access to information and an active and informed civil society are important also for environmental justice and addressing the pressing environmental problems facing Burma.

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[1] See Annex 1 for an excellent and updated 5 pages overview of the state of the environment and institutional analysis made by ADB in 2012. This summary largely builds on the Annex 1.
[2] EITI aide memoire Nov 2012
[3] World Bank, 2012, Interim Strategy for the Republic of the Union of Myanmar for the period 2013-2014
[4] ADB, 2009, Building climate resilience in the agriculture sector in Asia and the pacific
[5] ADB, 2012,
[6] UNDP, 2011,Adaptation Fund proposal 060111

Result Area 1 Strengthened public institutions to promote democratic governance

Resultat 1.1	*Förstärkt kapacitet hos nationella och regionala parlament att utöva sina konstitutionella funktioner*
Resultat 1.2	*Förstärkta institutioner och ramverk inom rättsväsendet för att säkerställa rättsäkerhet och tillgång till rättvisa*
Resultat 1.3	*Förstärkt kapacitet för reformer av offentliga institutioner för demokratisk samhällstyrning (och korruptions-bekämpning)*

Sweden considers working with UNDP to strengthen institutions for democratic governance and overtime complement this with bilateral cooperation with Swedish authorities including strengthening the rule of law. Moreover Sweden considers examining opportunities for business to contribute to new or stronger anti-corruption measures and considers contributing to establish new institutions for anti-corruption and support of the EITI process.

These areas hold prospects for contributing to better management of environmental resources as better planning, anti-corruption activities and democratic oversight reduce risks of degradation of the assets on which the poor depend and violations of their rights to access these resources. However, increased democracy and economic reforms may come at the expense of livelihoods of poor men and women if institutions are weak. Attention to natural resources sectors, upon which a large majority of the people depends, and attention to revenues from extractive industries that could help finance needed social investments could provide opportunities to strengthen development results, particularly related to 1.1. and 1.3.

Tentative dialogue issues and complementary action

The following issues could be considered in the planning of Swedish contributions and in the dialogue with partners.

- Protecting and enhancing tenure security for poor and marginalized groups, including conflict resolution mechanisms ;

- Increasing access to information and access to decision making processes regarding the management of land, water, forests and other natural resources;

-Creating sound conditions for concessions (fiscal, social, environmental, compensation to local communities, domestic sales of electricity generated or exports only);

-Ensuring stipulated conditions are met, the rule of law (is fair compensation given, are taxes and fees collected, are social and environmental regulations respected)

-Budget transparency related to natural resources sectors (revenue transparency, budget and expenditure transparency at national, regional and local level) to allow for accountability

Below follows a discussion on how the issues listed above could be addressed in Swedish development cooperation.

Secure and equitable land tenure is a critical element for a peaceful development of Burma. Recently approved land laws are criticized for not providing protection of the rights of smallholder farmers, for not explicitly giving equal rights for women to inherit land and for favoring large scale commercial agriculture.[7] Land reform processes are complex and working with government to

[7] Oberndorf, 2012, from the Food security working group's land core group

improve reforms may be outside of the directions given. It might be considered to strengthen the capacity of parliament at national and regional level to assess policies related to land and natural resources and capacity to follow government revenues and expenditures. In addition, by contributing to the strengthening of the government frameworks for providing access to justice Sweden may indirectly support better protection of land rights. There are good prospects for working on land issues under Result area 2, see chapter 2.

The government has declared a strong ambition to become an EITI candidate country which implies that companies in extractive industries (oil, gas, minerals) publish what they pay and government publish what they receive. This requires significant strengthening of government's PFM systems, cooperation with business, involvement of civil society for oversight and improved anti-corruption mechanisms. DFID, the World Bank and NGO's like Revenue Watch are likely to support the EITI process with an ambition of tying the process to the broader PFM development. Also ADB is providing support to strengthen capacity for revenue mobilization/taxation which may constitute a useful entry point. There may be opportunities for Sweden to make a useful contribution to strengthen the tax base, reduce corruption and protect the rights of vulnerable groups through the EITI process.

Support to or development of a National Audit office may be an important complement that could be investigated over time. Sweden has comparative advantages in this field. According to EITI standards, government is responsible for the full involvement of civil society in EITI process. There are several CSO's in Burma who have shown an interest in the EITI process.[8] Sweden could ensure that all relevant cooperation partners are well informed about the EITI process and opportunities to make use of the process and the increased revenue transparency to hold government and business to account. This would largely be undertaken in Result area 2 through support to civil society and the media, more information in the next chapter.

Burma is attracting investments, primarily in extractive industries and hydro power but also in the agro business. Often investments are met with opposition from local communities and rights of vulnerable groups are often violated.[9] UNDP, through the UNDP UNEP Poverty Environment Initiative[10] intends to work with the Myanmar Investment Commission, Directorate of Investment and Company Administration to introduce relevant social and environmental safeguards for foreign investments. Defining safeguards is one thing, ensuring their implementation is a much more challenging endeavor. Sweden could investigate opportunities for involving business, including Swedish firms, and civil society groups to participate in the process of establishing the safeguards. Perhaps more importantly, Sweden could contribute to greater awareness among parliamentarians and civil society at national and regional level[11] to make use the safeguards and possibly monitor compliance in selected geographic areas.

The capacity of environmental authorities is weak. ADB, through the Core Environment Programme, is contributing to strengthen the environmental management capacity, including the use of Environmental Impact Assessments to reduce environmental risks. Environmental impact assessment creates an opportunity for civil society to participate and voice their concerns. Although

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[8] EITI aide memoire Nov 2012

[9] In September 2011, civil society protests against the Myitsone dam on the Irrawady in the Kachin state led government to halt the construction at least until 2015. www.bbc.co.uk/news/world-asia-pacific-15121801 September 30th 2011. Protests concerned social and environmental impacts of the dam but also included political aspects like who gets the benefits of the contract and export earnings from distribution to China and who makes decisions over the territory. This illustrates that environmental concerns and conflicting uses of resources are often an arena for democratic movements to raise their issues and help craft more democratic governance.

[10] See for instance UNDP-UNEP, 2011, "Managing private investment in natural resource - a primer for pro-poor growth and environmental sustainability

[11] Regional organisations like Asia Pacific Forum Women, Land and Development, the Center for People and Forests, RECOFTC might have useful views for the drafting of safeguards and once ready they might use them for protecting the rights of vulnerable groups.

the EIA system in itself is far from perfect, it may be a useful tool for civil society to articulate their rights. Therefore it is important that civil society has the capacity to make use of this tool. Again this may be better achieved in Result Area 2.

Recommended reading:

Annex II Helpdesk summary of Land rights

EITI aide memoire (update from November mission to Myanmar)

Oberndorf, J.D., R. 2012, , *Legal review of recently enacted farmland law and vacant, fallow and virgin lands management law - Improving the legal and policy frameworks relating to land management in Myanmar,* Food Security Working Group, November 2012

EU FLEGT Facility, *BASELINE STUDY 4, Myanmar: Overview of Forest Law Enforcement, Governance and Trade,* August 2011.

Result area II: Respect for human rights, freedom of speech and accountability

Resultat 2.1	*Stärkt och jämställt folkligt deltagande i demokratiska processer*
Resultat 2.2	*Ökad professionalitet inom media med fokus på journalister*
Resultat 2.3	*Ökad kapacitet och möjlighet för civilsamhället att agera i sin roll som ansvarsutkrävande aktör*

Sweden plans to support the development process in Burma among all actors and at all levels of society in order to enhance the adoption and practice of basic principles of the rule of law. Through its development support, Sweden wants to contribute in achieving results within *increased respect for human rights, with focus on civil- and political rights including equality and a free and independent media*. Women's networks, civil society organisations, ethnic minority groups, and media groups (both local and media actors formally in exile) are stressed as key actors. But also work towards government's administration in order to increase accountability is prioritised. Private companies and labour organisations/unions are also identified as actors to collaborate with in order to increase transparency. Issues such as land rights are highlighted as a strategic area of intervention, specifically access to land and natural resources. Also the role of media to report on basic human rights and human rights offences, are stressed.

Tentative dialogue issues and complementary action

The following issues could be considered in the planning of Swedish contributions and in the dialogue with partners.[12]

- Protecting and enhancing tenure security for poor and marginalized groups including small holder farmers and urban slum dwellers.
- Increasing transparency and procedural rights as participation in decision making related to allocation of natural resources rights (hydro power dams, mineral concessions, land investments etc.)
- Empowering civil society to monitor that legal provisions for investments are met (is fair compensation given, are taxes and fees collected, are social and environmental regulations respected)
- Increasing awareness in society about environment and disaster risk to enhance the resilience[13] of communities. This includes early warning systems and information on opportunities and barriers for women, men and business to reduce risks. It could also include reporting on water pollution levels, dangerous exposure to chemicals
- Increasing the capacity of media to report on human rights and violations .This includes land rights and disputes, investments, revenue transparency, its impacts on vulnerable groups

[12] Many of the listed issues are the same as those listed in Result Area 1..

[13] The ability of an individual, a community, a country or a region to anticipate risks, respond and cope with shocks and stresses, while addressing the underlying root causes of risks, recover, and continue to develop. Sida's working definition of resilience, January 2013.

Below follows a discussion on how the issues listed above could be addressed in Swedish development cooperation.

Work on civil and political rights is important for sustainable management of natural resources and reduced environmental risks. In September 2011, civil society protests against the Myitsone dam on the Irrawady in the Kachin state led government to halt the construction at least until 2015.[14] Protests concerned social and environmental impacts of the dam but also included political aspects like who gets the benefits of the contract and export earnings from distribution to China and who makes decisions over the territory. This illustrates that environmental concerns and conflicting uses of resources are often an arena for democratic movements.

To increase effectiveness and stimulate active participation of poor women and men in decision making around environmental resources and management the empowering of local bodies is important. Possible actors to cooperate with are local governments, community based organisations, national and international NGOs, including Swedish Civil Society organisations such as e.g. RWI, Diakonia, International Centre for Local Democracy (ICLD).

Recently approved land laws are criticized for not providing protection of the rights of smallholder farmers, for not explicitly giving equal rights for women to inherit land and for favoring large scale commercial agriculture.[15] The need for reform is also acknowledged by a range of government stakeholders.[16] Sweden could enhance the capacity of civil society organizations to advocate for enhanced legislation and conflict resolution mechanisms, to inform citizens and communities about current rights and monitor adherence to current legislation. To protect those

It may also be rewarding for civil society organisations working on land rights to link their work to its environmental benefits or climate risks thus giving access to complementary arguments, actors and arenas. Farmers' greater willingness and ability to invest in water conservation techniques in dry land areas if tenure is secure is one such argument. An example of an environmental arena is the legal provisions for Environmental Impact Assessments where CSOs can empower affected groups to make use of the opportunity to voice their concerns. Similarly if social and environmental safeguards are developed for foreign investments, these processes can be useful tools. Finally examples of environmental actors with whom CSOs could collaborate/exchange include environmental government agencies/climate change councils, NGO's/CSO's working on climate justice or sustainable agriculture. It may also include groups specialized on more narrow environment related topics e.g. water access, water quality, biodiversity.[17]

The effectiveness of processes mentioned under Result area 1 greatly depends on the participation of civil society. The mentioned processes relate to revenue transparency (EITI), environmental and social safeguards for investments (UNDP) and legal developments related to land rights and environmental impact assessments (ADB) etc.

Sweden could make sure that all partners are aware of these on-going processes and how they can make use of them in their work. There may also be opportunities for Sweden to support specific components that link to these processes. Synergies with Sida funded regional programmes active in the area could be important.

Freedom of speech and an active media can greatly enhance the opportunities for sustainable management of Burma's natural resources, reduce negative health impacts from air and water pollution. A key element is often the contribution to broader societal awareness of environment-

[14] www.bbc.co.uk/news/world-asia-pacific-15121801 September 30th 2011
[15] Oberndorf, 2012, from the Food security working group's land core group
[16] Oberndorf, 2012, from the Food security working group's land core group
[17] According to Revenue Watch Institute, a key constraint among local civil society groups was a serious lack of resources available to enable meaningful focus. "Groups with capacity are being pulled in every possible direction".

poverty-development linkages. In its support to professionalize the media, Result 2, Sida could ensure attention is also given to land rights, natural resource related corruption, environmental health risk and opportunities of a greener economy. There may be networks for environmental journalist or journalists working within specific areas (water- sanitation-hygiene, extractive industries, land rights) that could be of interest.

Additional reading

Annex II Helpdesk summary of Land rights

Annex III Schematic table of the interconnections between Environmental degradation, climate change and human rights

EITI aide memoire (update from November mission to Myanmar)

Human Rights Based Approach and Sustainable Development, Information Brief, Sida, November 2012

Asian Human Rights Commission, *The state of human rights in Burma 2012*, AHRC-SPR-004-2012, http://www.humanrights.asia/resources/hrreport/2012/ahrc-spr-004-2012.pdf/view

Oberndorf, J.D., R. 2012, , *Legal review of recently enacted farmland law and vacant, fallow and virgin lands management law - Improving the legal and policy frameworks relating to land management in Myanmar,* Food Security Working Group, November 2012

The Burma Environmental Working Group, 2011, Burma's Environment - people, problems and policies, See page 26 for a list of organizations inside and outside of Burma 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.

Result area III: Broad public participation in the Peace process

Resultat 1	*Stärkt kapacitet och förmåga hos nationella och regionala institutioner att hantera och lösa konflikter på ett fredligt sätt*
Resultat 2	*Brett deltagande av kvinnor och etniska grupper i fredsprocesser på lokal nivå*

For a future and sustainable peace solution to take place, Sweden stresses the importance for ethnic minority groups to take meaningful part of the peace process as well as the importance to build trust between the Burmese government and the people in Burma's ethnic border states. Development support can contribute to increase living condition and to promote human rights in these areas. Meaningful participation in the peace and reconciliation process also have to be promoted for women, hence support to creating mechanism for conflict management should be supported that takes charge of women's specific knowledge, experiences and needs, in line with the UNSCR 1325. Sweden should take a neutral position together with a "do no-harm" perspective. Sweden should also initiate studies to map out and identify key actors and processes to support in order to reach a broad participation in the peace process that gives sustainability.

Tentative dialogue issues and complementary action

The following issues could be considered in the planning of Swedish contributions and in the dialogue with partners.

- Considering minority groups and women's situation in Burma, do all stakeholders have the capacity to participate meaningfully in the peace and reconciliation process? Capacity strengthening efforts could include information about participation, land rights, access to natural resources, environmental risk factors, revenue transparency etc.
- Questions of who has access to and control over land and natural resources are central to understanding patterns of rural growth and causes of conflicts. These issues are especially relevant in situations involving indigenous peoples or other ethnic minority groups.
- At the outset of peace building processes, identify locations or potential "hotspots" where natural resources may create tension between groups, as well as opportunities for environmental cooperation to complement and reinforce peace building efforts

Below follows a discussion on how the issues listed above could be addressed in Swedish development cooperation.

The Peace Donor Support Group led by Norway and the Government led Myanmar Peace Support Initiative began their work in 2012.There is no mention yet of seeking opportunities to identify if and where collaboration over natural resources (river, forest, fishing water etc) could help build trust between different groups. For instance this could involve local level dialogue to reach agreement over management principles of the common resource as a means to protect the livelihoods of vulnerable groups. Possibly such interventions are already taken place under the program while also addressing urgent needs such as de-mining activities to ensure access to agricultural lands and markets. Experiences from other post-conflict countries could be drawn upon and the participation of women should be ensured.

Sweden could raise the above mentioned issues in the dialogue with the Peace Donor Support Group. These aspects may also be integrated in Swedish studies undertaken in this result area.

Greater transparency related to control over resources and tracking the use of funds generated can reduce tension between different parts of the country. Such activities may best be undertaken under Result areas 1 and 2.There may also be linkages to work on environmental and social safeguards for investments discussed under Result areas 1 and 2.

Further reading:

Access to and control over natural resources is one of several underlying factors that impacts on the peace process and with potential to fuel conflict.[18] Many of the country's natural resources are located in border and ethnic regions and foreign investments in land, hydro power or extractives often result in militarization and displacement and violation of rights. As an example, logging has provided incomes for ethnic armed opposition groups.[19] Granting local control over resources could be away to reduce conflict and has in the past been used to reach agreements on cease fire.

Furthermore, current insecurity and conflicts contributes to short sightedness and reduce the willingness and ability of small scale farmers to invest. This has a negative impact on productivity and tends to lead to unsustainable agricultural practices. As a result the quality of ecosystems deteriorates and thus their ability to provide services as food, fodder, building materials and water purification. A sound policy framework where men and women and vulnerable groups take part in decision making is important. Joint management of natural resources such as a river, a lake or a forest has proven to provide opportunities for building trust between different actors. Such efforts attempt to capitalize on parties' environmental interdependence, which can serve as an incentive to communicate across contested borders or other dividing lines of tension.[20]

The Burma Environmental Working Group, 2011, Burma's Environment - people, problems and policies, See chapter 4.3.2. Economic development, conflict and natural resources in ethnic areas, page 46 http://www.bewg.org/pubs/finish/4/34

UNEP, 2009, From conflict to peace building- the role of natural resources and the environment, see page 22 on Contributing to dialogue, confidence-building and cooperation http://postconflict.unep.ch/publications/pcdmb_policy_01.pdf

[18] According to Burma Environmental Working Group, 2011foreign investments in hydro power or extractive industries often results in militarization and displacement. Control over natural resources is seen as a major cause of conflict in ethnic areas, for instance the Hatgyi dam site in the Karin State. The building of pipelines in the Shan State will pass through disputed areas occupied by the Kachin Independence Army.

[19] BEWG, 2011

[20] UNEP, 2009, From conflict to peace building- the role of natural resources and the environment

Result area IV: Improved health for children and women with particular focus on sexual and reproductive health

Resultat 1	*Ökad tillgång till primär hälsoservice genom ett stärkt hälsosystem med fokus på mödra- och barnhälsa i särskilt utvalda områden*[21]
Resultat 2	*Ökad tillgång och kapacitet av hälsoservice genom civilsamhället i valda områden*[22]

Swedish support in this result area is projected to first and foremost be distributed through a joint fund focused on maternal and child health and general strengthening of the health sector. Health services will also be delivered by NGO's and the private sector. Support to the fund will be complemented with capacity development efforts including seminars and dialogue with the ministry of health and other relevant stakeholders. Sweden has a comparative advantage in overall strengthening of health institutions.

Tentative dialogue issues and complementary action

The following issues could be considered in the planning of Swedish contributions and in the dialogue with partners.

- Ensuring that the health sector has access to and make use of all relevant information related to disaster risk and projected climate impacts.

- Raise awareness of the importance of preventive health care and the right to a healthy environment within the health system, including hygiene, water and sanitation, treatment of hazardous hospital waste etc.

- Raise awareness of the importance of preventive health care and the right to a healthy environment to stimulate action outside of the health system. This includes the right to information about environmental health risks and disaster risks, measures to reduce water pollution, improve waste management, inclusion of hygiene in education sector etc.

- Community participation in planning and monitoring of health services is expected. It may be an opportunity to link monitoring of health services to monitoring of water and sanitation services.

Below follows a discussion on how the issues listed above could be addressed in Swedish development cooperation.

Access to health services is critical for improving the child and maternal health. The Strategic plan for child health development 2010-2014 recognize the importance of good hygiene practices and water and sanitation as means to promote health. The 3MDG Fund mentions clean water, water treatment, as a potential component with high impact. The Ministry of Health has developed a "National Environment and Health Action Plan" in collaboration with National Commission for Environmental Affairs from Ministry of Forestry in 2010. [23]

The two key aspects for general dialogue could be preventive healthcare more broadly and sector capacity for disaster risk reduction, including climate change risks.

In addition it could be considered to examine the content of the National environment and health action plan and to monitor its progress. There may be opportunities to support broader awareness

[21] 3MDG utvalda områden i komponent 1
[22] 3MDG utvalda områden i komponent 1
[23] http://www.whomyanmar.org/LinkFiles/Health_in_Myanmar_2010_HealthinMyanmar2010_HS_PEPC.pdf

about environmental health linkages and promote activities that can prevent diseases. This would probably take place under the heading of the general strengthening of the health sector and could be linked to Result area 2 and professionalization of the media.

There may also be opportunities to learn from Bangladesh and ADB's, partly Sida funded, work on urban environmental health[24]. This includes experiences of having NGO's as service providers, having information on water, sanitation and hygiene in health services and construction of health facilities that make use of green technologies e.g. solar cells and collection of rainwater which could benefit from climate funding. Bangladesh has extensive experience related to solar panels. Burma, with extremely low levels of access to electricity might find the use of renewables in health centers attractive if climate finance can be mobilised. Perhaps this theme could be discussed at a seminar where relevant stakeholders could contribute with their knowledge.

Finally, concepts for monitoring service delivery might have a broader perspective than only health services. From a health perspective if would be of interest with monitoring of water and sanitation services and if possible including control of water quality. Are there NGO's or other groups that facilitate the participation of users of health, water and sanitation services in monitoring/citizen scorecards? We have not been able to identify possible actors or to assess opportunities for having this as part of the 3MDG Fund.

Additional reading:

Air and water pollution combined with poor hygiene greatly contribute to diseases, human suffering and reduced participation in education and economic activities. A healthy environment is a prerequisite for a good public health. The *Rights to life and security*, and *the right to health*, cannot be fulfilled or are violated when people are exposed to life-threatening environmental hazards or contaminated water and air. The rights to have access to a means of subsistence and be free from hunger are also violated when land, water, or other natural resources become highly polluted or degraded. Unlike most nations, Burma lacks a constitutional right or other legal provisions for a clean and healthy environment.[25]

Presence in the health sector provides an important opportunity to raise awareness of the importance of preventive health care and the right to a healthy environment. Investments in water and sanitation, improved cooking facilities, better access to electricity, controlled use of non-hazardous agro-chemicals and better management of waste reduce the need for health services. Given that Burma is extremely vulnerable to natural disasters, including climate induced disasters; a resilient health system is of great importance. The overall health strategy and design and location of health facilities should take into consideration all relevant risk assessments, including climate change.

These aspects are probably best addressed in Result 1 in a dialogue of the general strengthening of the health sector.

The Strategic plan for child health development 2010-2014 recognize the importance of good hygiene practices and water and sanitation to as means to promote health. Rates of diarrhorea and associated deaths are higher than expected given reported access to water and sanitation. Poor hygiene could be an important explanatory factor. In 2013, the situation is most acute in Rakhine state where about 100 000 displaced people, mostly Rohingyas live in camps with insufficient access to safe water or sanitation.

[24] http://www.adb.org/projects/documents/urban-public-and-environmental-health-sector-development-program-second-tranche

[25] As of 2012, 177 of the world's 193 UN member nations recognize this right through their constitution, environmental legislation, court decisions, or ratification of an international agreement. Boyd, D., 2012, The constitutional right to a healthy environment, in Environment - science and policy for sustainable development, July-August 2012

According to the ADB sector review of Urban development and water , the core constraint to Burmas's urban development is inadequate infrastructure and poor quality of services. "One of the main causes for this has been chronic underinvestment in urban infrastructure over decades, particularly in water supply and environmental infrastructure, including drainage, wastewater, and solid waste management."[26] Yet the official data suggests that access is relatively high compared with similar countries.

	Access to water	Access to sanitation
Rural	69 %	79 %
Urban	75%	86 %

Source: Description of action – Multi donor 3MDG Fund 2012-2016

However, according to ADB these numbers include significant volumes of untreated piped water that do meet the standards. [27] Furthermore urban access to clean water has declined in recent years thus increasing the risks of cholera epidemics.

About 75% of the population has no access to electricity and per capita consumption is among the lowest in the world.[28] 92% of the population use solid fuel, which increase exposure to particles and other forms of pollution that affect risks for respiratory diseases. Women and children are particularly exposed.

Climate variability and change risks are mostly related to extreme weather events. Low lying areas of Burma are particularly vulnerable to natural disasters, including climate related disasters. In addition climate variability and change effect rainfall, river flows and agricultural productivity in dry zones that host about one third of the population of which many are among the most food insecure already. Climate change may also modify exposure to health risks such as malaria. Climate change impacts on the health sector are probably more dependent on adaptation measures undertaken in water, agriculture and disaster risk reduction than in the health sector per se.[29]

See also ADB, 2011, Accounting for health impacts of climate change, ADB-Sida

http://www.adb.org/publications/accounting-health-impacts-climate-change

Exerpts, page 12

The World Bank (2010) explicitly recognizes that the estimated adaptation costs in the health sector would be considerably higher if adaptation investments in the water infrastructure sector (some of which are related to mitigating adverse health outcomes associated with the provision of poor water supply and sanitation services), agriculture (some of which are related to mitigating malnutrition), and natural disasters (some of which have important health outcomes) were to fail to deliver intended benefits. Similarly, Ebi (2008) and Kovats (2009) also recognize that adaptation in other sectors is probably more important for reducing the health impacts of climate change (through disaster mitigation, food and water security, and providing decent infrastructure) than adaptation in the health sector itself.

[26] ADB, Interim Country Partnership Strategy: Myanmar 2012–2014, Sector overview Urban development and water sector

[27] ADB, Interim Country Partnership Strategy: Myanmar 2012–2014, Sector overview Urban development and water sector Recent data for Yangon indicate that water supply coverage remains at about 60%.
Water supply networks do not extend to resettlement areas or to informal settlements, and the hours of supply vary significantly. Chlorination of municipal water distributed in Mandalay was discontinued in 1994.

[28] World Bank, 2014, Interim strategy note for the period 2013-2014

[29] ADB, 2011, Accounting for health impacts of climate change

WHO makes explicit reference to the needs of addressing health concerns in sectors other than the health sector per se. Through its Regional Committee for Western Pacific, WHO developed a Regional Framework for Action to Protect Human Health from the Effects of Climate Change in the Asia–Pacific Region. In a resolution adopted in 2008, member states are urged to

(i) develop national strategies and plans to incorporate current and projected climate change risks into health policies, plans, and programs to control climate-sensitive health risks and outcomes;

(ii) strengthen existing health infrastructure and human resources, as well as surveillance, early warning, and communication and response systems for climate-sensitive risks and diseases;

(iii) establish programs to reduce greenhouse gas emissions by the health sector;

(iv) assess the health implications of the decisions made on climate change by other sectors, such as urban planning, transport, energy supply, food production and water resources, and advocate for decisions that provide opportunities for improving health;

(v) facilitate the health sector to actively participate in the preparation of national communications and national adaptation programs of action; and

(vi) actively participate in the preparation of a work plan for scaling up WHO's technical support to member states for assessing and addressing the implications of climate change for health.

UNEP, From Conflict to Peacebuilding -The Role of Natural Resources and the Environment, 2009, http://postconflict.unep.ch/publications/pcdmb_policy_01.pdf

ENVIRONMENT ANALYSIS[30]

A. Key Environment and Natural Resources

1. Myanmar's economic development and its people's livelihoods largely depend on the country's bountiful natural resources. Despite the low level of industrialization and the low population density, Myanmar's environment is threatened by human activities and climate change.

2. Myanmar's forest cover and quality have steadily declined over the last 30 years, although it remains higher than other countries in the Greater Mekong Subregion (GMS). Forest cover decreased from 61% of the land area in 1975 to 49% in 2006. Natural forest loss averaged 392,540 hectares annually during 1989-2006, representing a major acceleration in forest cover loss.

3. Unsustainable extraction activities put significant pressure on forests. While the government has long practiced sustainable forest management, available data show that commercial logging operations have consistently exceeded the annual allowable cut. Illegal logging in remote and difficult-to-monitor areas, conversion of forest to agriculture, commercial agriculture, and extraction of fuelwood are additional pressures on forests. Fuelwood extraction, which accounted for about 92% of total wood removal in 2000, is significant compared to roundwood removals as more than 80% of total primary energy in Myanmar is still supplied by fuelwood.

4. To address deforestation, the government has established forest reserves with a policy target of 30% of the total land area. Starting from a base of 15% in 1985, protected forest increased to about 26% in 2006. Expenditure on forest conservation also increased in response to the threat of forest depletion, with annual spending growing almost 90 times in nominal terms during 1988–2007. Forest plantations received about 27% of the total annual budget in 2007; other forest management activities received smaller shares of the budget (e.g., natural regeneration expenditure was 1.87% and forestry research and forestry training expenditure was 1.79%). Forest management has been strengthened through the adoption of sound policy and institutional measures. A 30-year forestry master plan formulated in 2002 addressed principle shortcomings in forest management and gave greater attention to elements such as forestry extension, community forestry, agro-forestry, fuelwood energy savings, and human resource development.

5. Land degradation, particularly soil erosion in upland agricultural areas and dry zones, is an increasing problem in Myanmar. Vulnerable farming area as a percentage of the country's total cultivated area was estimated at 33% in 2008. Natural processes in vulnerable farming areas are aggravated by human interventions such as excessive forest harvesting, mono-cropping practices, and shifting cultivation. Growth in the upland human population is a key pressure that is closely correlated with land degradation and land productivity changes. From 1980 to 2008, the upland population increased by 7 million to 17.5 million people, or about 30% of the national population

[30] This assessment summarizes and updates Myanmar's natural resources and environment status and trends, as documented in the government's national environmental performance assessment report, 2007–2010, which was prepared under regional technical assistance provided by the Asian Development Bank. See Asian Development Bank. 2005. *Core Environment Program and Biodiversity Conservation Corridors Initiative in the Greater Mekong Subregion*. Manila (RETA 6289).

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6. To address land degradation, the government is promoting various conservation and land rehabilitation programs. Targets have been set for the reclamation of permanent sloping agriculture land and slash-and-burn areas to safeguard productivity. Despite such initiatives, areas treated under land rehabilitation program have lagged behind total crop sown areas. The growing population in upland areas has resulted in a large expansion in crop sown areas, while multiple cropping has become more common and conservation programs have not kept pace. While total crop sown areas increased from 10.5 million hectares in 1985 to 22.3 million in 2008, rehabilitated agriculture land as a percentage of the total crop sown area dropped from 12% in 1975 to 3% in 2008. If the decline in funding for conservation and rehabilitation measures is not reversed, the problem of land degradation and vulnerable farmland will worsen. The government recognizes that more work is needed to safeguard the productivity of upland farms under pressure from growing populations through extension support on soil conservation methods and provision of related technologies to farmers.

7. Climate change only recently became a high priority in Myanmar. The government's perspective changed fundamentally in 2008 after tropical Cyclone Nargis caused catastrophic destruction and loss of lives and livelihoods. Myanmar's vulnerability to climate change is now widely recognized. Potential climate change impacts on Myanmar include incremental sea-level rise, saltwater intrusion, loss of mangroves, higher incidence of droughts, loss of biodiversity and ecosystems such as wetlands, and loss of land resources. Myanmar is already experiencing some effects of climate change: a clear trend in rising temperatures, shorter monsoon duration, and greater frequency of intense rainfall and severe cyclones along Myanmar's coastline.

8. While climate change is mainly related to global phenomena, national actions in Myanmar are contributing to both climate change and the country's vulnerability in terms of human health impact, agricultural security, and loss of biodiversity. Deforestation is of particular concern as decreasing forest cover and quality reduce adaptive capacity and the potential to absorb greenhouse gasses. Forest fires represent an additional climate change pressure, especially in the dry forests that dominate the central part of the country.

9. The government is responding to climate change risk and vulnerability, quickly putting in place a national plan for disaster risk reduction. Although the government has not set a national policy target, Myanmar has made several international commitments, including the United Nations Framework Convention on Climate Change ratified in 1994 and the related Kyoto Protocol ratified in 2003. Mitigation and adaptation measures encompass various policies, plans, programs, projects, and activities. Generally, the government is devoting attention to improving understanding of climatic conditions and trends, and the links to underlying pressures such as deforestation. Targets and objectives for increasing forest plantation and promoting the use of alternative fuels are also being set.

10. Myanmar's rising population and accelerating economic development are generating increasing volumes of solid waste. This represents a challenge to municipalities concerned about the environmental and human health consequences of inadequate waste management practices. While solid waste generation per capita has remained constant or declined in large cities such as Mandalay and Yangon, total waste generation is increasing as urban populations expand. About 22% of municipal solid waste in Myanmar is recyclable; the remainder is managed through other disposal methods, predominantly open landfills and to a lesser extent incineration.

11. Urban solid waste management can be improved considerably. While the expenditure on waste collection and disposal in large cities has generally been satisfactory, additional spending is needed to improve long-term waste management nationally. More spending on waste collection vehicles will be required to improve coverage and efficiency, while investment is

needed in more modern and reliable disposal systems, including replacing open dumps with sanitary landfills and installing environmentally appropriate incineration plants. An expansion of solid waste collection and disposal to other cities is also needed as the situation remains unsatisfactory in second-tier cities and towns where performance has stagnated or even deteriorated slightly.

12. Myanmar has a rich natural capital endowment, encompassing significant ecological biodiversity features such as (i) wet and dry evergreen forests in the southern part of the country, (ii) deciduous dipterocarp forests and thorn scrub in the central part, and (iii) sub-alpine forests in the north. Large, slow-flowing rivers and lakes support extensive freshwater ecosystems, while expansive seacoasts with tidal mangroves sustain vital marine ecosystems.

13. Myanmar's biodiversity is under increasing threat, especially in the Indo-Myanmar hot spot where economic development and human population growth is placing pressure on natural habitats and species populations. The major contributors to biodiversity loss are (i) the conversion of closed forests for other land uses, (ii) shifting cultivation, (iii) weak regulation and control of commercial exploitation and trade in endangered flora and fauna, and (iv) lack of sufficient environmental impact assessment and integration of biodiversity concerns into development activities affecting land use change. Forest degradation is particularly important in terms of terrestrial biodiversity, potentially affecting about 36% of threatened mammals and birds. In addition, the loss of wetlands and grasslands is threatening bird species. For example, mangrove forests declined 72% from 253,018 hectares in 1924 to 71,716 hectares in 2008.

14. The government has responded to biodiversity loss primarily by establishing protected areas. To promote the conservation of the biological diversity of ecosystems, habitats, and biomes, the government in 1980 set a national policy target to establish a network of protected areas covering 5% of the country's total area by 2010. The protected area network expanded steadily, particularly during 1996–2004, and now comprises 34 protected areas equivalent to 4.35% of total land area. The government has also been increasing efforts to prevent illegal wildlife trade. In 1997, Myanmar acceded to CITES, an international treaty to protect wildlife against exploitation. The government has been taking action to minimize or prevent illegal wildlife trade through its law enforcement departments.

15. Mining has become one of the country's key development sectors in recent years, attracting considerable foreign investment and generating important export earnings. Myanmar is endowed with a variety of mineral resources as well as high-quality gems and precious stones. Exploitable reserves of industrial minerals are also available. Mining production grew at an average rate of 15.5% a year during 2001–2006, faster than gross domestic product growth.

16. Awareness of environmental disturbances caused by mining is increasing, but this has not been accompanied by substantive regulatory responses. While Myanmar lacks a national policy target for environmental improvement in the mining sector, some relevant sector policies exist. The 1994 Mines Law is intended to protect against the environmental damage caused by mining operations, and to restrict mine operators from conducting any activities that may have

detrimental effects on the public. All mines are supposed to be subject to regular inspection, monitoring, and reporting. However, training of personnel to monitor the mines is inadequate, and the air and water quality data needed to assess the impacts and effectiveness of control and mitigation measures are limited. Recognizing these limitations, the government is devoting more attention to monitoring of environmental quality in mining areas. The mining industry is also being required to improve environmental data acquisition and reporting, ensure compliance with applicable industry standards, and adopt best practices.

B. Policy and Institutional Framework

17. The government is working to put in place the policies, laws, and regulations needed to properly manage the country's natural resources and environment. These encompass (i) environment policy and legislation, (ii) a sustainable development strategy, (iii) forest policy and master planning, (iv) a biodiversity protection area system, (v) soil conservation and land rehabilitation programs, (vi) disaster risk reduction planning, and (vii) mining legislation. The challenge now is to build on this policy base through improved implementation, which will require significant strengthening of financial and human resources, as well as greater awareness of environmental issues.

18. The recent formation of the Ministry of Environmental Conservation and Forestry demonstrates the government's commitment to improving the planning and management of natural resources and the environment. The 2012 Environment Conservation Law provides the legal basis for implementing a range of enhanced environmental management measures. Attention now needs to shift to drafting corresponding regulations to enact legislation, including regulations and technical guidelines on environmental safeguards and pollution abatement. Developing such regulations and guidelines, and creating the enabling conditions for their effective implementation, will require substantial effort and technical expertise. In addition, government capacity to undertake environmental monitoring will need to be built and institutional links forged to ensure necessary interagency coordination on environmental management.

C.The Way Ahead

19. The natural environment in Myanmar remains generally pristine, reflecting the vastness of the resources, the area they cover, their inaccessibility, and the isolation of the country both physically and (until recently) economically. Myanmar still contains some of the most unique physical and biological natural resources in Southeast Asia and the world. Fledgling policies are in place to protect these resources, but serious pressures have been placed on them recently and these are likely to intensify. The financial, human, and logistical resources available to counteract these pressures are limited, even with the expectation of international support. A pragmatic approach for preserving and conserving the country's natural resources and environmental values may be to identify priority areas, hot spots, and sectors (e.g., mining, hydropower development, forestry) and ensure that policies, laws, and regulations are applied and enforced. Coverage can then be expanded in the medium term.

20. Considerable scope exists for sustainable and inclusive development of Myanmar's natural resources through pursuit of a green growth pathway, characterized by resource efficiency, sustainable consumption and production, and climate change resiliency. The Government has responded to date through putting in place policies needed to properly manage the country's natural resources and ensure environmental protection. There exists the opportunity to now build on the

Government's new policy and legal framework in terms of promoting integrated national and sector planning processes, enhancing forests and water resource preservation and conservation, and strengthening safeguards application through elaboration and implementation of environmental regulations and guidelines.

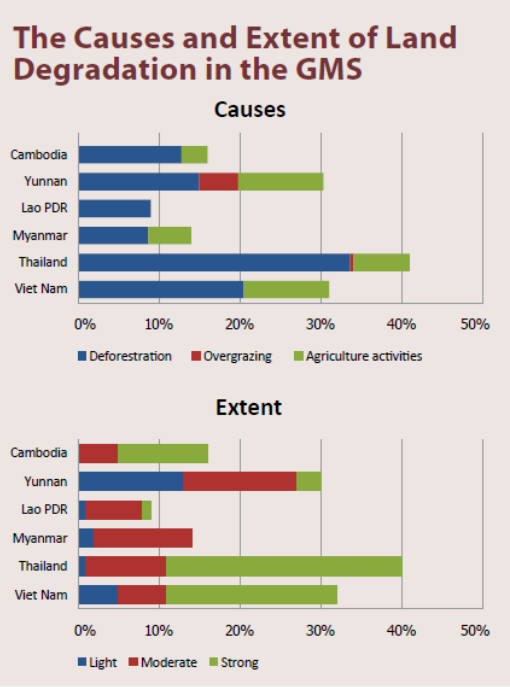
Annex 2 Helpdesk summary of land rights in Burma

Land rights, particularly in the context of developing countries, are intimately linked with the right to food, the right to work as well as closely connected to other human rights. Land rights are in many cases connected to a community's identity, its livelihood and its very survival.

Land rights are of fundamental importance when Burma is opening up to the world. Natural resources in the country, including land, forests and water will be essential components of the Burmese's people's development and for the economic development in the country[i]. Poverty is most acute among landless rural households and land tenure security is important for farmers to willingness and ability to invest in their land to improve their harvests[ii].

Issues relating to land tenure security and land conflict are recognised by the government as central to address in order to impact foreign direct investment positively as well as for sustainable economic growth, environmental protection, social harmony and development of a stable system of democratic governance that respects the rights of all citizens. Hence, there is a pressing need for comprehensive policy on land management and comprehensive land laws[iii].

1. Current Trends and Risks



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 as well as militarization.

In the GMS countries, agriculture is shifting from traditional subsistence farming to modern commercial farming practices, although different paces of progress in the different countries. In general, the countries are adopting intensification, specialization, increased agrochemical use, and mechanization. Trends observed in Thailand and the PRC are likely to emerge in other countries of the GMS in future. Many farmers have switched from growing rice to producing commercial crops, such as fruits, vegetables, rubber, and pulpwood. Farmers in the GMS are increasingly opting for "green revolution" approaches and technologies rather than land expansion. These approaches include more effective irrigation, improved plant varieties, increased use of fertilizer, and better farming practices. The dramatic changes in land use and agricultural intensification have come at an environmental cost[iv].

Burma has developed laws and policies related to protecting people and the environment, but the country lacks the necessary administrative and legal structures, standards, safeguards to enforce such provisions. It also remains to be seen if polices are effectively implemented in the years to come. Currently, policies are largely going in the right directions but are not fully tested.

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[v]. The ethnic minorities in the subregion generally live in remote areas and face problems of marginality, poverty and lack of basic infrastructure. With limited assets and greater dependence of common property resources they are more vulnerable when the natural environment is degraded[vi]. In the uplands where customary practices are still often followed instead of statutory law, land tenure is especially weak. 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 exposed to 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. In cease-fire 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" [vii]. There are no comprehensive figures of the number of people internally displaced due to armed conflict or human rights violations in Myanmar, and it is very difficult to assess the scale of such internal displacement in the country[viii]. In 2010 UNHCR used an estimate of 451,000 IDPs in Burma, however estimates of the total number of IDPs in the country – including many long-term IDPs who had not reached a durable solution – went up to several million. The IDPs are either living in surveyed townships (administrative sub-districts) or villages in government-controlled areas as well as in hiding areas in the jungle or living in areas administered by Non-state armed groups[ix].

2. Agricultural Lands

All land and resources was nationalized in the 1960s and are still owned by the state and regulated by the Land Acquisition Act. Land tenure remains very weak in Burma and there is little legal protection for farmers enjoying traditional tilling rights with most villagers having no formal land title for their customary agricultural land and there are issues of land evictions due to larger investors. The Land Acquisition Act legally gives the government the right to take over any land, but with compensation to its original owners. New policies have been put in place allocating land concessions to private entities but do not acknowledge customary land rights or informal land holdings. The various laws and policies, enacted and implemented in the 1990s and 2000s 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. By 2010, a total of 25 enterprises invested nearly $20 billion in agriculture (0, 7 %), mining 7 %, oil and gas 50, 9%, manufacturing 0, 3 %, and the power generating sector 41,1 %[x].

In early 2012, the Parliament passed the Farmland Act and the Vacant, Fallow, and Virgin Land Management Act but a Parliamentary Committee has pledged to revise key provisions of these laws to increase the rights for small farmers[xi]. Together, the "Farmland Law" and the

"Vacant, Fallow and Virgin Lands Management Law (VFV Law)", constitutes the most substantial change to the legal framework for land since the early 1960s. The new laws officially reintroduce the concept of private ownership. Still, all land remains the property of the state and can be nationalized by the government if necessary and it can also be sold, traded, or mortgaged. Compared to before, this is viewed as a positive step since land was already being traded illegally but openly on a black market with little transparency. The land designated by the government to private companies is considered as fallow, vacant, or virgin land, with no registered owners. However, the land is often occupied and cultivated but the farmers have been viewed as "squatters"[xii]. Overall, the Farmland Law and the VFV Law lack clarity and provide weak protection of the rights of smallholder farmers in upland areas and women have no explicit recognised equal right to land[xiii].

The State Peace and Development Council (SPDC) [xiv] do not legally recognise customary rights and laws, with inadequate provisions in the new constitution to uphold customary traditions. In practice, however, there is unclear informal overlap between customary and statutory laws and practices and which causes land tenure insecurity for millions of farmers in Burma, especially in the ethnic uplands. A fundamental problem is that no law formally recognizes traditional upland land use such as e.g. the practice of customary shifting cultivation. The Community Forestry Instructions 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[xv]. 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 does not guarantee against land confiscation.

In the Farmland Law from March 2012, there are still obstacles for the farmers to cultivate their land freely[xvi]. Policies like these can hinder farmers to act rationally in order to increase both production and can lead to food insecurity, as farm productivity suffers[xvii].

3. Forestry Lands

70% of Burma's population residing in rural areas (50-60% of the estimated total population of 60 million) depends heavily on forests for their basic needs[xviii]. Some 500,000 people are thought to be dependent on the forestry sector for employment. Of the GMS countries, Burma, Cambodia and Lao PDR are particularly dependent on their large expanses of forests for the export of timber, wildlife, and other non-timber products[xix]. As in the majority of Mekong countries, one of the most significant trends affecting forest lands in Burma relates to the considerable, and often times informal, foreign direct investments (FDI) in agribusiness plantations such as rubber, oil palm, timber plantation, cashew nut and other horticultural crops. 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.

According to the Myanmar Central Statistical Organisation (MCSO), foreign direct investment (FDI) is focused on the extractive sector , hydropower and mineral extraction. These types of developments often require the clearing of natural forest areas and have led to land disputes with local communities[xx].

In Burma, total forest area was 47 % of total land area in 2010 and the average annual deforestation rate between 2000-2010 was (-) 0, 9 %[xxi]. 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. Although official data is lacking, illegal logging and illegal timber trade is wide spread, with estimates around 1.0 million m^3 in year 2002[xxii]. Since 2005, the illegal cross-border timber trade between Burma and China has decreased significantly mainly due to measures put in place by the Chinese authorities[xxiii].

Community forestry has developed slowly in Burma but can challenge the manner in which timber resources are managed, providing some promising devolution trends[xxiv]. 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 Instructions (CFI). But so far only 0, 13 % of the country's forest cover has legal community forestry certificates[xxv].

The Ministry of Forestry (MoF) is responsible for forest land management, environmental protection, timber extraction and forest policy in Burma. The history of Burma forest policy is one of continued struggle between different actors, institutions and community groups. This involves contested projects of how forests should be managed and by whom— forests for economic development and commercial gain, forests for sustainable management and forests for local community use. Today, log harvesting and exports are controlled through the Myanmar Timber Enterprise (MTE) under the Ministry of Environmental Conservation and Forestry (MOECAF), although commercial enterprises are also involved in wood processing and processed exports, largely coordinated by the MTE and MTMA. Burma is one of few countries in the world with no prohibitions on of any kind on log exports. The accountability of state institutions around the forest-land sector remains a significant issue, as are problems with illegal extraction and trade.

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[i] Oberndorf, J.D., R. 2012, , *Legal review of recently enacted farmland law and vacant, fallow and virgin lands management law - Improving the legal and policy frameworks relating to land management in Myanmar,* Food Security Working Group, November 2012

[ii] Field focus blog, November 21, 2012; *Obama on Myanmar Land Rights*, Prosterman, R. & Vhugen, D.)

[iii] Ibid

[iv] UN, PEI Myanmar scoping mission, November 2012

[v] Burma Environmental Working group, Burma's Environment: People, Problems and Policies, June 2011

[vi] Asian Development Bank, Greater Mekong Subregion Atlas of the Environment, 2nd Edition, 2012.

[vii] Burma Environmental Working group, *Burma's Environment: People, Problems and Policies,* June 2011.

[viii] Map of IDPs and conflict areas in Burma http://www.internal-displacement.org/8025708F004BE3B1/(httpInfoFiles)/D056FFE1F01B823BC1257685005090CF/$file/mya_tbbc_displacement_2009.pdf

[ix] IDMC webpage: www.internal-displacement.org/idmc/website/countries.nsf/(httpEnvelopes)/7E38BA7B2364451AC12578C4005318B8?OpenDocument#sources), 22 January 2013

[x] Ibid

[xi] UN; PEI Myanmar scoping mission, November 2012., The Diplomat, *Land Reform Key to Burma's Future*, August 2012., Field focus blog, November 2012.

[xii] The Diplomat, *Land Reform Key to Burma's Future,* August 2012.

[xiii] Oberndorf, J.D., R. 2012, , *Legal review of recently enacted farmland law and vacant, fallow and virgin lands management law - Improving the legal and policy frameworks relating to land management in Myanmar,* Food Security Working Group, November 2012

[xiv] The State Peace and Development Council (SPDC) is the highest body of state authority above the cabinet for executing legislative, administrative and judicial powers.

[xv] Burma Environmental Working group, *Burma's Environment: People, Problems and Policies,* June 2011.

[xvi] E.g. Section 12 h: "*any other kinds of crops shall not replace the original crops grown without permission.*", http://www.burmalibrary.org/docs13/Examination_of_Farmland_Law-MF-red.pdf
[xvii] Prosterman, R. & Vhugen, D in Field focus blog; *Obama on Myanmar Land Rights*, November 21, 2012.
[xviii] Khin Htun, 2009, Myanmar forestry outlook study, FAO, 2009
[xix] Asian Development Bank, Greater Mekong Subregion Atlas of the Environment, 2nd Edition, 2012.
[xx] EU FLEGT Facility, BASELINE STUDY 4, Myanmar: Overview of Forest Law Enforcement, Governance and Trade, August 2011.
[xxi] Asian Development Bank, Greater Mekong Subregion Atlas of the Environment, 2nd Edition, 2012.
[xxii] EU FLEGT Facility, BASELINE STUDY 4, Myanmar: Overview of Forest Law Enforcement, Governance and Trade, August 2011.
[xxiii] Global Witness webpage, http://www.globalwitness.org/library/dramatic-decrease-illegal-timber-trade-between-burma-and-china-smuggling-continues, 2013-02-06
[xxiv] Burma Environmental Working group, Burma's Environment: People, Problems and Policies, June 2011.
[xxv] The Burma Environmental Working group (BEWG), Burma's Environment: People, Problems and Policies June 2011.

Annex III Linkages between Climate change and human rights

Climate Impact	Human Impact	Rights Implicated
Sea Level Rise • Flooding • Sea Surges • Erosion • Salination of land and water	• Loss of land • Drowning, injury • Lack of clean water, disease • Damage to coastal infrastructure, homes, and property • Loss of agricultural lands • Threat to tourism, lost beaches	• Self-determination [ICCPR;ICESCR,1] • Life [ICCPR, 6] • Health [ICESCR, 12] • Water [CEDAW,14; ICRC 24] • Means of subsistence [ICESCR,1] • Standard of living [ICESCR, 12] • Adequate housing [ICESCR,12] • Culture [ICCPR, 27] • Property [UDHR,17]
Temperature Increase • Change in disease vectors • Coral bleaching • Impact on Fisheries	• Spread of disease • Changes in traditional fishing livelihood and commercial fishing • Threat to tourism, lost coral and fish diversity	• Life [ICCPR, 6] • Health [ICESCR, 12] • Means of subsistence [ICESCR, 1] • Adequate standard of living [ICESCR, 12]
Extreme Weather Events • Higher intensity storms • Sea Surges	• Dislocation of populations • Contamination of water supply • Damage to infrastructure: delays in medical treatment, food crisis • Psychological distress • Increased transmission of disease • Damage to agricultural lands • Disruption of educational services • Damage to tourism sector • Massive property damage	• Life [ICCPR,6] • Health [ICESCR,12] • Water [CEDAW,14; ICRC 24] • Means of subsistence [ICESCR,1] • Adequate standard of living [ICESCR, 12] • Adequate and secure housing [ICESCR,12] • Education [ICESCR,13] • Property [UDHR,17]
Changes in Precipitation • Change in disease vectors • Erosion	• Outbreak of disease • Depletion of agricultural soils	• Life [ICCPR,6] • Health [ICESCR,12] • Means of subsistence [ICESCR,1]

Source: Limon (2009), Human Rights and Climate Change: Constructing a Case for Political Action, Harvard Environmental Law Review (Vol. 33) 2009, p 439-476