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**Proceedings of the Workshop on an Initiative Towards
Understanding a Joint Implementation Regime to
Support National Priorities in Tanzania**

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FOREWORD

Climate Change is currently an issue of human concern because its consequences are threatening the lives and activities of mankind. Various studies including those of the Intergovernmental Panel on Climate Change (IPCC) have indicated that human activities are significantly contributing to climate change which is likely to cause sea level changes, droughts, floods and other catastrophic incidences in different parts of the world.

During the negotiations of the United Nations Framework Convention on Climate Change, the need for an international cost-effective approach to climate change issues was underlined. Therefore in the Convention it has been categorically stipulated that the Parties could comply to their individual obligations but also jointly through "Joint Implementation". This latter concept has been the subject of discussion and lengthy negotiations in all sessions of the Convention -- without much success -- although at the First Conference of the Parties (CoP1) some consensus was reached on how joint implementation could be achieved by the Parties. Many countries, especially developing nations, are not yet clear with the implications of this concept to their socio-economic development. To many of them the concept appears to constitute another yet form of dependence on the North.

The Centre for Energy, Environment, Science and Technology (CEEST) organized this workshop which took place at Commission for Science and Technology (COSTECH) premises, to exchange information on international concerns and stimulate discussions on the concept in relation to the Tanzania situation.

The participants for the workshop came from various governmental and non-governmental institutions. The group basically comprised of a mixture of stakeholders consisting of policy makers, planners, the private sector. Among institutions represented at the workshop were the Ministry of Water, Energy and Minerals; the then Ministry of Tourism, Natural Resources and Environment; the Ministry of Science, Technology and Higher Education; the Ministry of Agriculture and Livestock; and the Attorney General's Chambers. Other representatives came from the Directorate of Meteorology the University of Dar es Salaam; the Commission for Science and Technology; the Tanzania Industrial Development Organization (TIRDO); Agenda Business Care Services; Swiss Development Co-operation; Tanganyika Law Society; the Mass Media; and the Centre for Energy, Environment, Science and Technology (CEEST). Three embassies, the Embassy of Switzerland, the Embassy of Japan, and the Netherlands Embassy also sent their representatives.

Six resource persons were invited to present papers on different aspects of JI and they also led the discussions. Papers on different aspects of the concept of Joint Implementation were presented and discussed. A number of recommendations for the Tanzanian situation were drawn and have been included in this report of the workshop.

Prof. M.J. Mwandosya

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1.0. INTRODUCTION

1.1. Background

During the negotiations of the United Nations Framework Convention on Climate Change (UNFCCC), some delegations introduced the idea that countries might seek to achieve the objective of the Convention in a cost-effective manner by jointly implementing projects to reduce emissions of greenhouse gases or enhance greenhouse gas sinks. The concept is embodied in Article 4.2(a) of the Climate Convention and the approach to global emissions reductions has been called "joint implementation";

Basically it means that governments and the private sector in more prosperous countries can invest in emission limiting measures in the Third World and in countries in Central and Eastern Europe whose economies are in transition. It is assumed that measures in these countries may often be executed cheaply and more efficiently than in the West.

However, the concept of JI is not straight forward. Many developing countries fear that JI is not a legitimate vehicle for international cooperation to promote sustainable development. Individuals and groups see JI as a form of new colonialism under the pretext of an environmentalist banner. At the Intergovernmental Negotiating Committee (INC) sessions and the First Conference of the Parties (CoP1) much time was devoted to negotiations on JI.

Some critics have argued that JI would present developed countries, which have caused the major part of the GHG problem, with an opportunity to buy their way out of their fossil energy-based, and energy-wasting lifestyles. In so doing they would saddle developing countries with the burden of adjustment that would endanger the prospects of development for these young economies.

Developed countries on their part have argued that JI provides an extra avenue for channeling private investment for the development of the South while simultaneously meeting their commitments under the Convention.

A number of workshops and seminars have been held in different parts of the world to discuss the concept and implications of JI to developing countries. In all these occasions, the South has been warned to adopt a cautious approach to JI deals between the Northern and Southern Countries. This relationship appears to interest private companies the most and relies on the existing and inequitable relationship between the North and South. Subsequently a workshop was organised for a group of stakeholders in the country to brainstorm on this issue and provide guidance on how to approach this issue in future.

1.2. Objectives

A workshop on the Initiative Towards Understanding a Joint Implementation (JI) Regime to Support National Development Priorities in Tanzania was held in Dar es Salaam Tanzania on 15 August, 1995. This workshop was organised and sponsored by The Centre for Energy, Environment, Science and Technology (CEEST). The main objectives of the workshop were:

- to deliberate on the concept of JI and the United Nations Convention on Climate Change (UNFCCC)
- to examine how a JI regime could promote the achievement of national development priorities in different sectors of a national JI programme and the criteria that could be used to select JI projects
- to examine what projects could be negotiated for Tanzania under the JI regime.

1.3. Papers Presented at the Workshop

Six resource persons were invited to present papers on different aspects of JI. The papers presented at the workshop were:-

- The United Nations Framework Convention on Climate Change;
- A General Outline of the Concept of JI for Developing Countries;
- Economic aspects of JI;
- The application of JI in the Forestry Sector;
- Legal Aspects of JI;
- JI from a Business Perspective;

1.4. Summary of the Issues Discussed at the Workshop

The following is the general rapporteur's summary of the issues discussed and comments made on each paper, by the participants, during the workshop.

1.4.1 United Nations Framework Convention on Climate Change (UNFCCC)

In this presentation, the main objectives and commitments of the Convention were elaborated. It became clear that both developed and developing countries will all be affected by climate change, thus calling for a need to all countries to participating in implementing the United Nations Framework Convention on Climate Change (UNFCCC). The benefits for countries participating in the UNFCCC were elaborated. These benefits include, among others, opportunities for capacity building, provision of cleaner technologies and exchange of experts.

However, participants cautioned Tanzania to be careful while committing itself to participate in the Convention. It needs to evaluate how much it will benefit; especially in triggering technological transfer from the North. It was also emphasized that we need to be more careful in interpreting the articles of the Convention as improper interpretation may be to the country's detriment.

1.4.2 General Outline of the Concept of JI for Developing Countries

This paper was very informative on the JI issue. The participants were exposed to different concepts on JI and its relevance to Tanzanian's development programmes. All issues considered in the negotiation process and the different national/regional positions were summarized.

Some suggestions evolved on the relevance of the JI concept to Tanzania by involving the relevant institutions, strategic action plans, and monitoring systems.

A number of options on JI were clearly elaborated. These options were based on economic considerations relevant sectors such as energy, forestry, agriculture and land-use. The paper concluded by suggesting that Tanzania could gain by implementing JI projects. However, there needs to be proper co-ordination (through a clearing house), while implementing these projects.

1.4.3 Economic Aspects of JI

The paper stressed on the need for innovations and investments in economic and social sectors in order to reduce GHG emissions. It was pointed out that for economic benefit, JI should be considered at regional and international cooperation. It also pointed out the need to streamline the information flow, and access to financial capital in order to allow more investments in the context of GHGs reductions.

One of the main aims of JI activities is to enhance transfer of clean technology from the North to the South. On this aspect the paper called for a need to disseminate the results of the current studies on technological options. The new and clean technologies should be incorporated in the national development plans.

Finally the paper emphasized that studies on the economics of JI to Tanzania need to be done to ascertain the relevance of the international JI strategies to the Country's economy.

1.4.4 The Application of JI in the Various Sectors

During the discussions it became obvious that the forestry energy and agricultural sectors were favourable for the implementation of JI projects. The forestry sector was noted to be important as a sink of GHG emissions. In order to ensure the sustainability of the latter the workshop recommended the need to mind the domestic requirements of the country on JI with respect to this sector. It was also noted that private investments in this sector in the country

needed to be encouraged as one way of reducing GHG emissions. The need for capacity building in this sector as a way of sustaining programmes aimed at reducing GHG is essential. This could involve the participation of local people in forestry programmes based on JI so that these programmes can be sustained.

The energy sector was noted to be a significant source of GHG emissions in the country. It was therefore observed that there was a need to involve the private and public sectors in to energy programmes for economic benefits and with the objective of reducing GHG emissions. Programmes with regional and sub-regional linkages can also be looked into from the JI point of view. Investment in clean energy production through private sector within the framework of JI is to be encouraged. However, the strengthening of local capacities in the energy sector was observed to be an important aspect for the sustainability of clean energy production.

Others sectors, (notably agriculture), have been found to be important in the GHG emissions in Tanzania; thus JI programmes may have a role in these sectors. There is need for studies to be conducted in order to establish the roles of JI on these sectors. It was emphasized that the overriding objective in these sectors should be economic and social. However, where there are additional benefits by way of reducing GHG, priority should be given to JI projects/programmes in these sectors.

1.4.5 Legal Aspects of JI

A paper was presented on the legal aspects of JI projects. The paper and the discussions which followed after this presentation emphasized the need to carefully interpret the results of international conventions on the issue of climate change. Caution was expressed on the need to prevent interference with our national sovereignty during JI transactions. It was also emphasized that there was a need to put legal instruments in place that will ensure the effective transfer of technology and the overall viability of JI strategies (including incentives). The paper encouraged the government to undertake various measures to review the entire legal framework in order to facilitate an attractive and equitable JI strategy.

1.4.6 Business Aspects of JI Programmes

The paper noted that climate change will affect the agro-business potentials. It is therefore necessary to mitigate climatic change through JI activities so as to encourage the agro-business sector. It also encouraged measures to be undertaken that would encourage business in the JI perspectives through taxation processes and particularly through enacting enabling laws by the government. Lastly, the paper stressed the viability of investment in clean energy production through the private and business sectors.

1.5 Conclusions

In conclusion, it was noted that Tanzania was not the only country which was still not clear on the concepts of JI. There are still many other countries which do not know these concepts. There was a need to put more effort in order to clear the existing uncertainties. **Many**

- countries are still shaping the ideas of JI and examine how they fit into their national development priorities. Therefore, further initiatives to understand and share ideas on the subject matter need to be encouraged.

Participants agreed on the need to prioritise the sectors in which JI could easily be implemented and with maximum benefits. It was realized that there was a need to set a strategy for follow-up activities on JI activities after the workshop. It was pointed out that there are certain developed countries e.g. the Netherlands which were interested in assisting JI initiatives in Tanzania.

**2.0. A General Outline of the Concept of Joint Implementation (JI)
and its Implications for Developing Countries
By Prof. M. J. Mwandosya and Dr. B. S. Nyenzi**

2.1. Introduction

Scientific evidence points out to an enhanced greenhouse effect that leads to the earth being warmer than it would otherwise be. Studies on climate change show that the global mean surface temperature of the earth has risen by 0.30 to 0.6 0C over the past millennium. The average sea level has increased by 10-20 cm. It is expected that the global mean temperature will increase by 0.3 0C per decade which will result into a rise of 1 0C by the year 2025 if anthropogenic emissions of greenhouse gases continue unchecked (IPCC, 1990, 1992).

It is against this background that at the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil, in 1992, over 150 countries signed the United Nations Framework Convention on Climate Change (UNFCCC). The fundamental objective of the UNFCCC is the "stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". Although scientific uncertainties still abound with regard to the exact nature and magnitude of emissions and sinks of greenhouse gases (IPCC, 1992, 1994), the Convention is being implemented on the basis of the Precautionary Principle which basically states that:-

" uncertainty is not a sufficient reason for failing to act to prevent a potentially serious threat against the global climate. "

During the negotiations of the UNFCCC (variously referred to below as the Climate Convention or the Convention), some developed countries, notably Norway and Germany, moved the idea that countries might seek to achieve the objective of the Convention in a cost-effective manner by jointly implementing projects to reduce emissions of greenhouse gases or enhance greenhouse gas sinks. The proponents of this idea felt that this would be in line with the implementation of provisions in Articles 4.2 (a) and 3.3 of the Convention which are elaborated as follows:-

- Article 3 paragraph 3 urges Governments to take "into account that policies and programs to deal with the climate change should be cost-effective to ensure global benefits at the lowest possible cost" and notes that "efforts to address climate change may be carried out cooperatively by interested parties".
- Article 4 paragraph 2 (a) on commitments to industrialized nations urges that "Parties may take such policies and measures jointly with other Parties and may assist other Parties in contributing to the achievement of the Convention".

- Article 4 paragraph 2 (d) on the criteria for joint implementation states that *"The Conference of the Parties, at its first session, shall also take decisions regarding criteria for joint implementation"*.

This approach to global emissions reductions has been called "joint implementation (JI)" which is simply defined as

"the process by which the government of one country or private enterprise in such a country invests in measures, projects or programmes in another country in order to facilitate and support efforts to reduce greenhouse gas emissions or enhance greenhouse gas sinks in the receiving country. In recognition of this contribution, the government of the investing country (or the home country of the enterprise supplying the assets to the project) receives credit for a fraction of the emissions reductions achieved in the host country".

However, the concept of JI has created confusion and misunderstanding among many countries. Developing countries fear that JI is not a legitimate vehicle for international cooperation to promote sustainable development. Individuals and groups in these countries see JI as a new form of colonialism under the pretext of an environmentalist banner. Some countries have argued that JI would present developed countries, which are responsible for the major part of the historic and present emissions of greenhouse gases (GHGs), with an opportunity to buy their way out of their responsibility. Instead of adjusting their fossil energy-based, wasting lifestyles they would saddle up developing countries with the burden of adjustment and that would endanger their prospects of development. It is even possible that JI could be the basis for implementing a large number of projects which for various reasons would not lead to real global GHG emission reductions.

Proponents of JI argue that in terms of global emissions of greenhouse gases, it does not matter where you emit or reduce emissions. The atmosphere is one global common. This being the case, emissions should be reduced or sinks developed in countries where it is cost-effective to do so. They also argue that JI could be an additional vehicle for transfer of technology and resources.

In this paper a review is given of the progress which has been made in arriving at the understanding of the concept and practice of JI. It provides the current global perception on the subject of JI and examines possible approaches a country like Tanzania could take to implement JI.

2.2 Greenhouse Gas Abatement Costs

JI is premised on the argument for cost-effectiveness in fulfilling the objectives of the Convention. Article 3.3 of the Convention, and as stated before, calls on Parties to, among other things, take *"into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost"*.

Article 4.3 of the Convention introduces the concept of incremental costs of implementing measures on mitigation of greenhouse gas emissions and adaptation to climate change. The reference to incremental costs here is in relation to financial resources including those for the transfer of technology from the developed countries to developing countries envisaged under the mechanism provided for under Article 11 of the Convention. In the interim period, until a permanent mechanism evolves, the Global Environment Facility (GEF) of the United Nations Development Programme, the United Nations Environment Programme and the World Bank has been designated, under Article 21 of the Convention to be the entity to operate the financial mechanism. This interim period is expected to be maintained for up to four years. Negotiations on the implementation of the Convention and in particular the financing mechanism under JI and GEF will centre around interpretation of the concepts of "cost-effectiveness" and full incremental cost" of measures to mitigate greenhouse gas emissions.

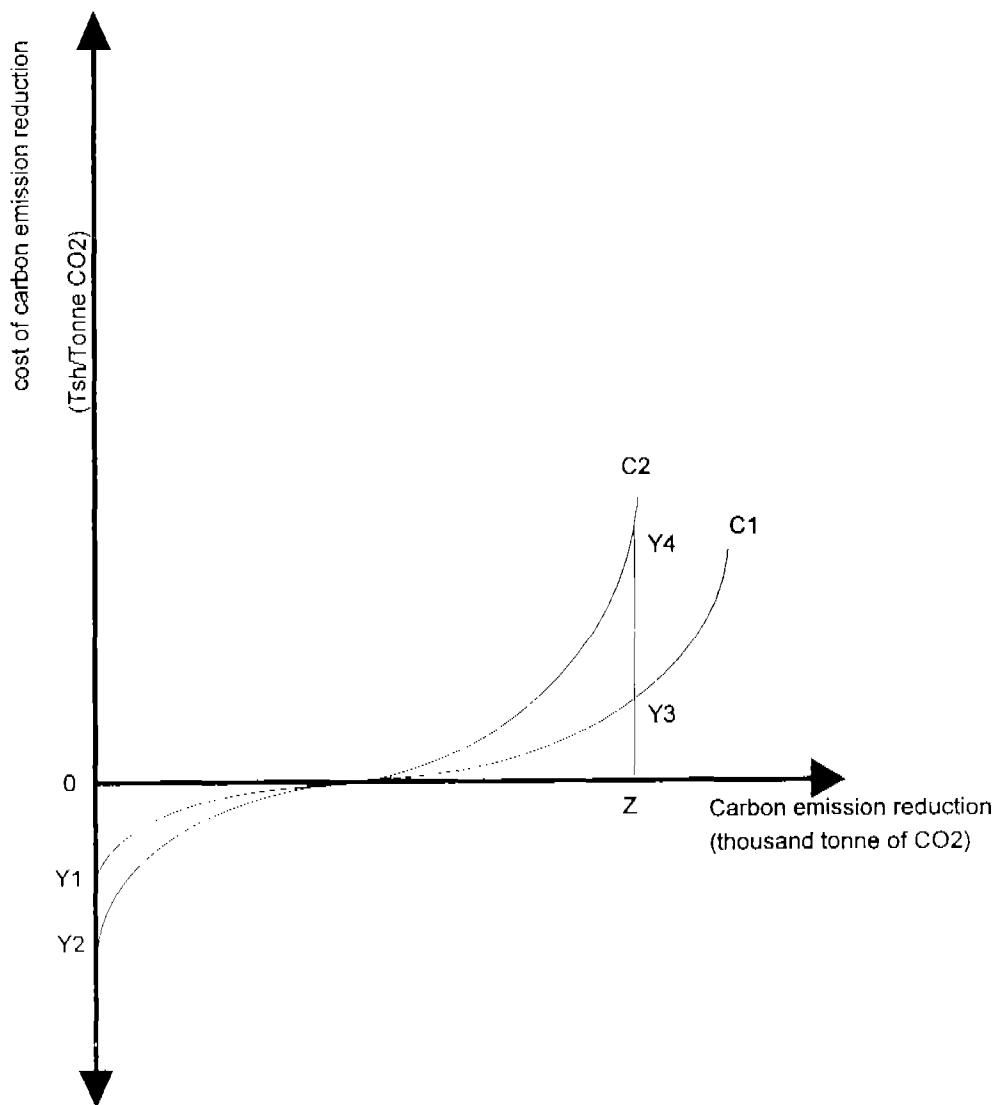
2.2.1 Cost-effectiveness

A cost curve such as typically shown in Figure 2.1 essentially illustrates the cost of reducing a unit of carbon, at the margin.

For a country like Tanzania, the curve C1, hypothetically illustrates the least cost path of abating greenhouse gas emissions, with the cost of abatement options rising along the path. Cost-effectiveness essentially entails that the country exhausts the cheaper options first before the expensive abatement options are attempted; that is following the cost curve. The cumulative area under the curve gives the total abatement costs of achieving a target emission reduction. Abatement potential at negative costs represents what can be referred to as "win-win" or "no regrets" options where abatement measures also lead to net savings. (Climate Network Europe, 1994; Jackson, 1994). Energy efficiency measures will most likely fall in this category.

It is argued that the concept of cost-effectiveness holds both at national and international levels. At the international level cost-effectiveness provides a basis for JI so that those countries, for whom it is more costly to reduce greenhouse gas emissions, can invest in other countries where it is cheaper to do so. If C2 is a hypothetical least cost curve for Norway, say, then the difference in the areas Y4 Z Y2O and Y3Z Y1O represents the economic incentive for Norway to invest in JI in Tanzania.

Figure 2.1: The Cost of Carbon Emission Reductions



2.2.2 Incremental costs

The concept of "agreed full incremental cost" is the principle and operational guideline of GEF, the multilateral mechanism adopted by the Convention for funding costs associated with the greenhouse gas abatement. While the term "agreed full incremental" cost cannot be easily defined, it is generally accepted that an incremental cost of an abatement option is the cost of that option over and above the cost that could be incurred without that abatement option being implemented. The definition of incremental cost therefore requires knowledge of a baseline scenario (reference scenario), the agreed choice of which will necessarily impact on the magnitude of the incremental cost.

2.3. Pilot Phase of JI

Developed countries and especially Norway, the Netherlands, and the USA have gone ahead in experimenting ideas which in their view will shape the implementation of JI regime once the CoP has decided on the criteria and ground rules. Examples of these initiatives are given below.

2.3.1 The United States Joint Implementation Initiative (USJI)

USJI has been set up as a pilot programme for the reduction of emissions and creation of sinks of greenhouse gas emissions and at the same time to contribute to the formulation of criteria for JI. The programme started in October 1993 as a component of the US Climate Change Action Plan. One objective of USJI is to encourage US private sector involvement in the implementation of the Convention. The projects involved are mainly in Latin America in Belize, Costa Rica and Honduras and in Eastern Europe in the Czech Republic and Russia. The scope of these projects is as shown in Box 1.

Box 1: Seven Projects Approved by the USIJI Evaluation Panel:-

On February 1995, the USIJI Evaluation Panel approved seven projects. Current investments in these projects are worth approximately \$40 million. These are:-

- The Rio Bravo conservation and forest management project in Belize, of which the objectives are to purchase land to be added to existing protected areas, and to improve forest management practices in order to produce economic benefits for the neighbouring population. In total 6,000 ha. land will be protected from conversion to farmland. The project is sponsored by the Belizian Programme for Belize, Wisconsin Electric Power Company (US), and the Nature Conservancy (US).
- The CARFIX project in Costa Rica, which is an integrated forest management pilot project containing: sustainable forest management in major national parks (71,000 ha.) and a buffer zone (20,000 ha.). Project funding is provided by FUNDECOR (Costa Rica), the Costa Rican Ministry of Natural Resources, Energy and Minerals, and Wachovia Timberland Investment Management (US).
- The plantas Eolicas S.A Wind Facility project in Costa Rica which aims to develop a 20 MW privately owned and operated wind electric plant. The electricity generated by the project will be sold to the national utility company of Costa Rica and will replace electricity generated by burning fossil fuels. The project is sponsored by Plantas Eolicas, S.A. (Costa Rica), Charter Oak Energy, Inc. (a subsidiary of Northeast Utilities), KENETECH Windpower, Inc., Merrill International, Ltd (all from the USA).
- The ECOLAND project, aiming at preserving the Esquinas National Forest in Costa Rica. The project will attempt to remove the threat of deforestation from inholders who are awaiting a planned buyout by the Government. Participants in the project are the National Fish and Wildlife Foundation, COMBOS, the Costa Rican Ministry of Natural Resources, Energy and Mines (all from Costa Rica), Tenaska Washington Partners, Ltd., Trexler and Associates, the Council of the OSA Conservation Area (all from USA) and Rainforests of the Austrians.
- The Rural Solar Electrification project in Honduras, which aims to a.o replace the use of kerosene for lighting by electricity generated by solar panels. Project participants are COMARCA and AHDEJUMAR (Honduras), Enersol Associates, Inc. (USA).
- The Decin project in the Czech Republic, which will replace part of a lignite coal-fired district heating system by a natural gas plant and improve energy efficiency measures. This project is sponsored by the Center for Clean Air Policy (USA) which has lined up Wisconsin Electric Power Company, Edison Development Company and NIPSCO Development Municipal Government and the Decin District Heating Company.
- The RUSAFOR-Saratov Afforestation Project in the Russian Federation, of which the purpose is to sequester GHGs, prevent soil erosion, and foster public participation in JI. The participating parties in this project are Oregon State University (USA), the US EPA, the Russian Federal Forest Service and the Russian International Forestry Institute.

Source: JIQ 1995

2.3.2 The Netherlands' pilot programme

The Netherlands programme on the pilot phase of possible JI regimes is aimed at assessing the benefits and risks that will arise out of JI. The programme focuses on fuel switching, energy conservation, energy efficiency improvement, methane reduction, and afforestation. In respect

of afforestation, a foundation called Forests Absorbing Carbon dioxide Emissions (FACE) has been set up with the aim of establishing 150, 000 ha. of forests world-wide. Currently FACE is involved in projects on carbon sequestration in Malaysia, the Czech Republic, Ecuador and Uganda.

2.3.3 Nordic initiatives

The concept JI was introduced by Nordic countries and especially Norway during the negotiations for the Convention. The climate policy in Nordic countries is as such premised on what these countries consider to be the need for internationally-based and cost-effective solutions to climate change. JI and the development of its pilot phase has been supported by Nordic countries.

Nordic thinking on JI has been shaped largely by the Nordic countries proximity to Baltic states and Eastern European countries whose structure of energy production and use has been a major cause of emissions of carbon dioxide. Nordic countries also see in JI with neighbouring countries with economies in transition an added advantage in the reduction of emissions of sulphur dioxide and nitrogen oxides which are considered to be major causes of acid rain in Nordic countries. The Nordic Environment Finance Corporation (NEFCO) will most likely become the financial arm for the implementation of JI between Nordic and East European countries.

In order to gain experience on challenges that will face JI, the Global Environment Facility, Mexico and Norway have provided financing for a project to procure and replace 1.7 million ordinary light bulbs with more efficient compact fluorescent lamps (CFL). The project, which will cost a total of US\$ 23.3 million will be implemented over a period of two years in the Mexican urban areas of Monterrey and Guadalajara. The main objective of this project is to enhance the capacity of the Mexican national electric utility (the Federal Electricity Commission) in demand side management. This project will also demonstrate the feasibility of greenhouse gas emission reduction and thereby serve as a learning ground for JI (Anderson, 1995, Selrod, 1995).

Another JI demonstration project is the Poland Coal-to-Gas Conversion (CTG) Project. The project, whose total cost is US\$ 44.8 million involves the replacement of coal-fired boilers with gas-fired ones. The project is funded by the Global Environment Facility, Norway and Poland (Anderson, 1995).

The positions of various Parties to the Convention regarding the role and direction of the pilot-phase of JI are discussed in the following sections.

2.4 Perspectives from the North

The basis and rationale for advocating JI as one of the tools to achieve the objectives of the Convention is that there are differences among countries and regions in respect of the abatement costs related to carbon dioxide emissions. Furthermore it is argued that abatement measures in the case of the greenhouse effects in global terms are independent of where these measures are effected. It is the contention of Northern countries that it will be far cheaper per unit of reduced emissions to effect mitigating measures in the South than in the North and hence the need for international cooperation on cost-effective instruments and strategies.

Northern countries view JI as an instrument that can be another avenue for transfer of resources from the rich countries to the poor Southern countries. In this case therefore JI is thought of as a possible route for the distribution of modern and clean technology. In the case of financial resources, JI is also being portrayed as an additional vehicle for financial transfers from the developed North to the impoverished South. This transfer of financial resources, it is argued, will be over and above the current development assistance which totals about US\$ 50 billion a year.

Northern countries are however cognisant of the fact that JI is fraught with many uncertainties such as the following: (Anderson, 1995; Selrod, 1995; Nordic Council of Ministers, 1995)

- Net emission reductions - It will be necessary to establish a baseline against which emission reductions can be measured in order to be able to ascertain emission reductions resulting from JI. There is need to develop common criteria.
- Leakage effects - Some of JI projects may lead to emission increases directly or indirectly. It is the net result that has to be considered. The reliability and credibility of emission calculations in JI considerations will be an important aspect in JI development.
- Credits - Northern countries stress that incentives must be provided for countries and institutions from the North to participate in JI. In respect of countries, this incentive takes the form of credits being given for emission reductions. For the private Northern investor, this incentive could be in the transformation of these credits into tax incentives at home.
- Transaction costs - It is generally accepted that there will necessarily be transaction costs associated with JI. These costs relate to, among other things, administration, measurement, and inspection and information. Allocation of these transaction costs to the investor and the host will be an important aspect of JI.

2.5 Perspectives from the South

While taking note of the Northern perspectives on JI the majority of developing countries have a number of reservations on the concept of JI. These reservations range from the interpretation of who in accordance with the UNFCCC can undertake JI to the difference between JI and Joint Activities (JA). Developing countries view JI as a means being used by developed countries to buy their way out their responsibility to limit emission and in so doing shift their emission reduction obligation on to poor countries. On equity considerations, this move is considered morally indefensible. It is the contention of the developing country Parties to the Convention that developed countries have been, are, and will continue to be responsible for much of the anthropogenic emissions of greenhouse gases. These countries would not want to change lifestyles of their people and would therefore not wish to take tough political decisions required of them (Karimazira, 1994, and Maya, 1994).

On the assertion by developed countries that the reductions of emissions should take place where it is cost-effective to do so, poor Southern countries argue that if the cheaper options in the reduction of emissions existing in the South are "used up" what will be left will be the expensive options which will not be attractive to Northern entities. At that time Southern countries will in all likelihood be required to fulfill certain emission targets. The cheapest possibilities will not be there.

On JI being another possible avenue for transfer of financial resources and technology, Southern Parties are skeptical. They believe that priority being given to JI projects will lead to reductions in existing development assistance.

On political grounds developing countries have some problems with JI. Sovereignty issues come up. Nations want to control resources within their borders. JI implies joint ownership of projects associated with JI with host countries being obliged to make undertakings of a long term nature. JI is viewed as an avenue which could allow developed countries interfere in the internal affairs of developing countries.

The concept of JI is likely to be cost-effective to the investing Party. Developing countries caution that JI is likely to affect the host country's economic growth for a long period. Take JI afforestation project as an example. It is likely that the host country will be prevented from using the land allocated to the JI project for other activities for a long period. It is also feared that the North will play off the countries of the South against each other in order to propose the cheapest JI projects.

The Convention acknowledges that the share of emissions from developing countries will grow in order to meet social and developmental needs. As such, commitments under Article 4 of the Convention refer mostly to commitments of Annex 1 and Annex II countries shown in Boxes 2 and 3. Developed countries fear that a large proportion of future increases in greenhouse gas emissions will come from such countries as India, China, and Brazil. JI is viewed in the South as an indirect way of introducing new commitments for the South.

As can be seen from the foregoing, there are many grey areas related to the concept and understanding of JI. Some of the main questions being asked by the South are:

- Will the South not be used as a convenient dumping ground for obsolete technology?
- Will the South be fairly treated if the North remains the only source of expertise that determines the soundness of technologies for the South?
- Is the South going to be the dumping ground of obsolete technologies?
- What assurance does the South have that trade and development aid will not create a new era of underdevelopment?
- What are the long term ties between the donor and the host country: Is the South ready to maintain such long term commitments?
- What will happen at the end of the life of the project?
- What are the benefits of JI as compared with the existing bilateral and multilateral aid programs already in place?

Developing countries and NGOs need these questions to be answered in clear-cut terms by proponents of JI or its pilot phase so as to clear the doubts and to help build confidence before a global consensus is reached on this complex issue of JI or its pilot phase criteria.

2.6 The Intergovernmental Negotiating Committee (INC)

The Intergovernmental Negotiating Committee (INC) was formed to prepare the draft UNFCCC. The INC has been the main forum for discussing issues on JI. The INC-1 through INC-11, and especially INC-8 through INC-11 saw the gradual evolution of the concept of JI.

During the negotiations it became clear that developed countries' perception was that opposition to JI by developing countries was based on non-economic, ethical and moral arguments. At the 8th session of the INC developing countries took the position that JI was for industrialized countries only. Their interpretation of the Convention is that Article 4.2 is meant for Annex I countries only (see Box 2). However, other countries felt that JI is meant for the participation of all countries. These countries included among others, Australia, Canada, Germany, and the Netherlands. Most of delegations voiced the need for additional financial resources in implementing JI projects. Denmark, EC, Japan, the Netherlands, Norway, Sweden and USA supported the idea of having a pilot phase of implementing JI. Austria, Japan, Malaysia Norway, Turkey and USA expressed for need of crediting immediately as opposed to other countries which favoured no crediting until after the year 2000.

Mexico is prepared to have developing countries included in the JI as long as a certain proportion of the reduction target is achieved with the industrialized countries and reduction from JI projects are only partially credited. Among the developing countries Costa Rica has been a great proponent of JI. It declared itself available for JI projects as early as mid-1994, and without reservations. By the end of the INC-8, it was realised that the issue of JI was more complex than initially thought. As such the Interim Secretariat of the Convention was requested to provide further documentation on the issue for discussions at the INC-9, including a list of possible criteria on implementation of JI.

Box 2: Annex I Countries: Developed Country Parties and Other Parties and Some of Their Commitments Under the UNFCCC

Annex I countries are:- Austria; Belarus*; Belgium; Bulgaria*; Canada; Czechoslovakia*; Denmark; European Economic Community; Estonia*; Finland; France; Germany; Greece; Hungary*; Iceland; Ireland; Italy; Japan; Latvia* Lithuania* Luxembourg; Netherlands; New Zealand; Norway; Poland*; Portugal; Romania*; Russian Federation*; Spain; Sweden; Switzerland; Turkey; Ukraine*; United Kingdom of Great Britain and Northern Ireland; United States of America.

Developed country Parties and other Parties included in Annex I committed themselves to, among others, adopting national policies and taking corresponding measures on the mitigation of climate change. These Parties could implement such policies and measures jointly with other Parties and could assist other parties in contributing to the achievement of the objective of this Convention.

Other commitments included the following: within six months from the entry into force of the Convention, and periodically thereafter, each party was to communicate detailed information on its policies and measures pointing to its taking a lead in meeting the Convention's objectives. These Parties were also to make calculations of emissions and removals by sinks based on the best available scientific analysis and agreed the upon methodologies.

Source: UNFCCC. 1992

Note: * = Countries that are undergoing the process of transition to a market economy

Box 3: Annex II countries and some of their obligations under the UNFCCC:

Annex II countries are: Australia; Austria; Belgium; Canada; Denmark; European Economic Community; Finland; France; Germany; Greece; Iceland; Ireland; Italy; Japan; Luxembourg; Netherlands; New Zealand; Norway; Portugal; Spain; Sweden; Switzerland; Turkey; United Kingdom of Great Britain and Northern Ireland; United States of America.

Among others and according to the UNFCCC, developed country Parties and other developed Parties in this group are to provide new and additional financial resources to meet the agreed full costs incurred by developing country Parties in complying with their obligations under Article 12 paragraph 1 (of the UNFCCC text), which include making a general description of steps taken or envisaged by the Party to implement the convention.

Developed country Parties and other developed Parties included in Annex II shall also assist the developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting the costs of adaptation to those adverse effects.

Source: UNFCCC 1992

At the 9th INC session many countries maintained positions which they had expressed at the 8th session. However Australia, Canada and Germany this time supported the approach of having a pilot phase, while Canada supported the establishment of an immediate crediting system. In line with the directives given to it at the INC-8, the Interim Secretariat of the

Convention prepared tentative criteria for JI for the INC-9. These criteria are shown in Box 4. No decisions were taken at the INC-9 regarding criteria for JI. As a result of a slowly emerging consensus on some issues, the Interim Secretariat of the Convention narrowed down the criteria as shown in Box 5 and presented these draft criteria for the INC-10.

At the INC-10 it was further underscored that JI is a new and as yet untested approach to addressing global environmental problems. However the Committee concluded that much progress had been made in understanding the concept, especially with respect to a phased approach, beginning with a pilot phase. It was the beginning of the emergence of some consensus on the criteria to be followed in developing the concept of JI. Taking into account the complexity as well as the far-reaching political implications of the subject, the Committee agreed to continue discussion on this matter at the INC-11, with a view to deciding on a recommendation to CoP1.

Box 4: Tentative criteria for Joint Implementation by the Interim Secretariat of the Framework Convention (prepared for the 9th session of the INC).

- Joint implementation refers only to joint action to implement policies and measures, and in no way modifies the commitments of each Party.
- Joint implementation is distinct from the provision of assistance to other Parties.
- Joint implementation is a voluntary activity under the responsibility of two or more Parties; such activity must be undertaken or accepted by the Governments concerned.
- Joint implementation would be undertaken in conjunction with domestic action
- Joint Implementation should be beneficial to all Parties involved and be consistent with their national priorities for sustainable development .
- Joint implementation activities should bring about real and measurable results, determined against reasonable baselines..
- The impacts of joint implementation activities would have to be assessed with respect to their economic and social, as well as environmental, effects. .
- Joint implementation activities should, where appropriate, be accompanied by measures to ensure their long-term environmental benefits,
- Joint implementation activities could address any greenhouse gas or any combination of gases.
- Parties should give priority to joint implementation activities resulting in emissions limitations.
- The benefits of joint implementation activities may be shared between the Parties involved.
- Each of the Parties involved in a joint implementation activity would have to communicate relevant information thereon to the COP.

Source: Interim Secretariat of the Framework Convention of Climate Change: Matters Relating to Commitments-Criteria for Joint Implementation; and BMWi 1995.

The issue of JI was heavily debated at the INC-11. Most countries appeared willing to make some concessions. The USA gave an elaboration of its national initiative on JI and submitted that crediting for JI projects was vital in attracting private sector financing, although it had not

yet made a domestic decision as to whether they would use the credits for the current US efforts. The European Union and other developed countries agreed that JI should be on a voluntary basis; should not create additional obligations for developing countries; should be additional to Overseas Development Assistance and the funding through GEF; and that credits from JI projects in the pilot phase should not be used for current commitments.

By INC-11 it had become clear that some of the richer developing countries had identified advantages in JI. Some developing country delegations were afraid that blocking the JI discussions at INC would lead to JI being left entirely to the private sector and national governments would then be pressurised by the external and domestic private sectors to accept JI in effect JI would then be introduced through the "back door" (JIQ, 1995).

Box 5: Draft set of criteria for the 10th session of the INC

A pilot phase shall be started to clarify the design of Joint Implementation projects and their costs/benefits. Moreover problems concerning groups of countries shall be considered. The preliminary criteria are to be checked and the institutional frame to be built. All contracting parties can participate. The pilot phase could start after the first Conference of the Parties or at an already passed date to recognize ongoing projects. Its duration is not yet clear. Industrial countries investing in Joint implementation shall inform about them in their national reports. Other countries have to deliver special reports. Countries could also deliver joint reports. In the pilot phase there is no crediting of emissions reduction. The following criteria shall apply:

- Joint implementation is a voluntary activity under the responsibility of two or more parties; such activity must be undertaken or accepted by the Governments concerned.
- Joint implementation should be beneficial to all Parties involved, and be consistent with their national priorities for sustainable development.
- Joint implementation activities should bring about real and measurable results, determined against reasonable baselines.
- The impacts of joint implementation activities would have to be assessed with respect to their economic and social, as well as environmental, effects.
- Joint implementation activities should be accompanied by measures to ensure their long-term environmental benefits.

Concerning the institutional framework the paper is vague. It discussed the project exchange and clearing house concept as well as an approach similar to the GEF. Furthermore, the Conference of the Parties shall have evaluation powers.

Source: UN; Matters Relating to Commitments-Criteria for Joint Implementation, A/AC.237/66, Geneva 1994; and BMWi 1995.

Issues regarding the JI pilot phase were taken up at INC-11. The G-77 and China insisted that during the pilot phase JI should only take place between Annex I Parties and that Joint activities between developed and developing countries were to be distinct from JI projects. A draft recommendation (A/AC.237/91/Add1) to launch the pilot phase was prepared. According to the recommendation, this pilot phase would aim at, among others, achieving the objectives shown in

Box 6: Some of the objectives of the pilot-phase of JI as proposed at the INC-11

- to evaluate how joint implementation could contribute to the achievement of the climate objective of the FCCC;
- to identify and address conceptual and practical issues in developing and, implementing JI activities;
- to provide an opportunity to the participants to determine the costs and benefits of JI in a practical fashion;
- to encourage the involvement of private sector;
- to identify project categories particularly suitable for JI implementation; and
- to prepare for follow-up.

Source: A/AC.237/91/Add1

At the INC-11 There was a further refinement of what could be considered as criteria for JI to be presented for the consideration of CoP1. These criteria are shown in Box 7. There was a general appreciation that the concept of JI was not well understood. It was recommended that efforts to create public awareness on the issues of JI be intensified.

Box 7: Some criteria for JI projects as defined at INC-11

- Joint implementation refers only to joint action to implement policies and measures, and in no way modifies the commitments of each party;
- JI activities shall be financed independently of the obligations of the Parties within the framework of the financial mechanism and of the technical assistance;
- Crediting of JI activities with regard to present commitments under the FCCC is excluded during the pilot phase;
- JI is a voluntary activity under the responsibility of two or more parties; and
- The impact of JI activities shall be assessed with respect to their environmental as well as economic and social effects.

Source: A/AC.237/91/Add1.

At the CoP1 much time was spent in trying to establish a consensus on this issue of JI. The USA strongly supported JI because they feel it has an enormous potential to improve flows of efficient and environmentally sound technology between countries and provides a cost-effective means of reducing global emissions. On the issue of credits, the U.S.A insists that incentives were necessary for encouraging the private sector to participate in JI. A promise of credits is a key factor for the private sector to participate in these efforts. The U.S.A has called for universal participation on a voluntary basis by any Party.

The Nordic countries have played a major role in the negotiating process of JI. They have always emphasized on the need for cost-effectiveness and the assumed high marginal cost of carbon-dioxide reductions in the Nordic countries. All the Nordic countries are positive towards the implementation of JI under some of the criteria stated above. However they differ in some details. For example on crediting, Denmark's view in crediting should not take place during pilot phase. However Finland feels that crediting should take place during the pilot phase in order to make JI projects more attractive. Finland's views on crediting are also expressed by Iceland and Norway (Nordic Council of Ministers 1995).

The European Union (EU) under the leadership of France was supportive of the idea of a pilot phase of JI provided that it is well-defined, credible and transparent. In addition the EU took position that there should be no credits for Annex I Parties during the pilot phase and that JI should not be used to impose new commitments on non-Annex I Parties.

During the first Conference of the Parties, the majority of countries of the Group of 77 (G-77) and China, led by China, India and Brazil, stood firm on the position the group had taken at the INC-11 regarding JI referring to actions taken jointly among Annex I countries and not joint activities referred to elsewhere in the Convention. They also took the position that activities that had already started being implemented under the notion of JI could not be regarded as pilot activities because the Conference of the Parties had not set the criteria for JI yet. Even if the CoP1 were to set the criteria for JI, the G-77 and China were adamant that there be no crediting during the pilot phase.

Within the G-77 and China however, there were different perceptions as to what had or had not been agreed to within the group at the INC-11. Latin American countries including Costa Rica, Belize, Colombia, and Honduras favoured JI between Annex I and non-Annex I countries. Asian countries and especially India and China took the position that JI was a deliberate plan by developed countries to dodge their commitments to reduce greenhouse gas emission as required of them under Article 4.2(a) of the Convention.

In the end it was agreed at the CoP1 (FCCC/CP/1995/L.13), among other things, that:

- a pilot phase be established for activities implemented jointly among Annex I Parties and, on voluntary basis, with non-Annex I Parties that so request;
- activities implemented jointly should be compatible with and supportive of national environment and development priorities and strategies, contribute to cost-effectiveness in achieving global benefits and could be conducted in a comprehensive manner covering all relevant sources, sinks and reservoirs of greenhouse gases;
- all activities implemented jointly under this pilot phase require prior acceptance, approval or endorsement by the Governments of the Parties participating in these activities;
- activities implemented jointly should bring about real, measurable and long-term environmental benefits related to the mitigation of climate change that would not have occurred in the absence of such activities;
- the financing of activities implemented jointly shall be additional to the financial obligations of Annex II Parties within the framework of the financial mechanism as well as to current official development assistance (ODA) flows; and

- no credits shall accrue to any Party as a result of greenhouse gas emissions reduced or sequestered during the pilot phase from activities implemented jointly.

Article 4.2(d) of the Convention states, among other things that the Conference of the Parties, at its first session, shall also take decisions regarding criteria for joint implementation as indicated in Article 4.2(a) . The above can be regarded as broad guidelines and criteria to guide the evolution of JI.

2.7 JI from the African Perspective

In December 1994 a workshop on Joint Implementation in Africa was held in Nairobi, Kenya for researchers and policy makers from Africa. The workshop provided an open forum to exchange ideas and concerns and to learn from one another without any pressure to make immediate decisions (Leonard and Mintzer, 1995).

At this workshop divergent views were expressed concerning the risks and opportunities for Africa of the proposed international regime of JI. Concerns were raised about the effects of a large international programme of JI on the balance of North-South relations and on the effects of such a regime on the relationships between governments and the private sector in national economies. Participants however, emphasized the potential benefits of JI for increasing the scope and range of opportunities for the transfer and diffusion of advanced, efficient and environmentally sound technologies. Most of the participants to this workshop felt that JI under the UNFCCC might play a role in reducing the aggregate rate of future emissions growth in Africa. However, it was not clear how JI might play this role. Concerns were also raised that JI might be used by industrialized countries to avoid fulfilling the commitments already negotiated.

JI could potentially play a positive role in Africa if designed to support national development priorities. If JI was a mechanism for increasing national capacity and capabilities of local institutions, then it could contribute positively in the struggle for sustainable development. Therefore some participants viewed the introduction of JI projects as a useful instrument which could be used selectively by developing countries in order to advance various national goals including poverty alleviation, increased per-capita income, improved access to basic services and expanded job opportunities. However, it is the feeling of many people that it is not easy for developing countries to control the implementation and activities of JI since they lack the knowledge on a number of issues of JI. Therefore the Nairobi meeting raised more questions on a number of issues than answers. These issues included the monitoring and evaluation of JI, national certification of JI projects, and possible goals for national JI regime. Answers to some of these questions will be possible after the experience gained during the pilot phase which was endorsed by the CoP1.

2.8 What are the options for Tanzania on JI?

The concept of JI, vague as it may appear, is already enshrined in the Convention. Tanzania is a signatory to the Convention and it will in all likelihood ratify the Convention once the

internal process is completed. The question is not whether JI but rather how JI will be implemented.

Under the guidelines agreed by the CoP1, JI can only be implemented on a voluntary basis. But JI is very much in the agenda of multilateral and bilateral cooperation not only with regard to emission reductions but also in the context of technology transfer and North-South cooperation in general. It is therefore necessary for Tanzania to understand the implications of JI in so far as it relates to the country's legal, social, economic set up and priorities and its bearing on regional and international cooperation. Besides, it may well be that we could at some stage be presented with JI as a "fait-accompli". It is therefore essential that Tanzania critically examines JI-related issues in order to model a JI regime that is in line with our national development priorities. In the following sections, proposals are made on possible actions which could be taken in some important sectors of the economy as Tanzania prepares to participate in the JI regime.

2.8.1 Economic considerations

The Convention recognises that responses to climate change should be coordinated with social and economic development and should also take into account the needs of developing countries for the achievement of sustained economic growth and the eradication of poverty. In the case of Tanzania, therefore, it is important that the concept and practice of JI is exploited in such a manner as to further national development.

In order for JI to be economically helpful to the country, Tanzania has to ensure that the JI regime:

- supports its national development priorities;
- supplements and complements its sectoral plans;
- leads to a net flow of resources into the country;
- does not lead to further dependence on foreign support;
- leads to capacity building and human resources development;
- enhances the country's endeavor to acquire and master new and clean technologies;
- and
- leads to an increase in research and development;

The above could form the basis of national guidelines for participation in JI. We highlight below, interfaces between JI and some subsectors of the national economy.

◆ Energy

The Convention recognises that the energy consumption of countries like Tanzania will need to grow in order to achieve social and economic development. It is also recognized that possibilities for greater energy efficiency have to be explored in order to achieve development and at the same time to control greenhouse gas emissions.

A number of national projects on energy efficiency are likely to benefit from the JI regime that will be acceptable to Tanzania. Ministries of Water, Energy and Minerals and Industries and Trade have been working in collaboration with the Tanzania Industrial Research and Development Organization (TIRDO) on industrial energy audits. Some of the recommendations of their work could be implemented under JI. Other possible candidates for JI include such projects as fuel substitution in the case of conversion from oil to natural gas in industrial heat generation, and also conversion of thermal power stations to natural gas.

Other possible projects for the JI regime could be in the coal area to support conversion to clean coal technologies at Kiwira and in the planned development of Mchuchuma coal field.

◆ Forestry

One of the most attractive options for Northern investors and Governments will be the creation of greenhouse gas sinks in developing countries. It is quite likely that future support to the Forestry sector will be linked to JI. Issues to watch in implementing the JI regime in this sector will, among others, include:

- foreign species introduction and dangers of monocropping;
- land lease;
- forest management;
- buffer zone management;
- natural species protection and protection of biodiversity in general; and
- competition with other land uses.

It will be essential to examine in detail the consequences of allowing forestry-related projects to fail under JI. In particular, from Tanzania's side, it is important to stress to would be investors that tangible and discernible benefits of forestry JI projects are essential for sustainability.

◆ Agriculture and land-use

Preliminary studies on emissions by sources and removal by sinks of greenhouse gases in Tanzania indicate that agriculture and land-use sub-sectors taken together are an important source of greenhouse gas emissions (Mwandosya and Luhanga, 1994). It will be important to examine the possibility of using JI to improve agricultural production and thereby increase food availability while at the same time reducing greenhouse gas emissions.

2.8.2 Legal implications

The concept and implementation of JI has to be defined within a legal framework. Institutions in Tanzania which are involved with the interpretation of international conventions should expound on legal implications of JI both domestically and internationally. The Attorney General's Chambers and the Ministry of Foreign Affairs and International Cooperation should

take the lead. It is important that a model agreement on JI that is applicable to Tanzania be drafted for possible future use in JI negotiations. This approach will ensure that JI agreements are not at variance with national laws. In respect of JI, there are a lot of cross-sectoral issues. Inputs of other sectors in this exercise will be essential.

Furthermore, the subject matter of JI is still virgin territory. Institutions of higher learning have an important field to research into.

2.8.3 Institutional issues and capacity building

The emphasis on private sector participation in JI will not in any way diminish the responsibility of government in overseeing and regulating the implementation of JI. In fact it is governments and multilateral agencies who are signatories of the Convention. The Government of Tanzania will therefore have to take a leading role on issues of JI. Furthermore the many cross-cutting issues related to JI require a multisectoral approach to it. Such institutions as the Ministry of Justice and Constitutional Affairs, the Ministry of Foreign Affairs and International Cooperation, the Department of Meteorology, the Ministry of Tourism, Natural Resources and Environment, the Ministry of Water, Energy and Minerals, the Ministry of Industries and Trade, the Ministry of Agriculture, Livestock Development and Cooperatives, the Ministry of Science, Technology and Higher Education and Investment Promotion Centre (IPC) will be involved in some different aspects of JI.

The local private sector will also play an important role on JI. The Tanzania Chamber of Commerce Industry and Agriculture (TCCIA), the Confederation of Tanzania Industries (CTI) and the business community in general have an important role to play in the determination of a suitable JI regime for Tanzania. Obviously investors in the North will most likely wish to deal with the private sector in this country.

2.8.4 Clearing-house

There will be a need to establishing a national clearing house on all issues and projects on JI. The functions of this clearing-house will include, among others, the following:

- provide information on JI regime;
- facilitation of JI activities in the country;
- coordination of JI activities within the country and foreign investors;
- verification of the projects; and
- monitoring the projects.

The clearing house can be a new set-up or be placed within an existing national structure such as the Industrial Promotion Centre (IPC). However, considering the economic constraints the country is currently experiencing, it is proposed that the clearing house be within an existing structure.

2.8.5 International relations

The main supporters of JI are our major traditional donors, for example the Nordic countries, Germany, the Netherlands, the U.S.A and Japan. Therefore Tanzania should use this opportunity to establish a favourable JI regime for itself and other development countries. This will encourage the traditional donors to maintain or increase their support to the other activities. JI should be additional to and not a substitute for development assistance.

2.9 Conclusion

Tanzania may not lose anything by participating in JI activities. Most likely we may gain provided we understand the global implications of JI and be able to relate these to development endeavours. We will need to analyse all issues properly and carefully before we embark on any agreements or contracts on JI activities. Proper institutions need to be put in place to ensure that the evaluation and monitoring of these projects and the apportioning of credits is properly done following laid down national procedures

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**3.0. Economic Considerations for a Joint Implementation Regime
to Support National Priorities in Tanzania
By H. E. Meena, Senior Economist, CEEST.**

3.1. Introduction

3.1.1. The concept of Joint Implementation (JI)

Joint Implementation (JI) was adopted in the United Nations Framework Convention on Climate Change (UNFCCC) with the objective of increasing awareness and undertaking deliberate measures towards reduction and eventually stabilization of greenhouse gas emissions. This should be done through cost effective initiatives for not only reducing greenhouse gas emissions but also supporting sustainable human development and encouraging capital flows, especially private capital. Here the concept of incremental cost has been very crucial in all strategic measures associated with greenhouse gas emissions. The most important thing is how JI will influence development priorities of developing countries(3).

Many developing countries are faced with a number of developmental constraints including rapid population growth, declining economic performance, unfavourable terms of trade, unfavourable weather conditions and insufficient food supply. These constraints results into a vicious cycle of poverty. Development priorities of these countries are therefore associated with the following:

- Poverty alleviation;
- Improvement of agricultural performance;
- Enhanced food security;
- Diversification of agriculturally based economy into other forms of economic activities;
- Ensuring political stability;
- Strengthening local institutional capacity and human resources;
- Improving information and communication system for technological development; and
- Improving health and educational facilities.

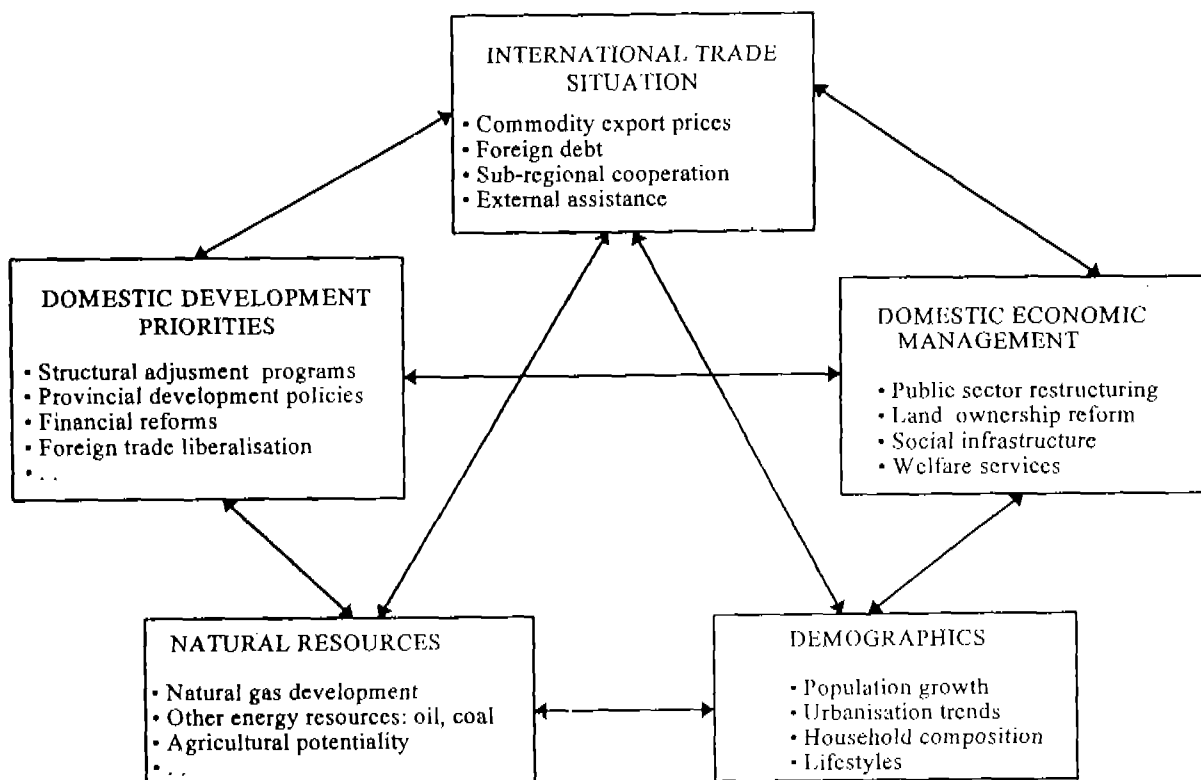
3.1.2. Development and GHG emissions

Tanzania, like many other developing countries has very little contribution towards the greenhouse gas emissions when compared to developed countries. JI is therefore expected to address the Tanzania's developmental priorities which eventually will lead to the alleviation of poverty and sustainable development. Therefore physical reduction of the GHG emission and the enhancement of the GHG sinks is implied. The issue of sustainable development which addresses the country's social, economic and environmental problem is crucial and is as well addressed in the identification of the greenhouse gas mitigation strategy for Tanzania.

3.2. JI in Tanzania's Short Term Development Scenario

The incremental costs and investment requirements for greenhouse gas emissions reduction for which JI is a vehicle depend to a large extent on how alternative scenarios are defined. Various factors determine the social, political and economic future of the country. These factors include demographic factors, economic policies, international relations, institutional and social structures and availability of natural resources. (see Figure 3.1).

Figure 3.1: Main Scenario Building Blocks



Source: CEEST (1)

3.2.1. Reference scenario

The reference scenario for Tanzania, constitutes the basis for the evaluation of macroeconomic impact and direct costs in the energy system, forestry, agriculture, industry, service sector and other GHG emitting sectors. The scenario includes detailed sector specific information on production structure and technologies as background for the evaluation of how specific

abatement options can be introduced. Furthermore, selection of the reference scenario has been important in defining additional resources requirements for emission reduction.

The greenhouse gas emission inventory studies and the mitigation study recently carried by CEEST developed the reference scenarios for the energy, agriculture, forest and land use, industrial, transport, household and commercial and municipal waste management sectors. Various greenhouse gas emission mitigation technologies were identified in these studies and their costs and technical characteristics evaluated.

3.2.2. Mitigation scenarios

◆ The structure

The mitigation scenario takes into account the reduction of greenhouse gas emission in economic sectors. This means that the technological options adopted in this scenario are related to efficiency and least emissions. However these efficient and less emitting technologies have enormous costs associated to them. The costing of the technologies in the relevant sectors was made including comparison between the technologies in terms of savings in costs as well as their emission reduction capacity.

Financial resources to secure these technologies will depend on the national physical and human resource base. For Tanzania there are various factors which determine the resource availability. These include, among others, the external trade situation including prices in the world market; regional collaboration; external assistance; structural reforms in the economy; development of infrastructure and the natural conditions including weather.

◆ The external situation

Periodic fluctuation of terms of trade, debt servicing management and development assistance are factors which externally affect the shape of Tanzania's macroeconomic scenario. Although substantial efforts are made towards negotiating for better terms of trade and conversion of debt on long term concessionary loans, it is not easy to avoid the debt crisis due to huge pressure exerted by debt servicing on the economy. The economy continues to be dependent on external assistance due to the vicious cycle of poverty.

◆ Structural reforms

More accelerated and more comprehensive economic and institutional restructuring results in an improvement of macroeconomic indicators. Greater efficiency in resource allocation will enable generation of the resources needed for the debt servicing. However, social services are severely affected by the accelerated structural reform.

A less comprehensive reform at a gradualist pace encompasses a more balanced growth of both social and economic sectors. Priority is given to basic needs areas including health and

education. Economic growth relies not only on market forces (mainly externally driven) but also on the capacity of the government in mobilising and managing internal and external scarce resources.

◆ **Agricultural production**

The country emphasis is on strengthening the agricultural sector. Priorities are on export crops. This strategy is geared towards improving the country's hard currency position to afford capital goods and technological input requirements as well as to comply with its external commitments.

Agriculture development is mainly driven by national food security objectives. The government policy is focused on ensuring more stability in year to year food production through both incorporating relatively isolated regions to internal market circuit and promoting crop diversification.

◆ **Land use**

Land allocation strategy is oriented to introducing an open-land policy. Liberalization in land tenure rules will allow local and foreigners to buy land from small peasants or take up land on lease from the government

Demand for farm land due to population growth pressure necessitates a more controlled land allocation. Land use planning, soil conservation and forest protection are the main axis of a more equalitarian land distribution policy.

◆ **Infrastructure development**

Persistent transport bottlenecks are resolved by increasing the capacity of transportation system connecting the main productive regions. Major emphasis is on rehabilitation of existing transport and the development of efficient corridors connecting the various regions

3.3 Costing of the Various Scenarios and Cost Curves Analysis

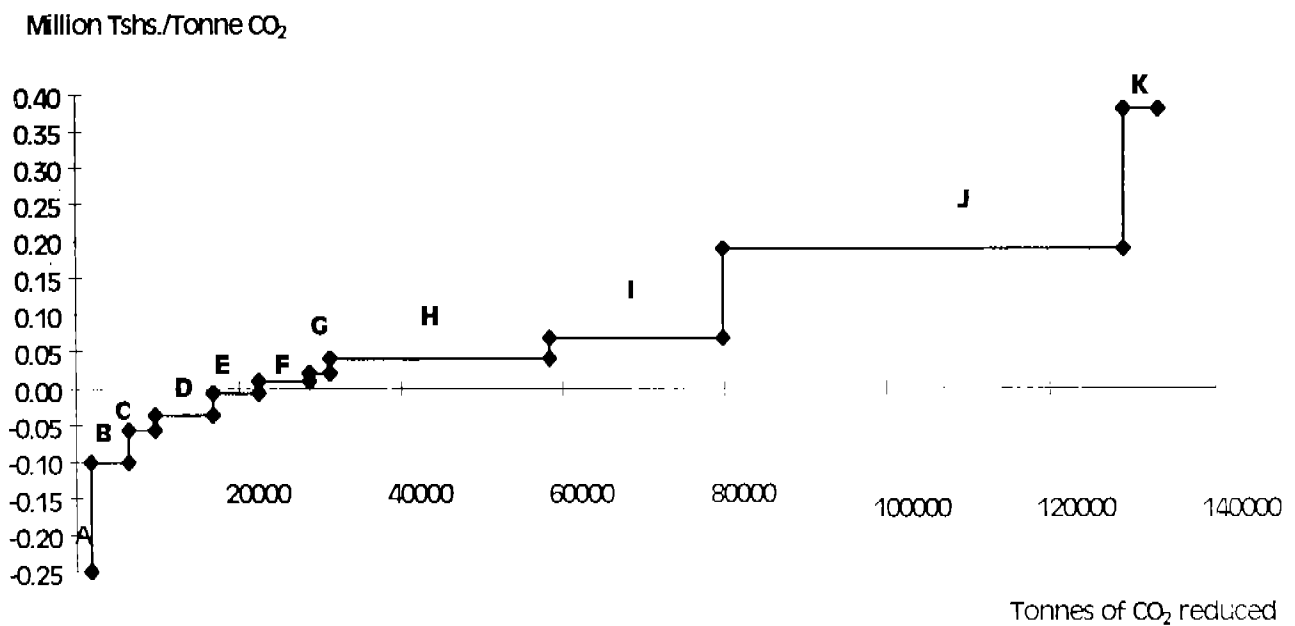
The unit cost of introducing technologies in the energy, agriculture, land use and forest, industry and service sectors forms the basis of ranking the various options in the GHG mitigation analysis. Costs are defined in order to represent the real costs and benefits to society in these sectors. Before constructing the cost curves all the costs of various technologies in the relevant sector have been levelized using the discount rate of 12%. This discount rate reflects the capital constraint facing the country. Both the investment and the operation and maintenance cost for these technologies were considered. For energy efficiency technologies the fuel cost implications have also considered using the fuel price projections.

3.3.1 Cost curves

Cost curves have been constructed in order to relate the quantity of GHG which can be reduced to the cost per unit GHG reduction. These curves makes it possible to identify the least cost option for meeting the GHG reduction goals. For Tanzania's mitigation analysis we used discrete step curves as illustrated in Figures 3.2 and 3.3 for the energy and industrial sectors respectively.

The construction of the cost curves for Tanzania's energy sector was based on the fuel mix, cost and emissions of alternative scenarios using the cost of providing electricity services as the basis for selecting and ranking technology and fuel options.

Fig. 3.2: Cost Curves for the Energy Sector in Tanzania



- A Efficient lighting
- B Power factor correction
- C Efficient motors
- D Efficient boilers
- E Efficient furnaces
- F Combined cycle turbines
- G Biogas for rural households
- H Biogas from landfills
- I Hydro power
- J Solar power
- K Natural gas turbines

From the cost curves for the energy sector it can be concluded that mitigation introduction of efficient boilers, efficient lighting, power factor correction, efficient motors, and efficient furnaces are no-regret options. These are negative cost options. Most industries in Tanzania need to take energy efficient measures to increase productivity and decrease energy costs. The total benefits are worth the investment costs. The incremental cost aspect is considered where there are additional per unit cost which can not be met by the respective country. In this case financial resources for these options can be acquired from international financial pool, for instance assistance from the Global Environmental Facility (GEF)

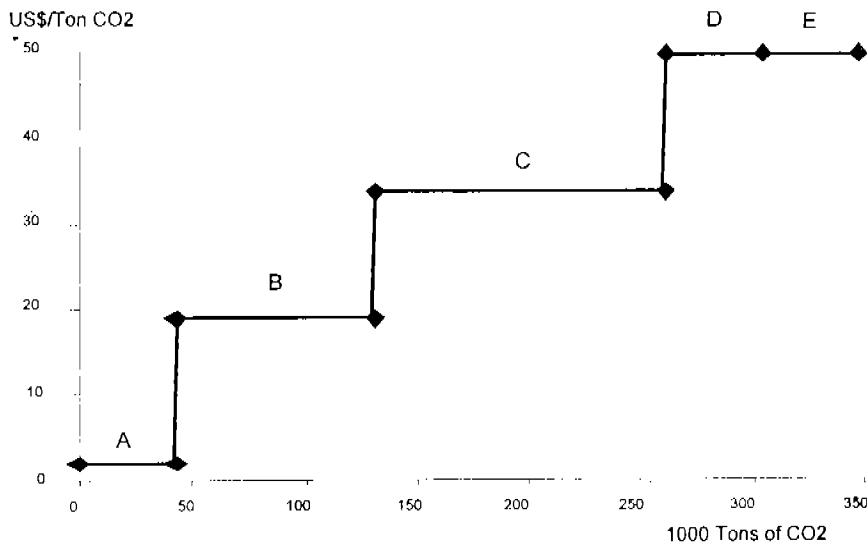
Table 3.1: Analysis of Technologies, Their Reduction Capacity and Costs

GHG Reduction option	Mill. Tshs./tonne CO ₂	Unit Type and size	Energy Type Saved	Emission Reduction tonne/unit CO ₂	Reduction in 1995 tonnes CO ₂	Reduction in 2020 tonnes CO ₂	Av. cost 1995 Tshs/tonne	Av. cost 2020 Tshs/tonne
Efficient Boilers	-0.24971	1Boiler	diesel/coal	0.358815	358.815	1794.075	-0.24971	-0.24971
Efficient Lighting	-0.10102	1000Bulbs	el-diesel	0.036971	1109.139	4658.386	-0.14912	-0.10102
Power Factor Correction	-0.05668	1MVAR	el-diesel	0.644016	128.8033	3220.082	-0.85272	-0.12082
Efficient Motors	-0.03605	1kW	el-diesel	3.567676	3567.676	7135.351	-0.06554	-0.08573
Efficient Furnaces	-0.00629	1Furnace	diesel/coal	5.633929	2816.965	5633.929	-0.00629	-0.06738
Combined Cycle Turbines	0.009756	1kW	diesel	0.027446	2744.563	6243.881	-0.00671	-0.05985
Biogas for Rural Households	0.020645	1digesters	wood/el-diesel	0.628532	3142.658	2514.126	-0.00325	-0.17925
Biogas from Landfills	0.040312	1Landfill	el-diesel	6801.907	6801.907	27207.63	0.020187	0.020023
Hydro Power	0.067551	1kW	diesel	0.09396	5637.586	21375.85	0.010405	0.007057
Solar Power	0.189491	1kW	diesel	1.225298	1225.298	49011.91	-0.75036	0.095416
Natural Gas Turbines	0.380981	1kW	el-diesel	0.02125	1699.966	4249.914	-0.43446	-2.91228

Table 3.1 shows an analysis of the various energy technologies, their GHG reduction capacities and costs. On the basis of this analysis, cost curves for Tanzania's energy and industrial sectors were drawn using the procedure below(3):-

$$\text{Cost of avoided Carbon} = \frac{\text{Value of technology} + \text{expenses} + \text{Net investment}}{\text{Avoided annual carbon emissions}}$$

Figure 3.3: Cost curves for the industrial sector



- A: Optimization of Boiler operation in pulp production
- B: Computer control in cement production
- C: Recovery of CO₂ from calcination in pulp production
- D: CO₂ recovery from flue gases in cement production

From the industry cost curves, the optimization of boiler operation in pulp production seemed to be the cheapest option although it has little CO₂ reducing capacity in comparison to the recovery of CO₂ from the calcination process. The latter has higher per unit cost.

3.3.2 The concept of incremental costing

The idea of incremental cost is applied to evaluate the technologies in terms of basecase technology against the mitigation technology, and comparison of a group of technologies.

To arrive at the proper incremental costs the levelized costs for each technology were compared to the individual technology capacity to reduce greenhouse gas emissions to get cost per ton of greenhouse gas avoided or sequestered.

In the short term, the central issue is to generate the resources needed for stabilizing the external accounts and assuring the initial accumulation of resources for development investments. More accelerated and more comprehensive economic and institutional reforms will create the conditions for substantial increases of agricultural production for export. Therefore, the massive initial funding and continuous rechanneling of internal resources by the Tanzanian Government will provide resources to allow much of the regional development which characterizes the Balanced Growth Scenario(1).

In a simplified way, the most likely scenario for the long-term development of Tanzania can be characterized by the predominance of structural reforms in the short-term, followed by a more balanced growth strategy in the long-term.

From the standpoint of GHG mitigation with JI taken as a vehicle towards its achievement, important aspect in the context of long-term scenarios is the behavior of socio-economic sectors. Decisions of which mitigation options should be pursued in the future depends on the constraints and opportunities that sectoral development offer to the diffusion of different technologies. Therefore, the development characteristics of economic sectors define the potential space for the successful implementation of mitigation strategies. (1)

3.4 Some Concluding Remarks

Greenhouse gas emissions mitigation and joint implementation for that matter are closely related to technological innovation and technology transfer and transfusion. These require innovations and investment in economic sectors in terms of efficient equipment, fuel switch, substitution and changes of both agriculture practices and land use patterns etc., whose implementation allow to reduce or sequester the GHG released to the atmosphere.

Barriers to technological innovation include lack of information, lack of access to capital and financing; subsidised fuel and electricity rates; electricity tariff structures and rapid pay back requirements.

For Tanzania, besides the financial constraints and other causes of underdevelopment, including distorted price signals and limited competitive environment a pervasive cause of low technological efficiency is the weakness of technological structures for generating and managing technical change in response to price signals and competition. This is caused by, among many factors, limited accumulation of human and physical resources and low technological capability to operate and maintain reasonable efficiency levels.

The current studies carried out in the establishment of the inventories of sources and sinks of greenhouse gases in Tanzania and Technological options for greenhouse gas mitigation are a beginning in the right direction towards proper economic planning which will ensure efficiency and environmental benefits. This is so because these studies evolved technological options for mitigation of greenhouse gases and at the same time bringing energy, production and service efficiency.

Requirements for immediate future is the incorporation of the strategies in the national plans. Furthermore awareness creation for the stakeholders and the public in general through publications, mass media and public outreach. Further studies are needed to be carried out to complement the ones already carried out.

Joint implementation can not be discussed in separation with regional and international collaboration. The International capital flow and capital transfusion should be carried out in the context of the greenhouse gas mitigation and joint implementation. The New International Economic Order discussed in various fora, and the appropriate technological transfer, is within

- the context of joint implementation. Furthermore, the South-South collaboration will enhance the appropriate transfer of technology.

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4.0 The Application of Joint Implementation in the Forestry Sector
*By R.P. Yonazi, Principal Forest Officer, Ministry of
 Tourism and Natural Resources.¹*

4.1 Introduction

About 46% of the country's total land area is covered by forests and woodlands. The resources are important for the country's economy in many ways. Forest resources are a habitat for wildlife.

Some forest ecosystems are unique in that they harbour biological diversity which is, in some cases, endemic. Forests found in high altitudes are important sources of streams and rivers in the country. The existence of such forests stabilize stream and river banks and minimizes sedimentation in dams and lakes.

Mangroves along the east coast of Tanzania amount to 115,000 ha. and are an important ecosystem for the marine life. Woodlands, which cover 32.3 million ha., act as important sources of biomass energy for the majority of Tanzanians. The annual consumption of fuelwood is about 26 million cubic metres. The woodlands are also a source of raw material for the construction industry.

Table 4.1(a): Type of Forest and their Area Sizes

TYPE OF FOREST	Size (in '000' Hectares)
Forests (other than mangroves)	1,141
Mangrove forests	115
Woodlands	32,299
Total	33,555

Source: FAO, 1992, Forest Resources Assessment for Tropical Country.
 Forestry and Beekeeping Division.

Table 4.1.(b): Type of Forest According to Legal Status

TYPE OF FOREST	1000 HA
Forest Reserves	12,517
Forests/Woodlands Within national Parks etc	2000
Non-reserved Forest Lands	19,038
Total	33,555

Source: FAO, 1992, Forest Resources Assessment for Tropical Country.
 Forestry and Beekeeping Division.

¹ The views expressed in this paper are those of the author and do not in any way represent those of his employer.

There is a total of 220,000 ha. of woodlots and forest plantations in the country. Large scale (industrial) forest plantations amount to about 80,000 ha.

4.2 Problems Facing the Forestry Sector

Unsustainable agricultural expansion into forests and woodlands as well as unsustainable utilization of forest resources, cause deforestation in the country. The rate of deforestation is estimated at 438,000 hectares per year (FAO, 1992). Despite the importance of mangrove in marine ecosystems, it is not known how GHG emissions and the resultant rises in sea levels could affect such mangroves as well as other marine life. Little is known about the possible future trends.

Also Tanzania has witnessed many problems which are related to the use of exotic species in afforestation schemes as well as mono-cropping in large forest plantations. Such problems coupled with little participation of private sector in afforestation activities have resulted in a negligible impact on addressing the deforestation problem. Annual afforestation efforts are rated at 12,200 ha. only (FAO, 1992). The low rate of afforestation is a result of low involvement of the private sector in afforestation activities as well as lack of solid institutional arrangements for the involvement of the private sector.

As mentioned earlier, Tanzania has only 220,000 ha. of forest plantations and woodlots in the country. Some 80,000 ha. of industrial plantations face a myriad of problems, among them are pests and diseases affecting monoculture plantations which were aimed at meeting the country's wood requirements for forest industries. We are yet to know future trends of exotic tree species introduced in the country as a result of global warming due to GHG emissions.

All in all, the capacity to manage forest resources in the country is low. At global level, Tanzania's forest resources are known for their uniqueness in biological biodiversity. Some high forests, such as those in Pare and Usambara mountains as well as those in Nguu, Uluguru and Udzungwa mountains, are known for harbouring a vast range of unique and endemic species. The forests are also known to be important carbon sinks. However, not much is known with regard to quantification of biological diversities as well as the value of carbon sinks.

There is scanty information to enable forestry authorities to justify their actions in managing the resources. Information on the trends of the contribution of forest resources in abating greenhouse gas emissions is even more scanty, and therefore little information on the technicalities of entering into joint implementation projects.

4.3 Possible Benefits of JI to the Forestry Sector

It is suggested that emphasis should be placed on data and information management so that the nation can make use of the information that already exists elsewhere. Since Tanzania is one of the countries with the lowest per capita emissions of greenhouse gases, (less than 0.2 tons per annum as compared to over 20 tons for USA for year 1990) and since the trend is not expected to change for the next few decades, the country should concentrate its efforts on

activities which are linked with carbon sinks. Tanzania should undertake carbon sink activities in seeking for a better bargaining ground for JI activities.

Resources should be sought for JI activities to equip Tanzania in adjusting policies, strategies, plans and projects towards better management of the country's natural resources so as to meet the local requirements as well as contribute towards minimizing the effects of GHG emissions. In particular, information is required on present and future survival trends with regard to:-

- (i) flora and fauna species, in Tanzania, as a result of global warming, both for natural forest species as well as monoculture exotic species introduced in the country.
- (ii) effect of climate change on coastal resources including mangroves.

Apart from data and information requirements, there is also a direct need for incentives in terms of resources and appropriate institutional requirements for the involvement of Tanzanian private sector in the management of forest resources for both natural forest as well as woodlots and forest plantations. Currently, private sector involvement in managing the forest resources in the country is mainly limited to on-farm tree planting activities.

Local and village governments lack sufficient skills and resources to effectively manage forest resources which are under their jurisdiction. Most of the forests and woodlots lack management plans. In some cases, village and district authorities have established woodlots without having a clue as to what they would use them for. Inputs from JI could be used to assist such institutions in: drawing up management plans for the forest resources; and providing initial capital for the implementation of the plans.

4.4 Institutional Arrangements, Capacity Building and Sustainability

Experience has shown that a process which does not make full use of existing institutional set-ups, whether formal or informal, is bound to collapse as soon as foreign funds dry up. On the other hand, a process which makes use of existing set ups and goes further to strengthen such institutions, is likely to have a sustainable impact on the country's development. Tanzania depends on existing Government and non-governmental set-up. There are also various sub-regional, regional and international set-ups which Tanzania is a party. It is therefore imperative that the JI regime in Tanzania makes use of such institutions so as to maximize the use of scarce resources. Also inter-sectoral cooperation and integration should be regarded as a key to having desirable output of JI regime in Tanzania. Besides, at village and district levels there are numerous local informal groups and organizations which, if utilized fully, could have sustainable impact to the implementation of JI activities.

4.5 Risks in Undertaking JI Activities

Under this section, some possible risks in JI activities will be highlighted as drawn from experience in similar global processes in relation to the forestry sector.

- (a) JI started as a process which only involved developed countries. The fact that third world countries have been included was an after-thought. The trend of events could imply that there could be a hidden agenda which might not be so transparent for third world countries.
- (b) Over the last decade, third world countries have found themselves jumping into band wagons which do address problems which were of more relevance to developed countries. Processes such as National Conservation Strategy for Sustainable Development (NCSSD), National Environment Action Plan (NEAP), Plan of Action to Combat Desertification (PACD) and very recently Biodiversity Country Study (BCS). Experience has shown that within a span of not more than three years something new crops up and as a result less and less attention is given to previous related efforts. It is hard to believe that within the next three years there will not be change of emphasis to yet another new process which will replace the JI regime.
- (c) It is obvious that the JI process is not a bottom-up one. Since it is a top-down regime which require fast decisions on signing and ratification, there is a danger it will be regarded as a foreign process by most of implementers of its projects and activities, more so at field level where villagers will be expected to play a pivotal role.
- (d) The current trends in foreign financing in various activities in the forestry sector is towards capacity building rather than on field activities. Emphasis is on policy reviews, strategic planning and legislation, thus leaving almost nothing for field activities. This trend of events might discourage the implementation of field level activities. Efforts should be made to avoid this type of trend in JI regime for Tanzania which would otherwise entail repetition on what had already been dealt with in previous global processes.
- (e) The larger share in foreign financing in forestry sector goes back to companies belonging to donor countries. There is a lot of competition among international companies for projects and programmes which have large budgets. I would say more than 60% of such financing goes back to the countries which provide the finances. There is a risk that in JI, a similar trend will emerge.

4.6 Concluding Remarks

Before Tanzania accepts the JI regime, an assessment should be made as to whether the process will complement the implementation of Tanzania's macro policies. Also efforts should be made to strengthen existing national institutions and sub-regional and regional institutions of which could be of benefit to Tanzania.

It is important to stress that investment in proper management of forestry resources could play an important role as a carbon sink.

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5.0. Joint Implementation Strategy and its Legal Ramification in Tanzania *by Vincent Shauri, Associate Researcher(Lawyer) CEEEST.*

5.1. Introduction

The term Joint Implementation (hereinafter "JI") has, in recent years, dominated discussions in the Climate Change discourse. Perhaps, this scenario can largely be attributed to geopolitics surrounding interpretation of international treaties under international law. In practice, every Party to the United Nations (UN) would try to interpret a UN Convention in a manner that will suit the national interest of that state and if that interpretation is not possible such a Party will normally decline from signing or ratifying the Convention.

The JI concept is captioned under Article 4.2 of the United Nations Framework Convention on Climate Change (UNFCCC) adopted in 1992 at the Earth Summit in Rio de Janeiro. Article 4.2(a) of the UNFCCC stipulates that industrialized countries (so-called Annex 1 countries) may carry out certain measures and policies "jointly" with other parties, based upon criteria to be developed by the Conference of Parties (CoP1) at a later stage.

Therefore, the main thrust underlying the JI strategy, seems to be the cost-effectiveness aspect of mitigating the effects of Climate Change. It is felt that the considerable difference from country to country in marginal costs of response strategies to curb Climate Change could be exploited through Joint Implementation projects to lower the cost of Greenhouse gases (GHGs) absorption per tonne which might be cheaper to implement abroad than at home. However, we should hasten to add that the JI strategy has on the other hand, stirred up a hornet's nest of criticisms from developing countries based on equity considerations. It remains to be seen if at all there will be a fair play in effectuating JI projects on the ground. This paper reviews this scenario in more detail in the proceeding section.

5.2. The Parity of the JI Strategy

The UNFCCC provides under Article 4.7 that developing countries will effectively implement their obligations under the Convention to the extent which is hinged upon provision of financial resources and technology by developed parties. At the same time, it is equally true that in recent years developing countries have set socio-economic progress and poverty eradication as their priorities. Therefore, there is some skepticism amongst experts that developing countries might trend to regard the climatic change concern as "esoteric". Most of these countries are currently experiencing the rigours of Structural Adjustment Programmes (SAPs) making climate change issues to come under policy-discussions as after-thoughts. In addition, political and democratic reforms have also dominated the agenda of these countries at the moment.

For a long time, developing countries have been skeptical about North-South cooperation having been unsuccessful at the dialogue aimed at establishing the New International Economic Order (NIEO). At the NIEO negotiations, developing countries demanded for an

equitable access to international technological development and the establishment of an equitable sharing of world markets and fair terms of trade. This scenario also featured prominently in the discussions during the First Conference of Parties (CoP1) held in Berlin this year whereby developing countries opposed JI for fear that it may be used as an instrument of environmental colonialism.

Although this argument might look subtle, it is equally true that most of these Annex II countries especially those in Africa are not prepared in terms of technological infrastructure, human resources and institutional capacity to effectively carry out JI projects. It is therefore unlikely for North-South JI investments to develop indigenous technology in curbing climate change.

5.3 The Conference of Parties to the UNFCCC

Article 7 of the UNFCCC establishes the CoP as the supreme organ in ensuring the implementation of the Convention. Upon the entry into force of the UNFCCC, parties had agreed that the first session of the CoP be convened and take place within a year. The first session of the CoP was convened in March 28 to April 7, 1995 in Berlin, the Federal Republic of Germany. During the CoP, delegates rolled up their sleeves and discussed various mechanisms under which the UNFCCC could be implemented. One of the important committees that were established at the CoP was the Committee of the Whole (CoW). The CoW was charged to deliberate on five outstanding issues:-

- (i) To review the adequacy of Article 4.2(a) and (b) of the UNFCCC including proposal relating to a protocol and decisions on follow up.
- (ii) To set the criteria for joint implementation.
- (iii) To set roles of the subsidiary bodies established under the Convention, including their programmes of work and calendars of meetings.
- (iv) To give guidance on programme priorities, eligibility criteria and policies and on the determination of "agreed full incremental costs".
- (v) To design a permanent secretariat and arrangements for its functioning including its budget and physical location.

At the CoW, the proposals submitted by the Group seventy seven (G-77) countries and China included the demand that application for emission limits be targeted to Annex 1 countries only. The spirit behind the G-77 group was to make JI voluntary, bilateral and directly related to national development priorities. Overall parties conceded to the view that a pilot phase without credits is necessary to evaluate the criteria for JI. However, it was stressed that commitments under Article 4.2(a) to adopt national policies and to take corresponding measures on the mitigation of climate change should apply only to Annex 1 parties. It was also agreed that activities implemented jointly should be compatible with and supportive of the national environment and development priorities and strategies. Moreover, such countries are also required to contribute to cost effectiveness in achieving global emission reduction benefits and should be conducted comprehensively to cover all relevant sources, sinks and reservoirs of GHGs.

5.4 The Status of JI under International Law

In the legal parlance, the world is said to be divided into approximately 200 sovereign states plus the "Global Commons" such as high seas, the deep seabed, and the outer space. Customary international law has established a principle that every state has a primary jurisdiction with regard to all events taking place in its territory and over its natural wealth and resources. All other states must respect the supremacy of the state over its territory. Neither intervention in nor interference with its territorial jurisdiction will be condoned by the international community.

On one hand, the principle of territorial sovereignty stipulates some important state rights but on the other, it prescribes duties that are corollary to those rights. The state rights include *inter alia*, the right of the state to regulate foreign investment, and the right to pursue socio-economic and environmental policies of her choice.

The duties of the state include: judicious management of natural resources and the environment for the benefit of future generations and the duty to exercise due consideration and equity in the use and management of trans-boundary resources. Undoubtedly, such duties can only be effectively achieved through joint and concerted approach of any nations.

Pursuant to the Latin maxim "*Sic utere tuo alienum non laedas*"¹, states are governed under international law, by the general principle that one state should not use its territory for acts that adversely affect the rights of other states. Furthermore, since the establishment of the UN Charter after World War II, a new feature of international social and economic cooperation evolved (see; chapters IX and X of the UN Charter). This spirit was even more explicitly enshrined in the 1970 Declaration of Principles of International Law which stipulates as one of the principles of international law "the duty of states to cooperate with one another in accordance with the spirit of the Charter". Since 1970 parties have bound themselves to cooperate in implementing various multilateral treaties. A vivid example of such agreement can be seen in the UN Convention on the Law of the Sea which contains many provisions requiring cooperation.

Although, the JI concept seems to be an innovation from the orthodox implementation of international conventions, already there are several precedents to the strategy. In the climate change regime, it is the Montreal Protocol (1987) to the Vienna Convention on Ozone Layer Depletion (1985) which seem to be the nearest precursor to the JI concept. The main objective of the Montreal Protocol is to set a time frame for the gradual elimination of consumption and production of chloroflourocarbons (CFCs). Apart from undertakings made by states individually, regard was also paid to some joint actions. For example, Article 2.8(a) of the Protocol permits parties which are partners in a regional economic grouping such as the European Economic Community, to jointly fulfill their obligations respecting CFCs consumption albeit such parties are also required to keep their combined consumption beyond the ceiling imposed by the Protocol. In addition, Articles 2, 2A, 2B, 2C, 2D and 2E further enshrine the right of joint fulfillment. Just as Article 4.2 of the UNFCCC, Article 2.1 to 2.5 of the Montreal Protocol allows for an obligation of one state to be carried out in another state for purposes of cost-effectiveness.

¹ meaning use your property in such a manner as not to injure another

Furthermore, Article 5.3 demanded that parties have to facilitate the provision of subsidies, aid, guarantees and insurance programmes to developing countries. This should be achieved through bilateral or multilateral agreements between developing and developed parties. Although, this provision was deleted in the 1990 revision. Article 9.2 of the Protocol creates a window of option for cooperation between parties in the field of public awareness. Article 10.2 creates a Multi-lateral Fund as part of the financial mechanism that will include other means of cooperation. Another example can be found in the Law of the Sea where the Paris Convention for Prevention on Marine Pollution from Land-Based Sources, provides under Article 1.2 that contracting parties shall adopt individually and jointly measures to prevent marine pollution from land based sources.

Although these forerunners might not fit in all four with the JI strategy as pointed under the UNFCCC, they usher a new trend of cooperation in effecting international legal obligations to protect the global commons.

It is therefore clear that the concept of "Joint Fulfillment or Implementation" of international treaties was already captured in some of the UN Conventions and Protocols adopted before the UNFCCC.

5.5 JI and Legal Framework in Tanzania

In Tanzania the main source of law remains to be legislation as passed by Parliament and other administrative organs. Unlike in other countries (for example, the Netherlands) in Tanzania international conventions do not become part of the law of the land unless and until they are ratified and adopted by an Act of Parliament. Tanzania is a signatory to the UNFCCC but is yet to ratify that Convention. The legal implication of that omission is to isolate the country in the international normative efforts to curb climate change. Furthermore, it makes it difficult for the UNFCCC spirit to trickle down to the national strategies aimed at developing municipal legal instruments.

Although Tanzania does not contribute much to the greenhouse gas emissions with the burgeoning industrial development and tremendous exploitation of natural resources, the country might find itself, in the near future, being in the same scenario which the developed countries are facing today. It is important, therefore, to examine what legal options are available to the government to be able to develop strategies of exploiting the JI mechanism as an important tool for mitigating the effects of climate change.

5.5.1 Investment laws

In a typical JI situation, an industrialized country invests in a low-income country. The assumption is that the latter will have a conducive legal framework which will ensure the sustainability of the JI investment. In Tanzania, the National Investment Protection and Promotion Act, 1990 (as Amended) gives guidance to the procedure of investing in the country. The Act covers priority areas for investment. It also establishes the Investment Promotion Centre (IPC), the application procedure, investment incentives and the procedure of settling investment disputes.

The Act also requires IPC to identify and advise potential investors on possible areas of investment and provide them with the necessary information about investment opportunities, sources of investment capital and the venture projects it remains to be seen how the IPC will, within its legal mandate, promote investment under the JI strategy.

Overall, JI project can be carried out with the existing legal framework after prospective applicants lodge their application to the IPC. The Act requires such applications to be accompanied by a report stipulating clearly the likely contribution of the project to the country's economic development. The IPC will assess the project potential using several criteria including its capacity to trigger technology transfer and creating employment.

Part A to the investment Act lists areas which are designated for private investment. They include, *inter alia*, investments in natural resources and high technology. JI investments might fall in that category. The Act also provides for various investment incentives and guarantees including exemption of sales tax. The Act also provides further for the right of an investor to be able to use land upon securing a lease from the Ministry of Lands.

It should be noted that, there have been institutional overlap between the IPC, the Ministry of Finance and the Ministry of Industry and Trade with regard to approval of investment projects in the country. Furthermore, the Act has not been elaborate on important aspects such as technology transfer which are important in ensuring effective JI investments. There is a danger that scrupulous investors might take advantage of lack of such legal requirements and proper standards to avoid their obligations under the UNFCCC.

5.5.2 Forest laws

Forests provide an important sink of greenhouse gases and as such play a major role in preventing global warming. However, at the time Forests laws were enacted, problems of global warming and air pollution caused by Nitrogen Oxide (NOx) in large cities were not of major concern. Land use changes have contributed to forest clearing for purposes of cultivation or pasture.

Some forest have been reserved to protect valuable ecosystems and catchment sources. In recent years these forests have been encroached and are at the risk of disappearing. It is important for the government to find options within the existing legal regime to allow communities to manage these forests. It is envisaged, and rightly so, that communities having been empowered by the necessary support are better managers of forests than the current top-down management by the government.

The distribution of forests in the country according to their legal status is shown in the Table 5.1.

Table 5.1: Distribution of Forests to Their Legal Status

Forest Type	Area (ha)
Unreserved forests in public lands	29,347,000
Reserved forests (gazetted)	13,024,000
Forests in national parks and game reserves	2,000,000
Total	44,371,000

Source: Ministry of Tourism, Natural Resources and Environment;
Tropical Forest Action Plan, 1989

Use of the trees and forests in the unreserved forests land is unregulated by statute except that the Minister responsible for forest management may reserve particular trees for any commercial use. The ministerial discretion to issue licenses, which in practice is exercised by forest officers, may be open to abuse if necessary checks and balances are not put in place. To this end the government needs to bolster its resolve in protection of forests as an important sink of GHGs.

5.5.3 Anti pollution laws

In Tanzania, there is a gamut of legislation dealing with pollution of the environmental media. Most of these legislation are not in conformity with the current standards. A good example of such laws is the public Health (Drainage and Sewerage) Ordinance, 1956. This Ordinance is supposed to give a legal guide to prevention of pollution especially in urban areas. But the Ordinance having been enacted at the time when townships were just emerging it does not provide for the necessary legal tools for municipal authorities to deal effectively with solid and liquid wastes in their jurisdictions.

There is also serious air pollution in urban areas emanating from various sources including industries and motor vehicles. Apparently, the air pollution regime is less covered by legislation. Apart from the provision under the Penal Code that it is an offense for a person to foul the air, there is no other legal provision. There is direct need therefore to have legislated standards of air quality and emission levels.

5.6 Conclusion

This short paper has attempted to outline though not in great detail the legal opportunities and hurdles in supporting JI projects in Tanzania. These ideas are not prescriptive but are aimed at provoking further discussions and research. Equally important, the government is enjoined to overhaul the existing legal framework so as to provide for a conducive environment for investments in JI projects. The latter should also be able to provide tangible and immediate benefits to the grassroots. Undoubtedly, that will ensure effective monitoring and management of JI projects without being compromised by other considerations.

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6.0. Joint Implementation Under the United Nations Framework Convention on Climate Change from a Business Perspective

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6.1. Introduction

There are more than 20 treaties which directly or indirectly influence/affect certain aspects of business transactions.

The United Nations Framework Convention on Climatic Change (UNFCCC) is one of the most relevant international environmental treaties for business in Tanzania because: First Tanzania is an eligible member (adopted in May, 1992,; signed by Tanzania on 12 June, 1992; Cabinet paper for ratification already prepared; ratification process ongoing) and Second it has serious business implications, since the business community in Tanzania has to come into direct contact or interface with it when dealing in the resources or services for which it has been enacted.

The objective of the Convention is to regulate the concentration levels of greenhouse gases in the atmosphere, in order to prevent their dangerous interference with the climate at a degree that would be harmful to economic development, or that would impede food production activities.

Gases like carbon-dioxide, methane, nitrous oxide and other particularly the chloroflourcarbons (CFCs), when emitted in excessive amounts in the atmosphere, act as a layer that prevents heat from escaping out and makes the atmosphere behave like a greenhouse. Correspondingly these gases are called greenhouse gas (GHG), and the heat so accumulated would lead to global warming and thus change the global climate.

A number of human activities are known to contribute towards increased concentrations of greenhouse gases. Chief amongst these are burning of fossil fuels for energy production, agricultural and mining activities, certain industrial production processes which emit greenhouse gases into the atmosphere and land use changes like deforestation that remove GHG sinks.

Although effective implementation of this treaty (and many others) depend on the cooperation of the business community, the Convention is virtually unknown to business people in Tanzania. This is mainly because of the inherent lack of communication between the government and the business community.

6.2. Impact of Climate Change

In Many African Countries, climate change has had an impact on ecosystems, natural resources, socio-economic and related activities. Good examples are the effect of climate

change on agricultural production, water availability, natural vegetation, commercial fishing and sea level rise.

Changes in precipitation and wind regimes threaten agriculture. Tanzania is dependent on agriculture for its economic prosperity. Many of its industries are also agricultural processing industries and depend on water from several sources i.e. rivers, lakes, reservoir storage and ground water. Business such as irrigation and power generation schemes, demand water of certain quantity and quality. Naturally, climatic effects on agricultural production will invariably affect agro-business potentials.

Natural vegetation provide potential resources that support tourism, wildlife habitat and lumbering. The contribution of all these to business development in the country can not be overemphasized.

The effect of the climate on sea level rise has led to social and economic disruptions on all coastal towns of Tanzania. Coastal developments like beach hotels and port facilities face serious beach erosion. There is decline in commercial fishing and other important marine life.

In this light, Tanzania joined other African states in 1992 to sign the Convention in recognition of the potential environmental and socio-economic impact of climatic change. The Convention is likely to affect several sectors in Tanzania business. These include: building construction, transportation, manufacturing, electricity generation, and forestry. As said before, successful implementation will depend on goodwill and cooperation from both sides, the business community and the government.

Implementation measures or technical options that the business sector may adopt and the logical/favourable policy and actions that the government should take in response, are summarized in Table 6.1.

Table 6.1: Summary of Technical and Policy Options for Implementing Climate Change Convention

Business Sector	Implementation/Tech. Option	Benefit	Incremental Cost(s)	Government Policy/Action Options
Building Construction	Better insulation improved ventilation and lighting	Reduce use of air conditioner	Expensive insulators Relevant technology	Reduce duty/tax on import/manufacture of standard material set standard of materials
	Use modern and efficient air conditioners	Protection of ozone Energy conservation	Air conditioners using no ODS New servicing equipment	Application for funding from multilateral fund. Set standards. Reduce/exempt import duty on new substances and equipment
Transportation	Importation of fuel efficient vehicle	Reduce CO ₂ and nitrous oxide emission	More expensive vehicles	Establish fuel efficiency standards. Improve road network.
	Use of high tonnage haulage e.g. train	Reduce emissions	Delayed delivery	Regulate haulage capacities.
Manufacturing	Use of electricity more and improve energy efficiency	Reduce CO ₂ emission.	More expensive machinery . Increase servicing modern technology	Impose carbon emission tax. Other tax take consideration of environmental performance costs. Minimal tax on electricity except thermal generated.
Electricity Generation	Use of alternatives to thermal generation e.g. hydro, wind, solar, nuclear	Reduce CO ₂ and other greenhouse gases emission	Import relevant technology and equipment	Tax on thermal generation. Less/no tax on alternative. Reduce/exempt import duty on technology accompanying equipment.
Forestry	Tree planting	Create sink for CO ₂	Land development	Create incentives for tree planting.

This summary indicates that when the government ratifies this Convention it will need to regulate its emissions levels of greenhouse gases through enactment of laws and regulations especially those related to industrial licensing, automobile and fuel types. The government shall have to find a mechanism for effective regulations. More important is the creation of incentives and disincentives through, for example, taxation to ensure that potential producers of the greenhouse gases may be motivated to cooperate in cutting down emissions.

The business community on the other hand, through editing or creation of new forms, could demand compensation for costs (incremental costs) involved in the process of meeting the standards that will be set. Through their associations or chamber of commerce, they would influence the government to regulate the kind of technology imported. In this case they will be demanding a deliberate move by the government to consider positively those industries or

entrepreneurs who invest in cutting greenhouse gases or importation/adoption of appropriate technologies.

It is appropriate therefore, that the business community be well represented in any implementation programme relating to climate change such as the Joint implementation - JI scheme.

6.3. Involvement of the Private Sector in the JI Scheme

Joint Implementation here refers to activities through which one or more countries (the investing country) contributes to the reduction of greenhouse gas (GHG) emissions by paying for an emission-reducing or sink-enhancing project in another country (the host country), and this activity is credited against legal commitments under the Convention. The assumption is that abatement of GHG emissions could be cheaper outside the country's own borders.

Encouraging participation of private sector for JI is a principal among the objectives that have been proposed to reduce the effects of greenhouse gases. The objective is to encourage the application of private capital to the transfer of efficient, environmentally friendly technologies - those that reduce GHG emissions or enhance their sink.

Should the JI mechanism become operational in Tanzania, private enterprises could be involved at three main levels namely: initiating and/or financing JI projects or participating in projects initiated by others.

It is the responsibility of the government to put forth a national framework under which private companies can be stimulated to be involved at any one of the above levels. The starting point is compliance with the prescribed rules establishing a global JI regime.

Secondly is the establishment of different settings under which the private companies in Tanzania can either become operating agents of projects that are financed either by the state or a private enterprise in the investor country or initiate on their own and possibly finance projects that would lead to the reduction of GHG emissions. A lot of positive incentives will have to be provided in this context in order for the companies to recover their investment and make some profit.

Government, international organizations and private enterprises can be involved in various ways in financing and implementing JI projects.

A typical example would be, an enterprise in Tanzania (Kumekucha Investments) can undertake an investment scheme that reduce greenhouse effects using funds provided by the investor country (Finland). Good examples here are a power generating plant that does not use fossil fuels or a multiuse tree plantation.

The investor country can take credit of this scheme. Both the host country (Tanzania) and the local enterprise (Kumekucha) will benefit from the arrangement in terms of transfer of

technology and know-how associated with the scheme, reduced local pollution and in general a share of the greenhouse gas (GHG) abatement cost saving for the investing country.

Alternative to this arrangement, investing countries can also provide funds as part of a multinational arrangement or the funds can be provided by private companies in industrialized nations. The host country can also contract a private enterprise locally to operate the JI project using funds provided by the investors country.

Depending on the type of business, such Joint Implementation schemes would assist high-energy consuming business become more energy-efficient and cut costs. For other types of business, the recycling of wastes and by-products that cause greenhouse effects into safe materials could be a means of realizing extra profits.

At another level, where there are no legally-binding commitments a private enterprise can undertake an investment to reduce GHG emissions at its own cost and earn public relation benefits related to a "green image" and "eco-labeling" by the government. This could make extra profits in future markets.

These suggestions are sound in theory. They should be taken into account subject to the following major limitations:-

- Tanzania is in a transitional period both politically and economically.
- There is a weak legislative body on environmental and investment issues, government policies for both are in their infancy, responsibility and coordination is not clear.
- Private companies are characterized by lack of investment capital, shortage of technical know-how and technologies. This provides both an imbalance between firms in the North with (unlimited resources) and differences in business cultures.
- There is ineffective management of business, both public and private. Many business are still public.
- The influence of the government on private sector is not transparent.

While the essence of trade liberalization was aimed at transferring major aspects of decision making from the state to the business sector this has not been so. The parastatal sector has not diminished in numbers. The state run enterprises continue to be involved in nearly all activities, including services, manufacturing, financial including banking and insurance, agricultural etc. The state monopolizes procurement and supplies of raw materials and the government still intervenes in the foreign exchange regime. There are limited credit facilities and guarantees for compensation.

This situation poses a number of questions. Will the process of privatization allow the establishment of a JI scheme in Tanzania? Would the government (which represent a business entity) be able to contract private companies to implement JI projects while competing parastatals standby? Past policies contributed in stifling indigenous initiatives in capital formation and initiatives. Is there a chance for the indigenous private capital in Tanzania to fully seize the opportunities provided by a JI scheme?

This means that, both the Investment and the Parastatal Sector Reform Policies should be reviewed to assess their effectiveness in as far as the establishment of JI scheme is concerned.

There is a thriving business sector in Tanzania which is heterogeneous and complex. The majority in this sector are concerned with trade and commerce. Service is a fast growing sector, but there are many others in transportation, construction, manufacturing and processing. Removal of restrictions on business were not accompanied with clear processes and conditions on how business should be established and run. As a result trade and business has become more informal, itinerant and unfortunately petty.

In this context, it would be difficult under a Joint Implementation project for companies involved to make informed choices of technologies that are appropriate to their business and to Tanzania conditions. With large scale poverty prevailing in Tanzania, it would be difficult for companies to say no, to an opportunity that brings in the much needed capital. A neutral body to help business carefully select technologies and identify what they real need is very important.

Having said all that, it should not be implied that a JI programme cannot become operational in Tanzania. JI has the potential to provide new and large sources of funding for energy and natural resource programmes in Tanzania. With the persistence of energy crisis, using funds from private companies and states from developing countries, Tanzania can gain access to more efficient and cleaner power generation and consumption technologies or can fund forestry and other natural resource projects. This also would widen the scope for businessmen to invest in newer areas.

Business in Tanzania is characterized by imported products and borrowed technologies. A feasible JI project would be the one accompanied by technological know-how rather than hardware only. Training is very important in this context.

A consultative machinery or forum could be established so that the issue of JI can be taken up between the government and the private sector who also have got a stake. The linkage between regulations and the JI investment should be established to give private enterprises the incentive to participate in JI projects. When adopted on voluntary basis and when assured of a chance to phase out old products and technologies and increased profitability, then a JI project has a better chance of success under a private business entity. This will also enable a company acquire useful experience which it can draw on later when regulations later become mandatory.

Either individually, or as a group, the company or companies will be able to identify and explore the most effective appropriate projects to invest in and also make attempts to influence the way the government designs rules and regulations. This calls for awareness raising for different business groupings by providing them with the necessary information.

Lastly, a pilot demonstration project involving the private sector to be implemented through government channels could be established for a start.

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