Challenges of Integration the Policies and Measures in the National and Local Strategy of Reducing Emissions from Deforestation and Forest Degradation in Mozambique

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Abstract: Global political forums on climate have identified deforestation and forest degradation actions as the main sources of atmospheric emissions. Therefore, its reduction is basically the main international agenda. The objectives of environmental policy seem to prevail conflicting, between the global, which aims to stabilize emissions with sequestration of forest carbon and local poverty reduction. REDD+ (Reducing Emissions from Deforestation and Forest Degradation) is considered cheap proposal for mitigation and adaptation to climate changes. Thus, Mozambique is preparing for accessing to forest carbon financing. The study analyzed interaction of policies and measures in the national and local strategy of REDD+ in Mozambique and resorted three methodological procedures, review of previous study, interviews and seminars, in a non-probabilistic sampling. Conflicting visions among nations hinder consensus on reducing emissions and REDD+ aims to replace the KP (Kyoto Protocol). National strategy of REDD+ should suggest measures and policies to reduce deforestation in key sectors contributing to emissions. Interviewees suggested technological approach (30%), agrarian reform (26%), institutional reform (21%) and decentralization (20%). Therefore, 77.3% supported technological use to increase production and productivity and for the forest sector, 86.4% supported forest concessions. They also highlighted conservation agriculture, SAFs (Agroforestry Systems), energy accessibility and mining licensing. However, REDD+ is being projected from the global to the local, but the debate must extrapolate negotiations restricted to government participation, as well as policy options and incentives to generate co-benefits that address local community priorities.

Key words: REDD+ (Reducing Emissions from Deforestation and Forest Degradation), policies, outcomes, climate compatible development.

1. Introduction

In recent years, there has been increased scientific knowledge and public awareness of the threat posed by climate changes to humanity and global ecosystems. Therefore, solutions to reduce levels of GHG (Greenhouse Gas) emissions are needed [1, 2]. In global and national climate changes forums, actions of deforestation and forest degradation as significant sources of GHG emissions from land-use change were identified [3, 4].

The preservation of existing forests has been proposed and is considered the cheapest to mitigate climate change.

The mechanism for REDD+ (Reducing Emissions from Deforestation and Forest Degradation) emerges as an appropriate approach to addressing climate change, associated with the co-benefits it presents (ecosystem conservation, biodiversity protection, poverty reduction and decentralization). Objectives can be achieved by paying forest owners and users, cutting fewer trees and managing forests sustainably, and can rely on funding from voluntary contributions and the carbon market. Thus, the mechanism mitigates the controversy associated with international
environmental policy with regard to the objectives that appear to be conflicting between the global, reducing emissions through carbon sequestration based on the preservation of forests and the locations that focus on their strategies is food security and poverty reduction.

The REDD+ was formally included as a theme for the international negotiating agenda on climate change mitigation in 2005 during COP (Conference of the Parties) and gained more relevance at COP 13 in Bali [5, 6] and is currently being projected to replace the KP (Kyoto Protocol).

Mozambique is eligible to benefit from the forest carbon partnership to access private financing to implement strategies to reduce emissions, since it has a considerable forest cover in the region and the models currently applied to reduce deforestation rates are still not efficient effective. Therefore, the REDD+ strategy needs to adopt, in the short and medium term, a set of policies, including sectoral reforms (in key sectors of deforestation and forest degradation) and institutional reforms to improve governance, decentralization and promotion of community forest management, proposing alternatives effective, efficient and equitable in the face of the motivations of deforestation and forest degradation.

According to Angelsen, A. and Vatn, A. [3] and Kanninen, M., et al. [7], the factors that contribute to deforestation and forest degradation are several, most of them are extrinsic to the forest sector and Mozambique is no exception. Understanding these causes is therefore crucial in order to identify the appropriate policies options and incentives for their control, while bringing interventions to improve outcomes in the context of climate change and understanding the trade-offs of local population priorities. The deforestation and forest degradation may also result from non-harmonized sectoral policies and technological limitation, scenarios observed mainly in developing countries [8, 9]. The main objective of this research is to analyze the integration of policy options and measures in the national and local REDD+ strategy in Mozambique, in order to aid in decision making.

2. Material and Methods

2.1 Characterization of Study Area

Mozambique is one of the southern African countries with the highest forest cover, with 51% covered by forest and 19% by other vegetation type and with a rate of deforestation and degradation of 0.58%, about 45,000 to 120,000 ha of forest the country loses per year [10]. Therefore, it is one of the few countries in the region that still maintains a considerable proportion of the area covered with natural forests, with an annual growth rate ranging from 0.5 m³/ha to 1.5 m³/ha [10].

Fig. 1 shows the spatial distribution of forest cover in the country. According to Marzoli, A. [10] and Asikainen, A., et al. [11], it estimates the country’s forest cover in just over 40 million hectares, corresponding to 51% of the national territory. The productive forest, with 67% of the coverage is formed by the miombo forest that covers almost 2/3 of the national territory. It stretches from the Limpopo river to the north of the country. This type of forest predominates in the center and north of the country and presents valuable commercial species of wood, such as Dalbergia melanoxylon, Pterocarpus angolensis, Millettia stuhlmannii, Cunatum imberbe and Afzelia quanzensis, among others. The remaining 33% of the forest cover, dominated by the mopane forest, occupies predominantly the arid and semi-arid climatic zone of the south of Save river, dominated by the species Colophospermum mopane [12].

The miombo forest contributes to the alleviation of poverty, despite being of low productivity, because it is not well endowed with high commercial value of timber resources, but it is evaluated to be responsible of a great proportion of carbon. This can be harnessed to improve livelihoods and sustainable management [13].
3. Results and Discussion

3.1 Historical Overview of Climate Change

Fig. 2 summarizes the historical of international climate change policy, marked by the denunciations of scientists, social movements, environmentalists and some politicians about the ecological and social problems of the heirs of the industrial revolution and the scientific evidence relating the GHG emissions from the activities of global climate change [1, 2]. The issues raised public concern and inspired a series of international conferences calling for the urgency of a global consensus agreement to address the problem [14]. The Stockholm-1972 Conference and that of Rio de Janeiro-1992 marked the trajectory of International Environmental Law in the last century [14, 15].

3.2 Interaction of Global and Local Policies in REDD+

The global concern about climate change and alternatives to reducing emissions atmospheric of CO₂ emissions has been the main thrust of the global environmental policy agenda [14, 16]. With the identification of the global warming problem, the UNFCCC (United Nations Framework Convention on Climate Change) emerges and it is from this historical perspective that the principles of the KP and the CDM (Clean Development Model) were discussed, in addition to increased negotiations and production of international legal instruments. Therefore, the promotion of sustainable development is an important premise for the validation of the CDM project as well as for the REDD+ process.

The KP was one of the most promising instruments, an agreement reached on the environment by the United Nations. However, in the view of some environmentalists, the instrument and bilateral agreements have come to be seen as references for the climate change awareness campaign and not really effective tools in accounting for GHG emission reductions. They understand that the flexibilization mechanisms described in Fig. 2 have generated the right to issue.
Throughout the negotiations, the first hampering issue was to adopt a set of obligations for industrialized countries on the limit of the emission of gases and until now, new agreements are underway with the new discussions, which will mean the PK (reached the commitment period in 2012) in an attempt to build a post-Kyoto legal and policy framework, removing the risk of the carbon market being halted. KP targets were not reached, except for the performance of some countries (e.g. UK and Germany). Therefore, the omission of science by major world powers is notorious, assuming no historical responsibilities for climate change, and developing countries still have a tendency to increase their emissions as their economy grows.

It is also emphasized that climate change is a global problem that still reflects regional and social inequalities between countries and within countries, as there are developed countries that are still emitting more gases with repercussions greatly affecting the developing countries. The division of the planet between rich and poor (the so-called Annex 1 and non-Annex 1) in Kyoto, as well as conflicting visions that prevail among nations and within the global policy on climate change, leads some countries not to ratify the agreements or to compromise less on reducing emissions. This is a case of the US that prevented ratification of the agreement in Japan, later causing the deadlock for China at the Copenhagen conference, notoriously the largest emitters of gases [17].

The China, United States and India together account for almost half of the world’s CO₂ emissions and claim to have reasons not to be part of a new global agreement. India claims to be newcomers to industrial development (“its economy follows the Chinese economy”), becoming reluctant to accept binding targets that could reduce its growth. The United States (already declared withdrawal), Canada, Japan, Russia and New Zealand will not participate in post-Kyoto, although the Durban platform has established the creation of a new instrument with legal force that could come into force by 2020, in which all countries will have to commit to the mandatory emission reduction targets.
These countries are looking at new opportunities arising from the opening up of the carbon credits market, such as the CDM, REDD+, among others. Through this kind of mechanism, they admit to meeting their GHG reduction targets by acquiring carbon credits from clean projects from developing countries, because the cost of reducing emissions could be high if the government continues with the current model of industrialization. In the negotiations, industrialized countries guarantee funding for developing countries (COP 14) for mitigation and adaptation to climate changes, but there are still some concrete proposals on how clean technologies are to be transferred between countries and on the assistance that will be given to nations developing countries to adapt to global climate changes.

The disagreement between countries hampers international consensus or effective agreement to reduce emissions. Thus, within developed countries, the developed countries have policies aimed at reducing emissions, while developing countries have policies, strategies and development plans aimed at reducing poverty, especially food security. Therefore, the developing countries for their economic growth choose to follow the model of industrialization as a way to leverage their economy.

The difference in objectives between global and local contributes not to efficiency and effectiveness of policies to reduce emissions of gases; the global aims to reduce the level of emissions through carbon sequestration while the focus of the local is the reduction of poverty levels. The UNFCCC (United Nations Framework Convention on Climate Change) has agreements on the global and almost nothing on the local. Therefore, it is not easy to reconcile conservation and carbon sequestration objectives with those of community development, because in these regions, local communities are closely linked to natural resources, to highlight forests with low technology for their exploitation.

With the new legal instrument and mandatory reduction targets for all countries, it will constitute an environmental policy revolution under the UN Climate Convention, aimed at eliminating the barriers that exist between developed and developing countries. India’s position with regard to the instrument legally requires a looser option so as not to compromise the objectives associated with the development of its industry. The island nations and the European Union did not agree with the idea, requiring a force of law for all [17].

REDD+ is a potential approach that can be included in the new international agreement for mitigation and adaptation to climate change, through compensations to be gained from avoided deforestation, forest conservation and forest carbon stocks [18]. The REDD+ discussions still persist but diverge in: (a) if the REDD+ mechanism should only rely on a primary set of measures against deforestation/degradation or may rely on a secondary set for other forest-based mitigation options, related to increased “forest carbon stocks”; (b) if the mechanism also includes restoration of forests only on land already classified as forests or afforestation or reforestation of land not classified as forest. In the latter case, double counting should be avoided in afforestation/reforestation project activities with CDM [19]. According to Angelsen, A., and Vatn, A. [3] and Angelsen, A., et al. [4], increased forest areas (e.g. through forestation and reforestation) are another way to increase forest carbon stocks, but are not part of REDD+. The pact inherent in REDD+ activities includes positive policies and incentives on issues related to REDD+ in developing countries and the role of conservation, sustainable forest management and increasing forest carbon stocks in developing countries [4].

The widespread consensus on REDD+ is that the mechanism should supplement and not replace the commitments of substantial emission reductions by the industrialized countries and there is an urgent need to reduce emissions in all mitigation sectors. Thus, international negotiations must create a global
incentive framework for REDD+ implementation, including flexible and adaptable financial instruments that provide alternatives and incentives for local communities. According to Pavan, M. N., and Cenamo, M. C. [20], in addition to financial aspects, technical and methodological aspects should also be defined for analysis of reference levels, aspects of measurement, communication and verification, and the treatment of vectors of deforestation and forest degradation. Reducing GHG emissions through avoided deforestation and forest conservation projects is a viable mitigation alternative to climate changes. Moreover, it can generate additional beyond increasing or maintaining carbon stocks, such as conservation of biodiversity, water resources and improving the living conditions of the local population. However, it can also pose serious risks, particularly for local communities, certain principles of REDD+ initiatives are not observed such as: respect for the rights of local communities, improvement of livelihoods for communities, sustainable development, protection of human rights, maintenance of ecosystem services, full and effective participation of stakeholders, access to information and respect for international, regional, national and local standards.

Therefore, despite advances in international negotiations, a global incentive structure for the implementation of REDD+ has so far not been created. There are still technical and methodological aspects to be defined by the Parties as financing modalities, technical analysis of reference levels, aspects of measurement, communication and verification and the treatment of vectors of deforestation and forest degradation [20].

3.3 Alternatives and Policy Options for Improving Incentives in the REDD+

The efforts made in the past have not prevented deforestation and forest degradation from continuing at a slower pace for a number of reasons, in particular the failure to address the main causes of deforestation and the tendency to consider forestry with other sectors. According to Kanninen, M., et al. [7], the deforestation based on Van Thunen’s theory emphasizes the use of land with higher income. The farmers, companies and other users deforest the land because forests are more profitable than forest uses [7]. Sitoe, A., et al. [8, 9] suggest that effective results depend on the degree to which REDD+ policies will be directed at the real causes of changes in forest cover. They argue that in designing national REDD+ strategies, countries need to take into account existing research on deforestation and conservation lessons learned in the past. Therefore, there are technical options to be accompanied by policy reform in addition to policy harmonization in key sectors contributing to deforestation and forest degradation.

In Mozambique, the main causes tend to originate outside the forest sector, from agriculture (shifting agriculture) and energy (collecting firewood and charcoal production), as well as from institutional deficiencies (political power, poor enforcement of policies and laws and constraints on technical and human capacity). Thus, focus groups pointed to positive reforms to improve incentives in the REDD+ process (Fig. 3).

The national strategy of REDD+ should suggest a set of policy measures and options to reduce deforestation and forest degradation in key sectors contributing to emissions (Fig. 4), including agriculture, energy, forestry and mining.

In Africa, about 80% to 90% of forest destruction is associated with agricultural activity, because the majority of the population is dependent on this activity (FLETG (Forest Law Enforcement, Governance and Trade) Programe). Sitoe, A., et al. [9] affirm that there is economic motivation for conversion of forest to agricultural land. Thus, any measure to reduce pressure on forests will have to suggest alternatives to shifting agriculture, a measure that addresses local interests (poverty reduction and food security) and
Fig. 3  Positive reforms considered in the REDD+.

Fig. 4  Description of main sectors contributing to deforestation and technical options.

global interests (supply the global market with agricultural commodity agriculture, biodiversity conservation and reduce emissions). They show that the sector consists of small farmers with practice of cutting and burning biomass and count on only 3.7% of use fertilizers [9].

Cutting and burning is a mechanism for the peasants to clean the field and recover nutrients lost during the growing season. It is usually done when the sowing season approaches, a practice that, in addition to burning the forest biomass, not only releases nutrients in the soil but also carbon to atmosphere, contributing as the main source of carbon emissions. Thus, if the great motivation of the practice of itinerant agriculture is the availability of nutrients in the soil, it is necessary to suggest other alternatives to reduce forest degradation.

Sitoe, A., et al. [8, 9] suggest technical options for SAFs (Agroforestry Systems), which should focus on soil conservation. In adopting SAF techniques, small farmers can opt for annual crops, which have a potential for reducing emissions, as well as contributing to the increase in family income through retailing, and can also supply the local processing industry. In the case of Mozambique, one can promote crops such as cashew trees, coconut trees and fruit trees (exotic and native species). A TechnoServe’s experience in Kenya and Uganda in a project called Nature Project, in partnership with Coca-Cola, the Bill and Miranda Gates Foundation, has helped farmers to produce fruit trees in order to root change in agriculture in order to increase their incomes, establishing the entire value chain, helping families move out of poverty, an experience to be capitalized by the REDD+ mechanism.

SAFs present a greater socio-economic viability in relation to conventional land use systems, as regards: the combination of market and subsistence products;
improving the productive capacity of the land, consortia of species with different water, light and nutrient requirements; making possible the most efficient use of resources; more efficient cycling of nutrients, which means less need for inorganic fertilizers; permanent use of the areas used, meaning a reduction in the overturning and burning of new areas; and the possibility of using degraded areas [21, 22].

The systems based on legume trees are fundamental for agro-ecological sustainability. Their ability to support microbial nitrogen (N2) fixation can increase soil nitrogen (N) availability, as well as improve soil fertility, crop productivity, and support the long-term management of natural resources [23].

In order to make the scenario be successful, the farmer must adapt the crops to their investment capacity, interaction among species, regional soil and climatic conditions and favorable marketing conditions.

In Mozambique, there is some optimism regarding national agrarian policy in relation to REDD+ actions. Approximately 77.3% of respondents said that to raise levels of agricultural production and productivity, they could opt for organic farming. This could also provide less damage to the environment, such as conservation agriculture, agriculture intensification and SAFs. About 22.7% of respondents do not agree on the framework of the national agrarian policy with the REDD+ objectives. It is due the level of food demand in the country and the type of agriculture practiced that is characterized by low coverage of extension services, little use of agricultural inputs, little used irrigation potential, among others.

According to Ching, L. L. [23], organic farming increased productivity by 79-92% compared to agrochemical use. Low productivity, nutrient loss and limited access to agrochemicals are the underlying causes of shifting cultivation and shifting agricultural systems, such as conservation agriculture (composting, use of green manure, nitrogen-fixing crop consortium and crop pest management) can be an alternative to reduce emissions and increase production and productivity.

In biomass energy sector, firewood and coal in most African countries, including Mozambique, are deregulated (inefficiency in the application of the regulation), a high rate of corruption, use of low energy conversion technologies [24]. On the other hand, the sector is considered not attractive for investments, being only activities of exploitation of wood and coal relegated to the individuals of “low income” as well as the fact that the resources are of free access, leading to the deforestation and forest degradation [25].

The energy situation in Mozambique is relatively privileged as the country benefits from a broad and diversified energy resource allowing different options to be used in responding the demand in the various sectors of activities [25]. The National Energy Strategy already establishes changes from traditional systems to improved and more efficient systems [26], as well as inducing the adoption of other energy options which can have positive implications for REDD+. In the context of the current reflection, it is necessary to readjust the introduction of new approaches to value chain control, to strengthen the legislative framework to ensure better taxation, quality, certification, as well as improvement in the implementation of existing instruments. In addition, it is worth to encourage community-based management of natural resources as well as enhancing the capacity of local communities to enter into agreements and partnerships in sustainable forest management.

PARP (Poverty Reduction Action Plan) 2011-2014 presents energy supply as a pillar for poverty reduction [27]. However, the role of the energy sector in reducing poverty is not clearly defined, including energy from biomass (firewood and coal). Thus, it is clear that in this sector, the objectives remain vague and the impact on reduction remains incomplete. A current trend is more investment in the major discoveries of gas, oil and electricity and less in
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Biomass energy, a situation that still places the biomass subsector fragile.

Therefore, there are sustainable energy solutions for the most disadvantaged communities, but the lack of knowledge and access to technologies are factors that have limited their massive use. The reduction of environmental damages to forests in Mozambique resulting from the energy demand of woody biomass goes through the creation and implementation of policies in the area of energies as well as the adoption of improved technologies that allow greater efficiency in the use of biomass energy (for the production and consumption of charcoal), representing important activities within the REDD+ options [8, 9].

The energy policy, embodied by several strategies in the area of renewables and biomass, indicates the need to increase the availability of energy for the domestic sector, such as electricity, gas and kerosene [28]. However, there is a difficulty in finding a balance between promoting access to modern energy and the ability of the poor to pay for it, hence the need to increase the incomes of the disadvantaged—this increase is due to general [29].

Therefore, the lack of opportunities of rural communities to generate income, particularly in the agrarian sector, makes coal and firewood a survival factor. The use of alternative energy sources and their promotion, especially for disadvantaged urban social groups, can reduce deforestation (associated with the production of firewood and charcoal), but there is a need to eliminate other factors associated with the use of other energy sources, such as the price of equipment (e.g. electric stoves, gas stoves, gas canister, etc.) [30, 31].

To reduce deforestation, associated with the production of firewood and coal, the discussion of the focus groups indicated a series of actions, oriented to the market and institutional development.

In the market, it was recommended to revise the price, standardize and introduce certified charcoal sacks, set up community commercial warehouses, license wood fuel throughout the value chain, introduce differentiated surcharges to large consumers of wood fuels and for institutional development, actions were recommended to promote improved, efficient and environmentally clean technologies; definition of measures to conserve wood fuels through the improvement of carbonization and combustion techniques; introduction of alternatives to conventional coal in the market such as briquettes, biogas, ethanol, liquefied gas, as well as the strategy of reforestation for energy purposes, with native and exotic fast growing species for supply to the main urban centers, bakery industry, tea, tobacco and other agro-industries.

The focus groups also recommended the government need to encourage the private sector to engage in forest plantations for energy purposes.

The biofuel policy is a way to improve energy security and responds to issues associated with global climate change [32-34]. Mozambique had experience in implementing the biofuel production program, which culminated in the approval of the biofuels policy, approved on March 24, 1999 [25, 35]. When asked about the alignment of the biofuels production policy, the focus groups affirmed that the policy is not aligned with the REDD+ objectives and about 68.2% of respondents also do not agree with the alignment of this policy, because with the experience lived in Mozambique, the production of biofuels required extensive areas and often classified as forests. For them, the objectives were conflicting between policy and the primary interests of local communities, because the large productive areas were occupied by *jatropha* (biofuels) crops to the detriment of food crops, even as a result found by Schut, M., et al. [25]. About 31.8% of respondents were optimistic about the policy. The agro-ecological land acquisition is considerably cheap in Africa, making it the main destination for investments in large-scale agricultural land and expanding these areas to the detriment of forests [36].
The biofuels used to reach the target must meet specific sustainability criteria. These include restrictions on the types of land to use, in order to avoid the conversion of raw material to biofuels [7].

In the forestry sector, the structure of the timber market dominated by the export of forest resources by illegal operators and the institutional weakness of the forest sector constitute the major limitations for the implementation of the forest management system. The political solutions are fundamental to address the problem on several fronts and the first of these solutions is information, insofar as the real causes of the problem must be acknowledged [22, 37].

Extraction of timber, especially illegal logging is a major cause of deforestation and forest degradation, as well as expansion of agricultural areas, hunting (with fire), uncontrolled burning, among other forms of land use [8, 9]. Thus, the forest regulation of Mozambique defines two regimes of forest exploitation: simple license and forest concession [38].

The simple license regime for national citizens for the exploitation and sale of forest resources came into force in the last three years and as a consequence, there was excessive logging and export of timber, without compliance with current forest legislation. Within forestry policy today, the discourse is about the gradual reduction of the simple permit regime, due to concerns about sustainability and revenue capture, while the concessions system has promoted the sustainable management of forest resources and guarantees benefits to local communities. Thus, about 86.4% of respondents say that the concession scheme could achieve the REDD+ objectives, since it can maintain forest resource management objectives differently from the single license regime.

The major challenges and options for REDD+ is the implementation of conservation policy, integrating community development activities that are compatible with the conservation objectives, suggestions for the use of non-timber products, such as the production of honey (beekeeping), wood from dead trees or for the production of coal, among others. Commercial and community plantations are another option for carbon sequestration and to meet REDD+ objectives, but plantations to be established should not replace native trees [8, 9].

Forest plantations have the potential to contribute to REDD+ and to the local economy, including energy plantations, SAFs and other tree planting initiatives to generate income for local communities. Thus, it is necessary to keep the rural population in sight, giving them incentives, which include other livelihood opportunities, not the forest margin, such as small forest products industries, community carpentry, sculpture, among others.

According to the focus groups, some policies are not aligned with REDD+ precepts. The most telling example is the policy that establishes the simple licensing regime that undermines the sustainability of forests, unlike the concession regime. Due to the weak application of the regulation, the simple license scheme is very attractive and the volume of exploitation can be almost twice as large as the concessions and can serve as a basis for deforestation and forest degradation. Failures in effective enforcement of legislation, as well as lack of enforcement, are seen as the greatest weaknesses in the industry [8, 9].

The alternatives identified by the focus group with a positive implication for REDD+ are: to group the simple license explorers, encouraging them to opt for concession schemes and the use of technological packages by loggers. About 9.1% see the national forest policy as a political and non-technical focus, because the sector is elitist. The market structure of timber, dominated by export of illegal operation, institutional weakness of the forest sector (fragile regulation) is the major limitation for the implementation of forest management system.

In general, several actions are mentioned by interviewees and focus groups to reduce deforestation and forest degradation in the country, such as
campaigns against illegal exploitation of forest resources accompanied by reduction of simple licenses for logging; promotion of conservation agriculture (still on a small scale); reforestation programs; establishment of nurseries for forest plantations (native species); implementation of land use legislation and forest and wildlife law; involvement of communities in the adoption of low carbon technologies (e.g. mass-use of improved stoves and ovens, solar systems, etc.); strengthening of community associations; management of natural resources; effective implementation of the National Strategy on Mitigation of Climate Change and the Strategy to Combat Uncontrolled Burning; forestry carbon projects, presidential directives (community forests, fruit tree plantations, school nurseries), among others.

3.4 Implications of National Sectoral Policies in REDD+

Table 1 shows the implications of sectoral policies in REDD+ processes. Therefore, in order for REDD+

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<th>Sector</th>
<th>Policy</th>
<th>Positive implication for REDD+</th>
<th>Negative implication for REDD+</th>
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<tr>
<td>Agriculture</td>
<td>Agrarian Policy (1995) [39]; Production and Productivity Program [39]; Strategy of the Green Revolution (2007) [40]; Regulation on Tobacco Promotion, Production and Marketing (2001) [41].</td>
<td>-Promote intensification of agriculture (ecological agriculture, research on drought tolerant crops, integrated irrigation system, etc.)—potential to reduce pressure on forests [42]; -Promote the fomentation, production and commercialization of tobacco, based on a system of cultivation with small producers, mainly in the family sector, where inputs (seeds and fertilizers) are provided by fomentation companies and technical assistance through extension services;</td>
<td>-The increase in agricultural production has been a result of the increase in agricultural areas, which can result in deforestation [9]; -Increased demand for land for agricultural investments (e.g. soy, tobacco, sesame, cotton) can result in deforestation [9]; -Variety of tobacco with a wood-burning drying system may be a source of deforestation.</td>
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<tr>
<td>Energy</td>
<td>Biofuel policy (2009) [35]. Policy of development of the renewable energies [43]. National Strategy for the Development of New and Renewable Energy (2011) [26]. Energy Strategy [44]. Regulation of Biofuels and their Mixtures (58/2011) [45].</td>
<td>-Plantations of trees made by companies - potential to reduce pressure on forests [8]; -Promotes the sustainable use of alternative energy sources. The use of alternative sources of energy, its promotion to low-income groups, particularly in urban areas [28], can reduce deforestation associated with the production of firewood and charcoal (e.g. improved stoves and ovens), electric stoves, stoves gas, briquettes, biogas, ethanol, liquefied gas, etc.</td>
<td>-Allocation of large areas of land for investments in biofuels has the potential to adversely affect areas of food production or forests [46, 47]; -The development of biofuels in degraded areas tends to be limited by low soil fertility, increasing the risk of competing with other uses on fertile land [47].</td>
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<td>Forests</td>
<td>-National Reforestation Strategy (2009) [48]. Law Forest and Wildlife (1999) [38]. Regulation of Forests and Wildlife (2002) [49]. Regulation of Procedures for the Approval of Projects to Reduce Emissions from Deforestation and Forest Degradation (REDD+) (2013) [50].</td>
<td>-The plantations have the potential to reduce the pressure on natural forests by the demand for forest products, including firewood and coal [9]; -Promote the use of the system of forest concessions for sustained forest management; Intervention to change the dynamics of deforestation or forest degradation and / or increase the carbon stock; -Promote the natural regeneration and recovery, restoration and enrichment of vegetation in a given area, resulting in the increase of forest carbon stocks</td>
<td>-Simple licensing system is associated with concern about unsustainability and revenue capture—potential to promote deforestation and forest degradation; -The allocation of large parcels of land and concessions is outside the purview of the district level and communities—potential that can interfere with sustainable management of natural resources (can generate conflicts) [50].</td>
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<td>Mining</td>
<td>-Mining Law (2014) [51].</td>
<td>-Promote the rehabilitation of degraded areas as replenishment measures of the forests that were inevitably overturned during mining operations.</td>
<td>-The law allows prospecting and exploration on all types of land (including conservation areas), which creates potential for deforestation.</td>
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to achieve its objectives (environmental, social and economic), it is important to enhance the positive implications. This involves investing, mechanizing and disseminating technological packages and strengthening the capacity of public institutions to comply with laws.

4. Conclusions

REDD+ represents a new approach to forest protection, a mechanism being designed through policy processes from the global to the national and the contribution of global policies or global decisions influences the design and implementation of the REDD+ scheme at the national level. Therefore, the discussions on REDD+ seem to be more focused on building a global structure and creating a multilateral instrument to replace the KP rather than explaining the dynamics of local action.

Non-harmonized sectoral policies can contribute to deforestation and forest degradation.

The policy options, positive incentives and positive implications emanating from REDD+ can serve to galvanize countries and communities to avoid deforestation and forest degradation.

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