

**Sri Lanka**  
**State of the Economy Report 2013**

**Chapter 10**  
**Clean Development Mechanism (CDMs)**

*by*  
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## 10. Clean Development Mechanisms (CDMs)

### 10.1 Introduction: Climate Change and Green House Gas Emissions

Extensive research by climatologists and meteorologists has shown that the earth's climate is changing rapidly.<sup>1</sup> The impacts of these climate changes are cross-cutting and are affecting areas such as agriculture, fisheries, health, settlements, and infrastructure. Climate change poses its threats in the form of heavy rain falls, severe droughts, floods, heat waves, and rapid ice melts, and the outlook suggests that the frequencies of these events will increase in the future.<sup>2</sup> Recognized by the Kyoto Protocol, climate change will pose challenges to both developed and developing countries in achieving sustainable economic and social development, and poverty reduction. The emissions from countries will continue to grow as they strive to achieve their development goals, and poorer communities will be more affected.<sup>3</sup> The Kyoto Protocol has recommended three flexible mechanisms which allow industrialized countries, which are called Annex 1 Parties, to implement activities outside their boundaries that can help to offset the emission they make. These are, Joint Implementation (JI), International Emission Trading (IET) and CDM. Among these three, CDM is very important since it is the only mechanism that involves developing countries.<sup>4</sup>

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*CDM creates many opportunities for Sri Lanka in reducing emissions, generating green employment, and promoting sustainable development*

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### 10.2 Clean Development Mechanisms as a Way of Climate Change Mitigation

Developed as a market based mechanism, the CDM will allow the creation of saleable emissions, which are called certified emission reductions (CER) through projects in developing countries. The generated CER

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<sup>1</sup> United Nations Framework Convention on Climate Change (2012), "Clean Development Mechanism Booklet," Fourth Edition, United Nations.

<sup>2</sup> Clean Development Mechanism Policy Dialog (2012), "Climate Change, Carbon Markets and the CDM: A Call to Action," Report of the High-Level Panel on the CDM Policy Dialog.

<sup>3</sup> Freestone, D., (2001), "The World Bank's Prototype Carbon Fund: Mobilizing New Resources for Sustainable Development" in S. Schlemmer-Schulte and K. Tung (Eds.), *Liber Amicorum Ibrahim F. I. Shihata*, Kluwer Law International, The Hague, Netherlands.

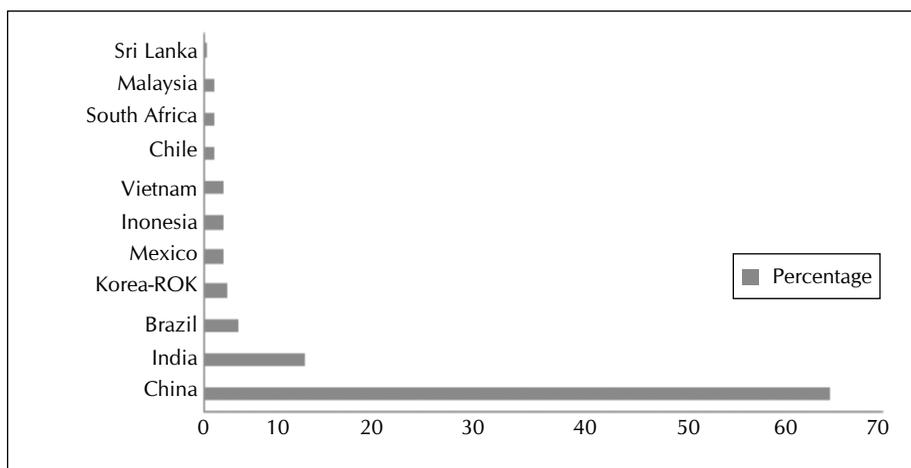
<sup>4</sup> Streck, C., (2004), "New Partnership in Global Environmental Policy: The Clean Development Mechanism," *Journal of Environment and Development*, Vol 13, No 3, pp. 295-322.

are equivalent to the CO<sub>2</sub> that these projects reduce or avoid.<sup>5</sup> As identified by the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, developing countries are not bound to reduce their emissions yet. However, they are encouraged to participate in the climate change mitigation efforts, especially through the CDMs. The CERs generated by the CDM projects in developing countries can be bought by the industrialized countries to offset their own emission levels to achieve emission reduction commitments.<sup>6</sup> While achieving the main target of cost effective mitigation, the CDMs are also capable of benefiting developing countries through technology transfers and by achieving sustainable development objectives. These efforts will allow developing countries to make the transition to more climate friendly economies. There is a huge potential to generate CERs through CDM projects, and UNFCCC sug-

gests that the amount of CERs generated by host countries would increase towards 2020. These expected CERs will be mainly accounted for by China and India. However, there are some other countries also in this equation, as further illustrated in Figure 10.1.

As suggested by the Marrakech Accord, a CDM project can have different structures. A bilateral CDM is where a CDM project in a developing country is financed by an industrialized country. Multilateral CDMs receive funds from more than one industrialized country, while unilateral CDMs get their funds to operate from a developing country that has agreed to finance the emission reduction before the CERs are traded to an Annex 1 country. Technology transfers to developing countries, profits gained by developing countries, and the impact on the transaction costs varies, based on these different structures.<sup>7</sup>

**Figure 10.1**  
**Distribution of CERs Issued by Host Country**



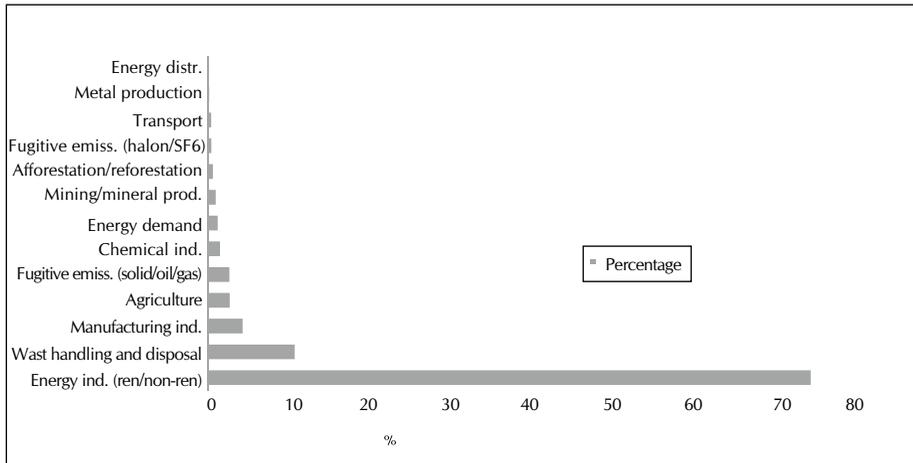
Source: UNFCCC, March 2013.

<sup>5</sup> United Nations Climate Change Clean Development Mechanisms (2013), "Clean Development Mechanism: Fact Sheet," CDM press release.

<sup>6</sup> Castro, P., (2010), "Climate Change Mitigation in Advanced Developing Countries: Empirical Analysis of the Low-hanging Fruit Issue in the Current CDM," Institute of Political Science and Center for Comparative and International Studies.

<sup>7</sup> Lussis, B., (2004), "Unilateral CDM," Working Paper, Institute for Sustainable Development, Ottignies; Baumert, K. and Kate, N., (2000), "Designing the Clean Development Mechanism: Operational and Institutional Issues," Organization for Economic Cooperation and Development, Paris; Jahn, M., et. al., (2003), "Unilateral CDM Chances and Pitfalls," GTZ; UNFCCC (2001), "The Marrakech Accords and the Marrakech Declarations: Decision 17/CP.7," United Nations Framework Convention on Climate Change.

**Figure 10.2**  
**Distribution of Registered Projects by Scope**



Source: UNFCCC, March 2013.

The 6000th CDM project was registered in January 2013, reaching a significant landmark in the CDM project development process.<sup>8</sup> Profits earned through CDMs, CDM project focus areas, and the technology transfer to developing countries, would greatly depend on the developing country characteristics such as population, GDP per capita, FDI, and most importantly, the knowledge stock. Germany, USA, Denmark, Japan, U.K., and France, are ranked amongst the top countries that transfer technology to developing countries through CDMs.<sup>9</sup> There are many areas that CDM projects operate on as shown in Figure 10.2.

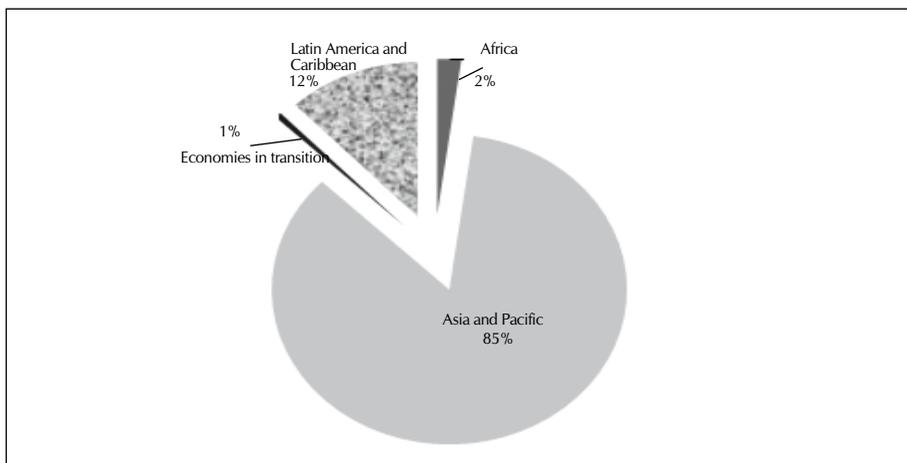
The registered or soon to be registered CDM projects accounted for a total investment of US\$ 215.4 billion as of June 2012. Approximately US\$ 92.2 billion of investment is accounted by the projects that are already on the ground. The average investment per project is approximately US\$ 45 million.

China and India, representing East Asia and South Asia respectively, account for approximately 65 per cent of the total investments in CDMs, and approximately 45 per cent of the total number of projects. Most often, CDM projects have an average estimated cost of under US\$ 10 per ton of CO<sub>2</sub> equivalent. By the end of 2011, the CDM registry showed over 750 million CERs transfers, with the revenue generated by these CERs estimated at a range of US\$ 9.5-13.5 billion. While the number of countries entering into CDM activities shows an increasing trend as previously noted, only a few of them represent small emerging economies which have low GHG emissions. These countries include those from Africa as well as Asia. The Asia Pacific region accounts for the majority (85 per cent) of CDM projects. Nevertheless, UNFCCC encourages CDM initiatives from all the regions. The current distribution is shown in Figure 10.3.

<sup>8</sup> United Nations Framework Convention on Climate Change, Clean Development Mechanisms, (2013), "Kyoto Protocol's Clean Development Mechanism Surpasses 6,000 Projects," CDM press release.

<sup>9</sup> Amin, Rabiul (2005), "Technology Transfer for Sustainable Development through Clean Development Mechanism (CDM): The Bangladesh Perspectives," unpublished PhD thesis, Murdoch University.

**Figure 10.3**  
**Distribution of CDM Projects among UNFCCC Regions**



Source: UNFCCC, March 2013.

## 10.3 CDMs in Developing Country Context

### 10.3.1 Developing Countries Engagement in CDMs

The developed country involvement on CDM activities with developing countries depend upon the cost of project implementation in the developing country. Developed countries always go for the cheapest option.<sup>10</sup> Developing countries share different views on engaging in CDM activities. One of the main issues in developing countries, especially poor countries in the African and Asian region, is that they are not clear on how the CDM process will help them to achieve sustainable development. One popular view is that the CDM is being used as a way of attracting funds by selling the concept of climate mitigation through CDM. Furthermore, developing countries have their own development agendas and priority areas for devel-

opment. These may often not be the same areas that industrialized countries are keen to develop CDM projects. For example, reforestation is a major interest among developing countries that falls under CDM areas. However, a majority of industrialized countries are more interested in offering energy efficiency and hydropower and biomass related CDM projects.<sup>11</sup> Therefore, a consensus has to be arrived at between developed and developing countries, in the areas that the CDM projects need to be developed on.<sup>12</sup>

### 10.3.2 Window of Opportunity for Developing Countries

Research findings suggest that developing countries' emission levels will also increase over time even though their current emission rates are far below that of developed countries. The latter on the other hand need to critically act on reducing their emissions,

<sup>10</sup> Duic, N., et. al., (2002), "Potential of Kyoto Protocol Clean Development Mechanism in Transfer of Clean Energy Technologies to Small Island Developing States: Case Study of Cape Verde," *Renewable and Sustainable Energy Reviews*, Vol 7, pp 83-98.

<sup>11</sup> Agus, P. Sari and S. Meyers (1999), "Clean Development Mechanism: Perspective from Developing Countries," Department of Energy, U.S. Environmental Protection Agency.

<sup>12</sup> Silayan, A., (2005), "Equitable Distribution of CDM Projects Among Developing Countries," Hamburg Institute of International Economics.

and compensate for the emissions that they make. Hence, the CDM projects are a good opportunity for both developed and developing countries to reduce their emissions and achieve the reduction targets.<sup>13</sup> However, the opportunities for CDM projects in developing countries are based on several important factors. The institutional set up, as well as the political will for clean energy production will greatly determine the engagement of developing countries in CDM projects. A huge amount of public spending is required to set up a Designated National Authority (DNA) and implement all the activities that a DNA is supposed to do. However, there is always some uncertainty whether the industry would work in the country context or not.<sup>14</sup> The CDM industry of a country needs to be backed up by proper policies guaranteeing that CDM projects can be implemented, CERs can be effectively generated and traded, and both social and environmental sustainability can be achieved. There is a probability that a policy could fail. A country could easily drop its CDM policies and focus more on adaptation as a way of fighting climate change. Yet, with increased emissions from developed as well as developing world, opportunities will be there for CDM in developing countries given the right mix of institutional set up and the political support.

For developing countries, CDM initiatives are a way of ensuring sustainable development and the achievement of MDGs in many ways. CDM project activities will help to generate environmental sustainability through reduction of GHGs and the efficient use of

resources. Reforestation projects will help to build up the forest cover of developing countries, which would ultimately benefit biodiversity and the mitigation of disasters. Biomass projects will ensure that waste is managed efficiently and sustainably. Hydro-power projects will help developing countries to meet their electricity demands. On the other hand, CDM projects will result in generating a large number of employment opportunities, which can help to eradicate poverty in developing countries.<sup>15</sup> Transfer of technology will help to develop the social capital and the technological know-how of employees in developing countries. Under-developed sectors in developing countries such as electricity, forestry, and transportation present opportunities for developed countries to target their CDM activities, with the potential for a 'win-win' situation for both parties. While developed countries can secure CERs, developing countries can achieve their development targets, especially through sector based CDMs.<sup>16</sup>

## 10.4 CDM Process in Sri Lanka

### 10.4.1 CDM Interim Policy for Sri Lanka

The Climate Change Secretariat (CCS), under the Ministry of Environment and Renewable Energy, has completed a "Sri Lanka National Policy on Clean Development Mechanism", which is an interim policy. This interim policy represents a component of the National Climate Change Policy of Sri Lanka (NCCP). Even though Sri Lanka is not an Annex 1 country and has a low per capita emission of GHG, it is the objective of the

<sup>13</sup> Heller, T.C. and Shukla, P.R., (2003), "Development and Climate: Engaging Developing Countries," Working Paper, PEW Center for Global Climate Change.

<sup>14</sup> Streck, C., (2007), "The Governance of the Clean Development Mechanism: The Case for Strength and Stability," Lawtext Publishing Limited, London, U.K.

<sup>15</sup> Cosby, A., et. al. (2005), "Realizing the Development Dividend: Making the CDM Work for Developing Countries," Phase 1 of Report, International Institute for Sustainable Development.

<sup>16</sup> Samaniego, J. and C. Figueres (2006), "Sectoral CDM: Opening the CDM to the Yet Unrealized Goal of Sustainable Development," *International Journal of Sustainable Development and Law*, Vol 2, No 1, pp 1-20.

GoSL to encourage private and public sector investments in climate friendly development activities, while contributing to the ultimate objectives of the UNFCCC. As suggested by the policy, all CDM projects should meet sustainable development criteria in terms of their contributions to improvement of the quality of life of the community, alleviating poverty, improving equity, facilitating transfer of technology, conserving local resources, improving health, and in using renewable energy sources. The National Policy on Clean Development Mechanism (NPCDM) provides directions and guidance in terms of institutional, legal, financial, capacity building, and technology, in facilitating the development of CDM projects.

There are several policy objectives: (1) to facilitate Sri Lankan private and public sector institutions to participate in CDM project activities; (2) to promote the transfer of appropriate technology that would contribute to GHG emission reductions; (3) to enhance national capacity for CDM project development, and finally; (4) to ensure that CDM projects contribute towards achievements of national goals on sustainable development. The CDM policy is guided by the climate change policy and the national environmental policy and has been prepared in line with the existing sectoral policies.

#### **10.4.2 The Designated National Authority (DNA) and the CDM Process**

Under the Ministry of Environment and Renewable Energy, the CCS functions as the DNA of Sri Lanka. The main function of the DNA is to assess the potential CDM projects to determine whether they will assist Sri Lanka in achieving its sustainable development goals, and issue approval letters to

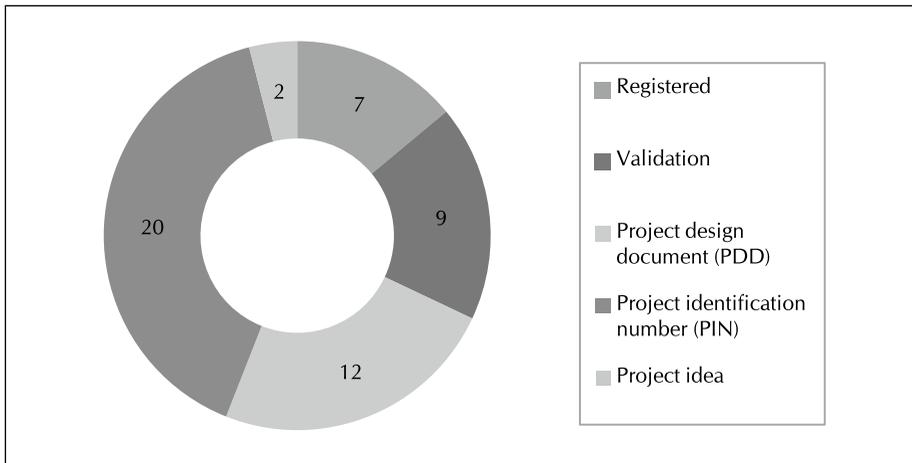
project participants in CDM projects. In this regard, the DNA will perform the tasks of: 1) evaluation and approval of CDM projects; 2) capacity development for CDM projects; and 3) CDM market promotion.

The host country approval process starts with the issuance of a Project Identification Number (PIN) to the applicant. Then the application will be reviewed in detail, and based on the results of the evaluation process, the application could either be rejected, returned with a request for additional information, or could be accepted. If the application is accepted, the DNA will approve the CDM project, with a request for submission of the Project Design Document (PDD). The DNA will usually take 30 days for evaluating the PDD document once it is submitted. Again, the result could be a disqualification, request for additional information, or approval of the PDD. If the PDD is accepted, then the DNA will issue the host country approval for the CDM project. Host country approval is necessary for a CDM project to obtain the ultimate approval or registration from the UNFCCC. Once a project submits its host country approval to the UNFCCC, the CDM Executive Board under the UNFCCC will request a Designated Operational Entity (DOE) to validate the CDM project.<sup>17</sup> Once the DOE confirms the validity of the CDM project, the CDM Executive Board will issue the final registration of the CDM project. At this point, the CERs of the project are also certified and they can be effectively traded in a CDM market. The host country approval will arrive within 2-3 months, provided that everything goes right from the first attempt. However, the time taken for final registration by the CDM Executive Board varies greatly due to the complex nature of the registration process.<sup>18</sup>

<sup>17</sup> DOE is an independent auditor accredited by the CDM Executive Board (CDM EB) to validate project proposals or verify whether implemented projects have achieved planned greenhouse gas emission reductions ([www.UNFCCC.int](http://www.UNFCCC.int), visited online 5<sup>th</sup> May 2013).

<sup>18</sup> United Nations (2013), "Procedure: Clean Development Mechanism Project Cycle Procedure," UNFCCC, visited online on 30<sup>th</sup> April 2013.

**Figure 10.4**  
**CDM Projects at Different Stages of the Project Lifecycle**



Source: Compiled using information from [http://www.climatechange.lk/DNA/Registered\\_Projects.html](http://www.climatechange.lk/DNA/Registered_Projects.html).

## 10.5 CDMs in Sri Lanka: Trends and Patterns

### 10.5.1 CDM Projects in Sri Lanka: Current Situation

Recent studies have suggested that Sri Lanka has the potential to claim about 6.2 million CERs. The Ministry of Environment and Renewable Energy and CCS have identified five main areas where CDM projects could be implanted: (1) energy sector (renewable energy and fuel quality improvements); (2) transport (low emission methods, alternative fuels and fuel efficiency); (3) waste management (methane recovery from landfill capping); (4) forestry (reforestation, REDD initiatives and bio-fuel plantations); (5) industry (enhancing fuel efficiency and energy conservation).<sup>19</sup>

Sri Lanka has several CDM projects which are at different stages of conceptualization and implementation. The CDM projects in Sri Lanka do not cover the whole range of project areas which the Ministry of Environ-

ment and Renewable Energy and CCS is recommending. Rather, it is focused only on a few areas such as hydropower, biomass generation, methane avoidance, energy efficiency, and wind power. Figure 10.4 shows the number of projects and the respective stages they represent in the CDM project lifecycle.

The majority of the CDM projects (20) are at the stage of obtaining a PIN. There are 12 projects at the PDD stage, and nine projects which are at the stage of validation. Only seven projects are at the registered stage and functioning, while two more are still at the project idea stage. Out of the seven registered projects, five are mini-hydro projects, and the others are biomass power generation projects. These projects are classified under the category of "small scale projects." The amounts of reductions vary from 5000 MT of CO<sub>2</sub> to 45,000. The other parties involved in these projects are mainly Japan, Switzerland, and the Netherlands.

<sup>19</sup> Rodrigo, C., (2013), "Sri Lankan Perspective of the Clean Development Mechanism: Approach Towards Climate Change Mitigation," Climateset Blog, Institute of Policy Studies, Sri Lanka, [www.ips.lk](http://www.ips.lk), visited online 5th May 2013.

Whilst all registered projects are on-going at the moment, only the hydropower projects have been able to establish negotiations with CER buyers. Looking at the current approved projects, the majority of them are hydro-power. This trend can be seen in all the other projects that are at other stages of the CDM project cycle. The majority of the projects that are at the stage of validation are hydro-power, followed by biomass. The rest are on wind power and methane utilization/ recovery/avoidance. Furthermore, the majority of the projects in the PDD and PIN stages are also hydropower. Therefore, the trends in the CDM projects in Sri Lanka shows bias for hydropower and biomass energy generation. Five out of the nine CDM projects that are at the validation stage have started their operations, while the rest are at the planning stage. However, none of the projects at the validation stage have yet established a potential trading partner for CERs.

### 10.5.2 CER Trading for Sri Lankan CDM

As explained earlier, only three out of seven projects were able to establish agreements with buyers for CERs. A similar situation can be identified in the project validation stage, where none have been able to identify a potential buyer for CERs. Four out of seven registered projects have still not been able to establish a trading partner for CERs started in January 2008, January 2001, April 2005, and September 2005. This shows that identifying a CER trading partner is an issue for CDM projects at the moment, and could be aggravated in the long run. The CERs that are being traded from the CDM projects in Sri Lanka at the moment is done through the European Union's Emission Trading System (EU-ETS). In their 2013-2020 agenda, EU-ETS

expects to further reduce their emissions by 21 per cent, which means that there will be more opportunities for CERs generated through CDM projects. However, among other changes, the EU-ETS has announced that these CERs should specifically come from LDCs. This could potentially have impacts on the CDM industry in Sri Lanka.<sup>20</sup>

### 10.6 Issues of Concern and Way Forward for Sri Lanka

In deciding the way forward for Sri Lanka, several important aspects need to be carefully evaluated. These aspects are not unique to Sri Lanka, and are shared by many other developing countries. However, these challenges need to be converted into opportunities if the CDM industry is to be successful in Sri Lanka. Key areas where Sri Lanka needs to focus on are: (1) overcoming market barriers; (2) compliance with the sustainable development criteria; (3) ensuring return on investment with small CDM projects; (4) financial and investment climate; and (5) small projects and programmatic CDMs.<sup>21</sup>

The CDM process involves high transaction costs and market barriers. While the initial cost is high in terms of project registration and set up, the benefits span across a long time period, and therefore, take a longer time to be realized. Furthermore, there is a high degree of uncertainty with regards to the benefits. All CDMs must complement criteria of sustainable development. These development criteria would come from national development agendas, as well as international agendas such as the MGDs. For example, the potential for a project to generate employment opportunities, eliminate gender disparities and empower women in project participation, increase youth employment

<sup>20</sup> Rodrigo, C., (2013), "Are Developing Countries in a Crisis? Certified Emission Reductions (CERs) Trading with EU Emission Trading System (EU-ETS)," *The Island*, 7th April 2013, www.island.lk, visited online 5th May 2013.

<sup>21</sup> United Nations (2003), "Implementation of the Clean Development Mechanism in Asia and the Pacific: Issues, Challenges and Opportunities," Economic and Social Commission for Asia and the Pacific.

opportunities, etc., needs to be looked at in addition to the CERs that the projects generate. During the CDM project life cycle, the price of the CERs fluctuates heavily. On the other hand, Sri Lanka has only a small number of CDMs that generate a very low amount of CERs. However, the establishment costs are very high. Therefore, there is always a question as to whether Sri Lankan CDM projects can generate enough return on investment, that would motivate others to come into the industry. This situation is aggravated by the fact that developing countries are no longer a part of the EU-ETS. Hence, Sri Lanka needs to look for other potential markets, while hoping that countries like China and India would develop their own emission trading markets, to which Sri Lanka would have better access.

Public-private partnerships are essential for securing funds for CDM projects in Sri Lanka. While FDI is essential to start up a CDM project, Sri Lanka needs to develop a better mechanism where financial institutions in the country are comfortable with financing CDMs. One of the major drawbacks is that the financial institutions lack the instruments to properly assess risks associated with CDMs. Therefore, such capacities need to be developed by transferring the necessary technologies to assess CDM project risks, so that financial institutions are motivated to provide assistance to CDM initiatives in Sri Lanka. Furthermore, implementation modalities such as bundling and Programme of Activities (PoA) should be implemented that could expedite the CDM project registration process, as well as minimize associated risks.<sup>22</sup>

Creating awareness among potential implementers of CDMs in Sri Lanka is quite important. Sri Lanka needs to develop a strategy where all the CDM implementers are linked together, and are given access to global information. The DNA lacks the necessary resources to fully undertake this role. Therefore, regional and international entities need to be connected with the DNA to support its information sharing activities. Sri Lanka needs to increasingly look at the possibilities of linking with regional and international entities to create GHG inventories at the national, sub-regional and regional level, development of least cost abatement measures, development of administrative and legislative measures, ensure dissemination and exchange of information, and finally share regional and international level consultancies on developing CDM projects in Sri Lanka.

Now that Sri Lanka has an interim policy on CDM, the policies need to be converted into strategies. Therefore, Sri Lanka has to develop a national CDM strategy that will include considerations such as: (1) training and capacity building in private and public sector; (2) preparation of a CDM project pipeline; (3) producing a list of non-eligible activities; (4) development of baselines for various sectors, initially in the plantation, energy and waste sectors; (5) develop a full programme to promote and actively seek out CDM projects; (6) provide information about project and financial opportunities to in-country project developers; and finally (7) facilitate the provision of financial support for CDM investors.

<sup>22</sup> Under Programme of Activities (PoA), a CDM initiative can be registered one time and components (which are called component project activities: CPAs) to that can be added anytime desirable without going through the whole CDM project registration process ([www.UNFCCC.int](http://www.UNFCCC.int), visited inline 5th May 2013).