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Review on Marine Source of Drugs

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Abstract :

Natural resources may be further classified in different ways. Natural resources are materials and components (something that can be used) that can be found within the environment. Every man-made product is composed of natural resources (at its fundamental level). Exploration, inventorisation and documentation of phytodiversity in general and protected areas, hotspots, fragile ecosystems and sacred groves in particular; publication of National, State and District Floras, monitoring Phytodiversity to evaluate the qualitative changes in species rich and sensitive areas.There are various methods of categorizing natural resources, these include source of origin, stage of development, and by their renew ability, these classifications described. Damodar Valley Thermal Power Project and another in connection with the Hydroelectric project in Pithoragarh District.

Keywords:

Sponges, Flora, Nutrient, Extenction, Exhaust, etc.

1.Introduction:

1.1.Introduction:

Natural resources occur naturally within environments that exist relatively undisturbed by mankind, in a natural form. A natural resource is often characterized by amounts of biodiversity and geo diversity existent in various ecosystems. Natural resources are derived from the environment. Natural resources may be further classified in different ways. Natural resources are materials and components (something that can be used) that can be found within the environment. Every man-made product is composed of natural resources (at its fundamental level). A natural resource may exist as a separate entity such as fresh water, and air, as well as a living organism such as a fish, or it may exist in an alternate form which must be processed to obtain the resource such as metal ores, oil, and most forms of energy.

There is much debate worldwide over natural resource allocations; this is partly due to increasing scarcity (depletion of resources) but also because the exportation of natural resources is the basis for many economies (particularly for developed nations such as Australia). Some Natural resources can be found everywhere such as sunlight and air, when it is so the resource is known as an ubiquitous (existing or being everywhere) resource. However most resources are not ubiquitous. They only occur in small sporadic areas; these resources are referred to as localized resources. There are very few resources that are considered inexhaustible (will not run out in foreseeable future) – these are solar radiation, geothermal energy, and air (though access to clean air may not be). The vast majority of resources are however exhaustible, which means they have a finite quantity, and can be depleted if managed improperly. The natural resources are materials, which living organisms can take from nature for sustaining their life or any components of the natural environment that can be utilized by man to promote his welfare is considered to be natural resources.

2. Survey and exploration:

2.1 Flora:

Exploration of plant resources of the country and identification of plant species with economic virtues is carried out by the Botanical Survey of India (BSI), established on 13th February, 1890 and its various circles. During the successive plant periods, the functional base of Botanical Survey of India was expanded to include various new areas such as inventorying of endemic, rare and threatened plant species; evolving conservation strategies; studies on fragile ecosystems and protected areas like Sanctuaries, National Park and Biosphere Reserve; monitoring of changes in floristic components; conservation; multiplication and maintenance of germless of plant genetic resources, endemic and threatened species, wild ornamentals etc., in Botanic Gardens and Orchid aria; ethno botanical and geo botanical studies and development of National Database on Herbarium (including type specimens) and live collections, plant genetic resources, plant distribution and nomenclature.

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Exploration, inventorisation and documentation of phytodiversity in general and protected areas, hotspots, fragile ecosystems and sacred groves in particular; publication of National, State and District Floras, monitoring Phytodiversity to evaluate the qualitative changes in species rich and sensitive areas; ex situ conservation of critically threatened taxa in botanical gardens, and identification of species with traditional economic uses and preparation of protocols for their conservation and sustainable utilization etc. are the primary objectives of BSI.

2.1.1 Botanical Exploration and Inventorisation of Phytodiversity

Seventy field/exploration/collection tours were undertaken by different circle offices and units of BSI covering:

•National Capital Territory (Delhi and its environ); Chittoor district of Andhra Pradesh; Twang and Upper Subansiri districts of Arunachal Pradesh; Mehasana, Jamnagar, Kutch and Palanpur (Banaskantha) districts of Gujarat; Raigarh district of Maharashtra; Ganjam district of Orissa; Jalpaiguri, Bankura, Howrah & North 24 Parganas districts of West Bengal and districts of Himachal Pradesh and Uttaranchal (North West Himalayas).
•Barren, Interview Snake, Rutland and Sound Islands of Andaman & Nicobar Islands.
•Mount Saramati Wildlife Sanctuary of Nagaland, Nongkhyllem Wildlife Sanctuary of Meghalaya, Maeinum Wildlife Sanctuary of South Sikkim, Fumbonglho Wildlife Sanctuary of East Sikkim, Tansa Wildlife Sanctuary of Maharashtra, Parasnath Wildlife Sanctuary of Jharkhand and Rajgir Wildlife Sanctuary of West Bengal.
•Malavan Marine Sanctuary of Goa.
•Mahatma Gandhi Marine National Park of South Andamans.
•Wetlands of Himachal Pradesh (Renuka, Pong, Chandratal) and South India.
•Tendong Reserve Forest of South Sikkim and Panchmarhi Biosphere Reserve of Madhya Pradesh.
During the field/exploration/collection tours, more than 9,500 specimens have been collected including lower groups of plants viz. algae, fungi, lichens, bryophytes and pteridophytes. About 3,500 specimens belonging to 720 species were identified by different circles/units of BSI.

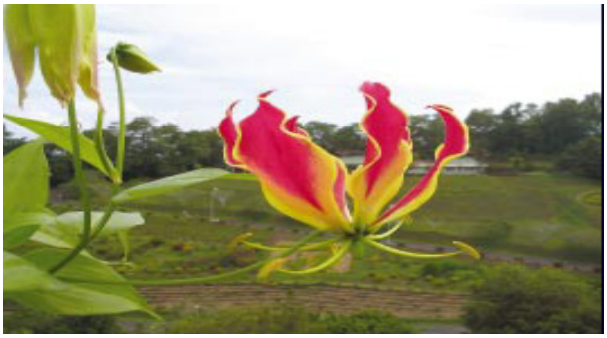

Fig 2.1. Gloriosa superba Linn. - a medicinal and ornamental species

2.1.2 Floristic studies:

▪Flora of India: Orchidaceae (Genera – Oberonia, Microstylis, Liparis, Orcorchis)
▪Flora of India: Lauraceae (pro parte)
▪Flora of India: Polygonaceae
▪Flora of India: Genus-Strobilanthes
▪Flora of India: Lamiaceae (Plectranthus group incl. Coleus)
▪Flora of India: Leguminosae: tribe Galegae (excl. Astragalus)
▪Flora of India: Lauraceae (excl. Litsea, Neolitsea & Lindera)
▪Aphyllophorales of North West Himalayas
▪Pteridophytic flora of Western Himalayas
▪Monocot Flora of Dibang Valley, Arunachal Pradesh
▪Flora of Uttar Pradesh, Vol. I
▪Flora of Mizoram, Vol. II
▪Flora of Gujarat State
▪Flora of Karnataka State
▪Flora of Tawang District, Arunachal Pradesh
▪Moss Flora of Tawang District, Arunachal Pradesh
▪Flora of Ganjam District, Orissa
▪Flora of Nongkhyllem Wildlife Sanctuary, Meghalaya
▪Botany of Tendong Reserve Forest, South Sikkim

2.2 Fauna:

Survey, exploration and research leading to advancement of knowledge on the exceptionally rich faunal diversity of the country is carried out by the Zoological Survey of India (ZSI), established in 1916 with its headquarter at Kolkata and sixteen Regional Stations located in different parts of the country. ZSI in recent years, has reoriented its plan of work by grouping the survey and studies under five major programmes viz.

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a) Fauna of States, b) Fauna of Conservation Areas, c) Fauna of Important Ecosystems, d) Status Survey of endangered species, and, e) Ecological Studies/Environment Impact Assessment Survey. Sixty four extensive faunal surveys were undertaken to different State/Union Territories including important ecosystems and some selected conservation/protected areas. Two status surveys one for Wild Buffalo in Western Orissa and another for Small Travancore flying squirrel in Kerala was also conducted. One Environment Impact Assessment Survey was conducted in connection with the extension of Damodar Valley Thermal Power Project and another in connection with the Hydroelectric project in Pithoragarh District (Dhauli & Gauriganga of Uttaranchal State). Besides, several short duration intensive surveys for ecological studies were also undertaken. Detailed taxonomic studies were carried out on the material collected during these surveys as well as earlier surveys. Ecological studies including status survey of endangered animals were continued.

2.2.1 Faunal Exploration and Surveys:

Ecosystems:

Tropical Rainforest:

Four extensive surveys were conducted to Western Ghats in Kerala State.

Wetlands

Five extensive surveys were conducted in Bhagwanpur (Bihar), Govind Sagar (Punjab, Pocharam Lake (Andhra Pradesh), Wetlands of Gujarat and Dom Valley.

Marine/Coastal:

Six surveys, one to Keelakarai group of Islands of Gulf of Mannar, three to Kerala Coast and one each to Maharashtra and Orissa Coast were carried out.

Fig 2.2. Rhino in Kaziranga National Park - needs protection

Conservation Area:

•Biosphere Reserves
One survey to Amarkantak (M.P.) and another to Gulf of Mannar were carried out.
•National Parks
A total of six surveys in Corbett (Uttaranchal), Bannerghata (Karnataka), Ranthambore (Rajasthan), Bandhavgarh and Vanvihar (M.P.) were carried out.
•Wildlife Sanctuaries
One survey each to Ballavpur (W.B.) and Lonar (Maharashtra) and two surveys each to Talchhapar (Rajasthan) and Lunar Crator (Maharashtra) and Baghmara (Meghalaya) were carried out.
•States and Union Territories
Thirty surveys were conducted in several districts of Andhra Pradesh, Goa, Gujarat, Madhya Pradesh, Maharashtra, Kerala, Uttaranchal and West Bengal.
•Ecological/Status Survey
Two status surveys, one for Wild Buffalo in western Orissa and another for Small Travancore flying squirrel in Kerala were also conducted.
•Environmental Impact Assessment Survey
In connection with the extension of Damadar Valley Thermal Power Corporation, one survey was conducted to Chandrapura of Jharkhand State and another in connection with the studies on the Fauna of Pithoragarh District (Dhauli & Gauriganga (NHPC)) of Uttaranchal State.

3. Natural Resources:

3.1 Classification:

There are various methods of categorizing natural resources, these include source of origin, stage of development, and by their renew ability, these classifications are described below. On the basis of origin, resources may be divided into:

» Biotic – Biotic resources are obtained from the biosphere (living and organic material), such as forests and animals, and the materials that can be obtained from them. Fossil fuels such as coal and petroleum are also included in this category because they are formed from decayed organic matter.
» Abiotic – Abiotic resources are those that come from non-living, non-organic material. Examples of abiotic resources include land, fresh water, air and heavy metals including ores such as gold, iron, copper, silver, etc.

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3.2 Stage of Development:

•Potential Resources – Potential resources are those that exist in a region and may be used in the future. For example, petroleum may exist in many parts of India, having sedimentary rocks but until the time it is actually drilled out and put into use, it remains a potential resource.
•Actual Resources – Actual resources are those that have been surveyed, their quantity and quality determined and are being used in present times. The development of an actual resource, such as wood processing depends upon the technology available and the cost involved.
•Reserve Resources – The part of an actual resource which can be developed profitably in the future is called a reserve resource.
•Stock Resources – Stock resources are those that have been surveyed but cannot be used by organisms due to lack of technology. For example: hydrogen

3.3 Renewability:

•Renewable resources are ones that can be replenished naturally. Some of these resources, like sunlight, air, wind, etc., are continuously available and their quantity is not noticeably affected by human consumption. Though many renewable resources do not have such a rapid recovery rate, these resources are susceptible to depletion by over-use. Resources from a human use perspective are classified as renewable only so long as the rate of replenishment/recovery exceeds that of the rate of consumption.

•Non-renewable resources are resources that form extremely slowly and those that do not naturally form in the environment. Minerals are the most common resource included in this category. By the human perspective, resources are non-renewable when their rate of Consumption exceeds the rate of replenishment/recovery; a good example of this are fossil fuels, which are in this category because their rate of formation is extremely slow (potentially millions of years), meaning they are considered non-renewable. Some resources actually naturally deplete in amount without human interference, the most notable of these being radio-active elements such as uranium, which naturally decay into heavy metals. Of these, the metallic minerals can be re-used by recycling them,[1] but coal and petroleum cannot be recycled.

Fig.3.1 The Ocean is an example of a natural resource

3.4 Extraction:

Resource extraction involves any activity that withdraws resources from nature. This can range in scale from the traditional use of preindustrial societies, to global industry. Extractive industries are, along with agriculture, the basis of the primary sector of the economy. Extraction produces raw material which is then processed to add value. Examples of extractive industries are hunting and trapping, mining, oil and gas drilling, and forestry. Natural resources can add substantial to a country's wealth, however a sudden inflow of money caused by a resource boom can create social problems including inflation harming other industries ("Dutch disease") and corruption,

3.5 Depletion:

In recent years, the depletion of natural resources has become a major focus of governments and organizations such as the United Nations (UN). This is evident in the UN's Agenda 21 Section Two which outlines the necessary steps to be taken by countries to sustain their natural resources. The depletion of natural resources is considered to be a sustainable development issue. The term sustainable development has many interpretations, most notably the Brundtland Commission's 'to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs.

However in broad terms it is balancing the needs of the planet's people and species now and in the future. In regards to natural resources, depletion is of concern for sustainable development as it has the ability to degrade current environments and potential to impact the needs of future generations.

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The conservation of natural resources is the fundamental problem. Unless we solve that problem, it will avail us little to solve all others.

Depletion of Natural Resources is associated with social inequity. Considering most biodiversity are located in developing countries, depletion of this resource could result in losses of ecosystem services for these countries. Some view this depletion as a major source of social unrest and conflicts in developing nations. At present, with it being the year of the forest, there is particular concern for rainforest regions which hold most of the Earth's biodiversity. According to Nelson deforestation and degradation affect 8.5% of the world's forests with 30% of the Earth's surface already cropped. If we consider that 80% of people rely on medicines obtained from plants and ¾ of the world's prescription medicines have ingredients taken from plants, loss of the world's rainforests could result in a loss of finding more potential life saving medicines. The depletion of natural resources is caused by 'direct drivers of change such as Mining, petroleum extraction, fishing and forestry as well as 'indirect drivers of change' such as demography, economy, society, politics and technology. The current practice of Agriculture is another factor causing depletion of natural resources. For example the depletion of nutrients in the soil due to excessive use of nitrogen and desertification the depletion of natural resources is a continuing concern for society. This is seen in the cited quote given by Theodore Roosevelt, a well-known conservationist and former United States president, was opposed to unregulated natural resource extraction.

Fig.3.2 Wind as the natural resource

3.6 Protection:

In 1982 the UN developed the World Charter for Nature in which it recognized the need to protect nature from further depletion due to human activity. They state the measures needed to be taken at all societal levels, from international right down to individual, to protect nature. They outline the need for sustainable use of natural resources and suggest that the protection of resources should be incorporated into the law system at state and international level. To look at the importance of protecting natural resources further. The World Ethic of Sustainability, developed by the IUCN, WWF and the UNEP in 1990 which set out eight values for sustainability, includes the need to protect natural resources from depletion. Since these documents, there have been many measures taken to protect natural resources; some of these ways include Conservation biology and Habitat Conservation.

Conservation biology is the scientific study of the nature and status of Earth's biodiversity with the aim of protecting species, their habitats, and ecosystems from excessive rates of extinction. It is an interdisciplinary subject drawing on sciences, economics, and the practice of natural resource management. The term conservation biology was introduced as the title of a conference held University of California at San Diego in La Jolla, California in 1978 organized by biologists Bruce Wilcox and Michael Soulé. Habitat conservation is a land management practice that seeks to conserve, protect and restore, habitat areas for wild plants and animals, especially conservation reliant species, and prevent their extinction, fragmentation or reduction in range.

3.7 Management:

Natural resource management is a discipline in the management of natural resources such as land, water, soil, plants and animals, with a particular focus on how management affects the quality of life for both present and future generations. Management of natural resources involves identifying who has the right to use the resources and who does not for defining the boundaries of the resource. The resources are managed by the users according to the rules governing of when and how the resource is used depending on local condition. A successful management of natural resources should engage the community because of the nature of the shared resources the individuals who are affected by the rules can participate in setting or changing them.

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The users have the rights to device their own management institutions and plans under the recognition by the government. The right to resources includes land, water, fisheries and pastoral rights. The users or parties accountable to the users have to actively monitor and ensure the utilization of the resource compliance with the rules and to impose penalty on those peoples who violates the rules. These conflicts are resolved in a quick and low cost manner by the local institution according to the seriousness and context of the offence.

4. Natural Resources and conflict:

The links between conflict and the extraction of a given resource are not always so clear-cut, however, and a country's resource wealth does not necessarily lead to violent conflict, as the examples of Norway and Canada, but also Botswana and Chile show. Yet resource-rich countries do appear to be more susceptible to conflict than the resource-poor. This risk seems to be greatest when resource extraction accounts for a substantial proportion (around 30%) of GDP1: in other words, in countries which are largely dependent on the export of primary commodities such as metal ores, oil and gas. This does not apply to countries with major oil fields and a small population, such as Brunei, Dubai and Kuwait, which can use the substantial revenues generated by their oil exports to purchase social peace.Yet in most resource dependent economically poor countries in Africa, Latin America and Asia, resource extraction is linked to conflict. So the question is this: which role do natural resources play in conflicts?

4.1 Conflicts over resource extraction:

One cause of conflict lies in the way in which resources are extracted, how revenues from this sector are distributed, and how the local population is involved in decisions on the development of the affected region. In Peru, environmental standards were flouted for decades by the mining industry, and the interests of the local population disregarded in the industry's decision-making. A broad-based popular movement against the mining industry has now developed in the country, comprising the communities – mainly the indigenous populations of the Andes – which are most affected by the industry's activities, and this movement has obstructed the expansion of existing mines and the establishment of new ones. A similar development can be observed in the Philippines.

These conflicts can escalate from social unrest into open war, as the example of Bougainville shows. In November 1989, the owners of the massive "Panguna" copper and gold mine – which had generated almost 50% of Papua New Guinea's export revenue for 20 years – refused the demands for compensation brought by the inhabitants of the island of Bougainville. Farmers in the region had demanded compensation for the environmental damage caused by the mine, which was refused by the mine operators on the ground that the demands were not backed by scientific evidence. The local communities' rage was vented in acts of sabotage against the mine. The mine was forced to close, and repression and a government blockade of the island quickly escalated the conflict into open war in which more than 10,000 people lost their lives.

The war in Bougainville was not just about the mine. Mining had become emblematic of the island's dependence on Papua New Guinea, which was not recognized by many Bougainvilleans. The dispute over the mine was a catalyst for the simmering conflict which escalated when the extractive industry ignored the interests of local people. Existing social and ethnic tensions may thus be exacerbated by poor implementation and bad governance of extractive industry projects.

4.2.Control over resources and resource trade:

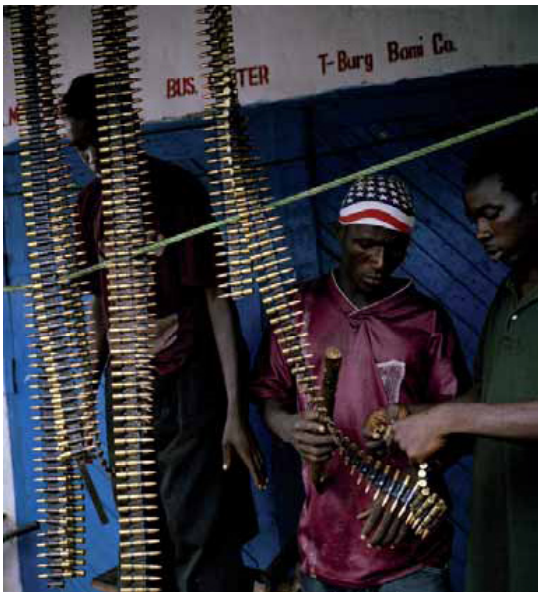

Fig.4.1 Cartridge belts of ammunition

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Natural resources have been targets or instruments of warfare in the past and will remain so in the future. Warring parties need money and they take it wherever they can find it. Yet the character of a resource can certainly influence the prosecution of a war. Le Billon (2003) illustrates this with reference to Angola: here, the rebel organization UNITA drew its funding from sources as diverse as financial aid from China and several Western industrialized countries and from the trade in gold, timber, wild animals and diamonds. After the end of the Cold War, oil and diamonds came to dominate the war economy. The government had access to the major oilfields in the coastal region, while UNITA funded its war from the revenue from the diamond mines in the areas under its control. During the 26 years of civil war, both sides profited from unhindered access to the revenues from the extractive industries which, although not the cause of the war, played a key role in funding it.

Three of the world's worst wars of recent years took place in Sierra Leone, Liberia and the Democratic Republic of Congo (DRC), resulting in around five million deaths and the almost complete destruction of these countries' infrastructures. In consequence,the international community has had to provide and fund amongst the three most expensive UN peace-keeping operations of all time: the bill for UNAMSIL's3 presence in Sierra Leone totalled US$2.8 billion and cost the lives of 196 peace keepers4 ; in 2007 UNMIL5 in Liberia will cost US$745 million6 whilst in DRC.

4.3 Conflict prevention and conflict resolution:

A key element of conflict prevention is to ensure that the wealth generated through resource extraction is utilized to improve living conditions for communities in the affected regions and countries. This necessitates transparent and equitable distribution of revenues from the resource sector13, socially and environmentally responsible corporate governance, transparent and responsible tax policies, and government policies which not only defend the interests of companies but also those of the local populations.This requires democratic institution-building and diversification of the economy. These factors are especially important in countries coming out of conflicts where natural resources have played a key role, such as Liberia, Sierra Leone and DRC.

If these resources played a key role in the war, then they must play a key role in the peace and become peace assets. The newly created Peacebuilding Commission should include natural resources in its strategies in countries where they have played a role in conflict. This would be a crucial element in ensuring a comprehensive and effective approach to peacebuilding by the UN and build on its recognition of the importance of natural resources in conflict and post-conflict reconstruction.

4.4.Existing mechanisms and solutions:-

4.4.1 Voluntary Principles on Security and Human Rights:

The Voluntary Principles on Security and Human Rights were established in 2000, following meetings between representatives from the US Department of State and the UK Foreign and Commonwealth Office, oil, mining and energy companies, and human rights, labour and corporate responsibility groups. The process aims to maintain the safety and security of extractive operations whilst ensuring that human rights and fundamental freedoms are respected.The Voluntary Principles are designed to provide practical guidance that will strengthen human rights safeguards in company security arrangements and address three areas of mutual concern to both companies and non-governmental organizations:

•Engagement with private security
•Engagement with public security
•Risk assessment supporting security arrangements consistent with human rights.

The Voluntary Principles have been criticized by various NGOs as they are not transparently managed and lack any monitoring mechanism.

4.4.2 The Kimberley Process:

The Kimberley Process Certification Scheme (KP) is the only significant international response to the conflict resource issue. The KP is an international government-led scheme that was set up to prevent the trade in conflict diamonds. Negotiated by governments, civil society organizations and the diamond industry in response to civil society campaigns, the KP currently comprises 71 participants: 46 countries14 and the European Union. Launched in January 2003, and endorsed by the UN General Assembly and the UN Security Council, the scheme requires governments to certify the origin of shipments of rough diamonds to ensure they are not from conflict zones.

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Countries that participate must pass legislation to enforce the Kimberley Process and set up control systems for the import and export of rough diamonds. In 2006 there was a formal three-year review to assess its effectiveness and make recommendations to strengthen the scheme, presenting a crucial opportunity to close serious loopholes. Despite some progress, there are still significant outstanding issues to be addressed to ensure the KP is credible and effective in practice.The Kimberley Process needs to develop a suspension mechanism for participants who are not complying with the scheme and to make the baseline standards to ensure the traceability of diamonds from the mine to export compulsory. The diamond industry committed itself to a voluntary system of warranties to ensure conflict diamonds do not enter the legitimate trade, but they have consistently failed to implement the system in a credible and effective way. There are serious shortcomings related to the definition of conflict diamonds by the Kimberley Process as it only applies to diamonds traded by rebel groups. Human rights abuses committed by governments are not considered to give rise to "conflict diamonds".

The Kimberly Process is definitely no "one size fits all" solution. Other certification or tracing schemes might provide a partial solution but it is not feasible to set up a certification scheme for every single natural resource. Neither the Voluntary Principles nor certification schemes of single commodities will provide a consistent answer of the international community to the problem of conflict resource."Conflict resources are natural resources whose systematic exploitation and trade in a context of conflict contribute to, benefit from or result in the commission of serious violations of human rights, violations of international humanitarian law or violations amounting to crimes under international law." The rationale behind this definition is that it does not seek to identify specific resources or traders, merely the circumstances in which the trade takes place. It does not require any additional legal or other mechanisms; it is simply intended to identify the context in which a natural resource becomes a conflict resource, and therefore allow the international community to act more quickly and effectively to halt the trade. A definition can also act as a guideline for a particular investment. In this it can be helpful both to governments and industry. A definition can only be a mosaic stone in a broader approach, where sanctions and monitoring of compliance, peace-building and post-conflict reconstruction activities dovetail to form a coherent strategy.

Measures at the UN level to stop the trade in conflict resources must be accompanied by actions on other levels, for example through a better coordination of national criminal prosecution at the EU level and a policy coherence in the implementation of policies in the different arenas at the national level (i.e. security, law, environment, aid etc.).

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