

Reducing the Effect of Deforestation and forest Degradation in developing nations (REDD) through the adoption of the SEEBif Initiative – a declaration for ACTION.

Abstract.

The natural forests of the tropics store vast quantities of carbon in their structures and soils. As all current methods to reduce and reverse deforestation have failed, REDD is one programme in progress, initially a concept from the U.N.C.E.D., Earth Conference in Rio, and paralleled with the formation of U.N. Convention on Biological Diversity, to reverse tropical forest loss.

According to the Intergovernmental Panel on Climate Change (IPCC) deforestation produces between 18 – 22% of the anthropogenic carbon compounds emitted into the biosphere annually. This is equivalent to the carbon source **emitted by the total global transport systems**. Reducing Emissions from Deforestation and forest Degradation in developing nations is an attempt to ameliorate this source, but it is flawed by **its lack of real vision**.....

The very nature of REDD is being developed into a agenda to address the current extirpation of these tropical forests by providing financial incentives to manage them in a manner for so called, sustainability, and in so doing will slow and reverse deforestation. But is this programme limited to this remit only? What protection does it provide to prevent the extinction of the forests' biodiversity? How is there to be a pathfinding mechanism for a reawakening of the real meaning of the choice of achievable sustainable development? The framework for REDD is still at an early stage of development. This paper **will address some fundamental concerns and realities** from an ecological consciousness to the very concept of providing funding for local communities, through self awareness initiatives to conserve their natural forests and to ensure that humanity as a whole becomes truly aware of its responsibility to its climate, its biodiversity and itself. **This paper is based on the SEEBif Initiative and its contents surpasses the current REDD programme in every respect.**

This paper is not for the timid; it will promote some **powerful scientific, economic and social arguments** and put an integrated perspective into a global programme which has to be resolved, beginning at the UNFCCC conference, COP 15, to be held at Copenhagen in December 2009.

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REDD, biodiversity, choice achievable sustainable development, human rights, SEEBIF Initiative, United Nations Framework Convention on Climate Change, (UNFCCC), Conference of the Parties (COP), greenhouse gases (GHG), deforestation, degradation, United Nations Environment Programme, (UNEP), United Nations Convention on Biodiversity, (UNCOB), biome, biosphere, evolution, ecology, ecosystem services, carbon market, carbon credits, avoidance of deforestation, carbon sequestration, carbon storage, ecological and forest restoration, "sinks", "sources", "Oligarchs", Illegal and Sunset Deforestation-Logging, Ancient or Frontier Forests, Soya, Beef cattle, Agri-Industrial Palm Oil, natural capital, social and human capital. Being Responsibly Aware.

The Paper

Reducing the Effect of Deforestation and forest Degradation in developing nations (REDD), through the adoption of the SEEBif Initiative - a declaration for ACTION.

Introduction

It is a joy and privilege to stand before you all, my peers, whom I realise pose levels of academic and professional learning at which I can only marvel! For as a humble and enduring (...one has to be) school science teacher of more years than I can remember, I have had the privilege to open the minds of the children and young people that I have taught, and helped them develop, in this small part of our human family, an integrated awareness of our ecological and social concerns. For this privilege I give thanks.....it is one of the main reasons I am standing in front of you today.

Imagine a huge jigsaw puzzle which has 1.75 billion pieces, each piece representing one hectare of natural forest in the tropics (Ref 1). Each part is a wonderful picture of one of the few tropical biomes in our biosphere. BUT the individual parts are in disarray. We need to seek out and comprehend these parts together in a way which is fair and equitable for us all; for the benefit of all life on our planet.

According to the Intergovernmental Panel on Climate Change (IPCC) deforestation produces between 18 – 22% of the anthropogenic carbon compounds emitted into the biosphere annually, equivalent to the total emissions of the all global transport systems (Ref 5). Reducing Emissions from Deforestation and forest Degradation in developing nations, REDD, is highly regarded as one of the most important measures to combat climate change, by providing financial incentives to those countries which can effectively control the process of deforestation; for many it is also a very contentious programme. Can REDD provide a paradigm and a programme in the manner by which the United Nations wishes to address this most serious and little investigated concern with a pragmatic and holistic protocol? Is REDD just about the climate chaos era we are now entering? I would like to challenge this current programme in a constructive manner with a **critique and a redirected introductory programme** which will provide a **framework on which we as a human family can address this alarming concern with a new and currently unknown global initiative. The acronym for this proposal is SEEBif, which is the Social-Ecological-Environmental Services-Biodiversity-Insurance-Finance Initiative.**

History

Since its origin after the United Nations Conference on the Environment and Development held in Rio de Janeiro in 1992, there has been serious interest in the progression of increased conservation of forests in the tropical regions during the formation of the United Nations Convention on Biodiversity programme. It was not until the Conference of the Parties 11 at the Montreal Convention that the REDD programme was established as a formal topic at the eleventh session of the Conference of the Parties (COP 11) in respect of the United Nations Framework Convention on Climate Change (UNFCCC) in December 2005, a mere 43 months ago.

So in a relatively short time period, considering the explosion of papers and counter arguments and proposals, the assimilation of all detailed definitions of climate change

and the glossary together with "carbon market terminology" would fill textbooks of definitions. So important were the concerns that at the Bali UNFCCC - COP 13 conference in 2007, an agreement was reached on "the urgent need to take further meaningful action to reduce emissions from deforestation and forest degradation". During the last six weeks in Bonn the UN climate negotiations or, to give the official title, the thirtieth sessions of the UNFCCC Convention subsidiary bodies, SBSTA and SBI, sixth session of the AWG-LCA and eighth session of the AWG-KP, REDD will feature in several parts of the negotiations. But unfortunately these government delegates avoided the issues, they argued about trivialities and failed to come up with meaningful ways of addressing climate change within the framework given to REDD in respect of the original intentions of COP 13. It is no wonder that the whole framework requires reassessment.

Main arguments

Will REDD answer this concern or at least partly as it is highly regarded as one of the most important measures to combat climate change? Or will a complete new protocol be required? I propose that a completely new Initiative will be required as argued in this paper. Just three days ago, at a CIFOR meeting in Jakarta, the Indonesian delegates argued about certain fundamental aspects of the REDD programme, some were realistic, but some very open to doubt (Ref 1b). The underlying issues were examined to identify a pragmatic approach to resolving some of the serious issues this programme was intending to solve. My paper is an introduction to identifying these concerns, in particular those affecting local communities in respect to their stewardship responsibilities of ensuring a "fair trade" income from their work on our behalf and to make the biodiversity of our forests a permanent aspect, by ensuring that the powerhouse of evolution continues. One top down approach namely, "The Forest Carbon Partnership Facility" (FCPF), a contracted programme by the World Bank to foster social capital amalgamation into natural capital "projects", has been subject to argument because of their inability to interpret custodial stewardship for all concerned forest communities (Ref 3). The world is seeking a fundamental answer to this crisis; the SEEBif Initiative will I hope bring the necessary response required.

The arguments about the input REDD might achieve were continued and thrashed out in Bonn, six weeks ago. Opinions varied because, for some, REDD is only to sequester and store the anthropogenic carbon gas compounds which we have poured unnecessarily into our atmosphere (Ref 4), for about one-fifth (18-22%) of man-made or anthropogenic CO₂ emissions originate from deforestation (Ref 5). The REDD programme is regarded as one of the more important measures to combat climate change for in effect its pro-action can help solve more than it's initial remit. It behoves us to take note, prick up our ears and become fundamentally aware... words which will be used a great deal in this paper and for which I will not apologise but give good reasons.

The SEEBif Initiative may have fundamental answers to the many questions which so far have eluded the developing REDD programme? Specifically the essence of this paper may be controversial. It assumes that for the sake of equity a "bottom up" approach, at the lowest structural level of executive control, will be the basis for its legitimacy. In addition and included within this Initiative is the absolute need for an international obligation of legalising the constitutional land tenureship rights of native and local communities as obligatory guardians living within and surrounding tropical forest landscapes. This is a

characteristic viewpoint relating to this Initiative, which on the island of Borneo, is the joint WWF Indonesia, Indonesian, Malaysian and Brunei Government sponsored, "Heart of Borneo" programme. Another is on Sumatra, in Jambi Province, the "Harapan Project". Both these evolving projects are similar but over different spatial areas, but it is the nature of their stakeholder involvement which is currently of concern and is not being addressed by the contemporary REDD programme. The SEEBif Initiative would resolve a large number of issues which at this present time are causing both these named programmes difficulties, particularly in the latter, where land tenureship issues are at the forefront of concern (Ref 6, 7).

My Initiative addresses aspects of inappropriate development across tropical countries containing natural forests. One nation which holds a challenging responsibility for maintaining the evolution of its biodiversity and self reliance for its valuable cultural identity is Indonesia. Sadly, on a global scale, Indonesia is the third largest emitter of Greenhouse Gases (GHG) and has the dubious distinction of providing the highest levels of deforestation in comparison to its forest extent. Indonesia, with around 50% forest land cover would have a very high interest in implementing and benefitting from the SEEBif Initiative due to its current high rates of deforestation and forest degradation. However the challenges remain how the programme would be governed to effectively reduce GHG emissions and implement in a cost-effective manner methods to benefit all constituents equitably. Or in terms of the "top down approach," to ensure that all "stakeholders" are rewarded for their effort, but to date this has not been addressed within the remit of REDD (Ref 8). Legalised carpet bagging of communal lands on Borneo has to all intents and purposes eliminated Dayak Adat Law which had been ratified culturally over the past centuries. This would provide under the SEEBif Initiative a return to this classical custodian type stewardship with new legal and internationally agreed land tenureship constitutional rights which would be guaranteed unequivocally. This would then forge a paradigm shift currently missing. Natural forests and local communities are in reality a perfect unison which needs to be preserved.

To date the Local Courts are supporting for groups of Dayak peoples across Malaysian - Sarawak in pursuance of their new constitutional rights. But **these are ignored with impunity by misdeed developers** who throughout Malaysian Borneo and Kalimantan-Indonesia, in association with their oligarchic local and central government masters are still attempting their little "development games". Such actions and have nefariously caused levels of deforestation which have already wrecked half of the "Treasure Island" of Borneo (Appendix 1). What is proposed in this area of insular SE Asia could be disastrously replicated across the entire tropical forest nations of our planet.

Without a fundamental change, the period of climate chaos we are in will not go away. It will not be ameliorated by our current political and economic policies branded as structured growth based on "casino" economic policies. Our "tomorrow" will not be a reflection of our past success as a species if we do not SERIOUSLY address this number one act of bio-terrorism.

We are conscious of the need to redirect all our lives to enable our global society to live together more harmoniously and compassionately than ever before. And we need a paradigm model to change our psychology. A word or acronym could be crucial to denote the beginning of an absolute change. An acronym such as "BRA" - "**BEING RESPONSIBLY AWARE**" - could be used to describe our communal actions in such a necessary paradigm shift. On this very auspicious occasion I have no doubt that a number of my professional colleagues have a much wider knowledge of the "climate chaos" situation than I do, but I want to say this, that without the concept of 'BRA' – being responsibly aware - being understood by our whole global human

community and acted upon now, I am afraid we will be in a position of actual biosphere chaos within a very short period of time, possibly less than seven years (Ref 9).

The Kyoto Protocol of 1997 **has not become fundamentally assimilated** into the mindset of our human population. It took eleven years for Australia, and twelve for the United States to take responsible action by becoming signatories to this Protocol.....So "BRA" has only just kicked in to these two nations which per capita are the highest polluters of harmful and unnecessary carbon compounds into our biosphere. But putting "word into deed with thoughtful speed" has not been their practice... nor with most countries of our world because I suggest we are all "literally frightened to death" to take on this ultimate responsibility. Do not take my word for it; as prominent a figure as Ahmed Djoghlaif, Executive Secretary for the United Nations Convention on Biological Diversity, (UNCOB) is relevant. His sponsored report on the level of general awareness, BRA. across our world made alarm bells ring! To be honest, 97% of our human family, 85% of our political masters and 57% of our educators were not even minimally aware of how we can address the looming crisis of gross inequity, climate chaos, and the end of natural evolution (Ref 10). Maybe you are as shocked, as I was!

I would like to tell you a short story, which I believe is of relevance. Twenty two years ago as a Green Parish Councillor, my local Council in Calstock (in the Tamar Valley in Cornwall) was presented with an outline plan for a development which included the removal – the deforestation - of a small woodland of about 1.5 hectares. They did not think that this loss would be of concern to our local community, but this tiny woodland is a real representative of what is happening to our forests around the world every day. Not of much general interest you might think; it did not have a high so-called conservation value (which in reality is a very vague term). Why should I be so interested? My concern and perseverance held sway because enough local people attended the local planning site meeting and convinced the planners that our values which were held in deep respect did actually count!.....This little woodland was saved; its value was more than economic, a viewpoint which will be examined in more detail later in this paper, in areas far from my home.

But is the BRA concept relevant to this Initiative, and how could we reassess its importance in a holistic manner? Is the lack of BRA (being responsibly aware) in general the reason why REDD is not a common household word in common with say, "climate change", (or say, climate chaos)? Before venturing further, we should address the issue as briefly as possible. The amount of information now available in such titles and programmes would fill an entire library but I will mention some examples. Although this paper is about an alternative to REDD, in reality it is about **our relationship with trees**, not one but about a trillion, in the natural forest communities in which they live and the way that for them just to be alive is possibly one solution for our planet's survival; our "Saving Grace" (Ref 11). For without trees there cannot be any SEEBif Initiative. So if we cannot address the forces which make trees in our forests worth more alive than dead, then the considerable task of preventing catastrophic climate change and a biodiversity holocaust will be more serious than at anything we have faced in our entire history; indeed it will, I believe, be insurmountable.

Currently and legalistically REDD is exclusively about "rainforests" within the tropical realms, and that is where its remit ends! The science of the interaction of climate science with natural science does not stop at the latitude of the Tropics of Cancer and Capricorn. The paper I am presenting here is about the unity of life in our world but with a direction to the natural

environments **of all** tropical countries, including their association with local, native, and indigenous human communities who should be provided with international and legal constitutional rights to interpret control of these forests in a manner equivalent for their sustainable survival benefiting all humanity and all life. For the local human communities who live in such environs have evolved their own particular culture over many decades and for some societies this has continued to develop over centuries during their process of social and cultural evolution, which has provided them an improved purpose for life. My SEEBif Initiative integrates this as a fundamental and important part of this whole premise.

My hypothesis is also fundamental to its absolute association with our trees, for which in all environments, but notably those in our tropical realms actually undertake a fascinating "journey". They sequester and store carbon, comprise diverse plant organisms, are critical habitat for other organisms, (perhaps up to one thousand species per individual tree), provide ecosystem services (hydrology, soil conservation) including the oxygen we all breathe, have significant ancillary socio-economic benefits, impart and support cultural and spiritual meaning, and options for future generations to sustain themselves. And they play a role in helping ameliorate climate chaos. (And yet to our "casino economists" whose only remit is to assimilate the money making commissions, to them trees only acting as a trading mechanism during the process of sequestering and storing carbon)...Trees undertake this function insuperably, better than any other groups of living organisms. It is a shame such "casino economists" cannot relate to the beautiful poem which really opens the hearts of any one who really listens to the music in their souls, by Alfred Joyce-Kilmer.

*"I think that I shall never see
A poem lovely as a tree".....
A tree whose hungry mouth is prest
Against the sweet earth's flowing breast
A tree that looks at God all day
And lifts her leafy arms to pray*

*A tree that may in summer wear
A nest of robins in her hair,
Upon whose bosom snow has lain,
Who intimately lives in rain
Poems are made by fools like me,
But only God can make a tree"*

For we western protagonists trees aspire us to our highest emotional intellect. If we were here to discuss their values we have only to attend the hundreds of local planning committees on application for their removal, to understand the fight we would be up against, especially if we were a developer! However our understanding of trees is miniscule compared to indigenous and native peoples globally. For the Dayak on Borneo, the Surui in the Brazilian State of Rondonia, the Kuna in the Choco Forests of Panama and Colombia and the Baka of Cameroon, Central Africa...(to number a few out of the thousands globally), for they are the true masters of their tropical forest and therefore, our biodiversity universe. For we in the "carbon polluting nations of the world", do not in our widest acceptance of known wisdom have a level of knowledge and understanding to which these folk possess in helping to reverse and stabilise our current ecological and climate chaos due to **our selfishness we have promoted most particularly in the last sixty years.**

....."And yes our so called love for trees and forests has significance, the symbolism and the substantive significance – of planting a tree has universal power in every culture and every society on Earth, and it is a way for individual men, women and children to participate in creating solutions for the environmental crisis.".....

Al Gore, "Earth in the Balance"

I therefore **declare that awareness and then to understand** is at the very heart of the title of this paper.

“Though REDD can take many forms, the key idea is that businesses or governments in wealthy countries compensate those in the developing world for preserving their forests, either by paying into a fund or by purchasing credits on carbon markets” (Ref 5).

This is the traditional and might it be said the conservative view. But this begs the question if we are part of the global society which has created the conditions for the climate chaos then we as a society should be responsible each for our own response. We make up “businesses” and “form governments”....it is we, especially those of us who as individuals emit over three tonnes of carbon annually into the biosphere, should be responsible for constructive proaction to halt this situation. We should be taking on this financial responsibility collectively and also deciding how this money should not only be disbursed, but by how much and to whom..... And let us not get faint hearted about our financial responsibilities either, for it was less than six months ago that our own UK Government decided to support the “casino economic banking system” with **our** money (now and in the future) of a mere £1.30 trillion...and yes you did hear correctly (Ref 12). So if we as a society in this country and across the say G20 countries are made aware of our responsibilities what sum of money or finances would we have to raise to support the SEEBif Initiative? Well actually not a lot in reality in comparison to the alternative consequences of inaction.

The Stern Review Report published in October 2006 suggested that 1% of global GDP should be used to counter the tragedy of devastating climate change (Ref 13). In consideration of the fact that at least 18% of climate change is due to the deforestation process in the tropics it is only logical and with equity being a constant in this whole argument, that insurance funding equivalent to this level should be directed to the REDD process of the same level of support on an annual basis. So what would be 18% of the 1% of global gross domestic product, (GGDP) of US\$60 trillion per annum (Ref 14). The 18% figure as given equates to approximately US\$108 billion (pa) for funding an equivalent to the annual REDD programme for which my Initiative describes in this paper. **In reality this is less than £GB 0.40p or US\$0.65c per week for each person who is a citizen of our G20 countries.** Or as my oldest son made comment...“H’mmm, our world or a Ginger Bread Man every week!!”

Is this an equitable assessment? Some visionaries have reflected that this sum as aforementioned is completely derisory and as such this may have to be revised to realise the truth behind the financial prerogative of the Initiative. It has not been raised as an important financial incentive package to date but we must now remember that this Initiative is evolving and if ignored and conditions on our biosphere worsen then an equivalent, but an increasing and **more realistic sum will be needed and have to be raised.** (Ref 14b). In order to ascertain this reality we can now compare it briefly this to the comparison to what our, “casino economists” suggest as a fair payment for carbon for every tonne (metric) sequestered and stored. Estimates vary depending upon where one seeks guidance. Two estimates come to light: US\$5 carbon per tonne (ct), (Ref 15) up to US\$117per ct. (Ref 16). Quite a variation. However just for convenience let us take the lower figure which was assessed on the so called EU carbon trading market on the 15th July 2009. The lower figure is

within the financial remit of those given by the Stern. So even by his Report there is some equity and equivalence.

Lest we forget the essence of this paper, for without which the actions of the renewable energy provided by our sun and its assimilation by chlorophyll in the grama and stroma within chloroplasts of the palisade layers of green plant leaves and associated organs, the metabolic pathways of photosynthesis provides the fundamental life for trees. Photosynthesis is the most important biochemical reaction in our biosphere and our green plants or autotrophic organisms, (especially, but not only, our phanerophytically structured higher spermatophyte organisms) produce on an annual basis across our terrestrial biomes of a total of **62.6 GtC. of Net Photosynthetic Primary Production, (NPPP) incremental on the total Net Photosynthetic Primary Biomass (NPPB) of 652 GtC** (Ref 1). **Tropical forests have a global distribution of 1.75 billion hectares, and a total carbon biomass mass (NPPB) of 340 GtC and a total Net Photosynthetic Primary Production (NPPP) of 21.9 GtC. On average every hectare of all tropical forests contains just less than 200 tonnes of carbon and produces on an annual rate an increment off 12.6 tonnes in each hectare. (The actual total NPPB and NPPP is double this figure)** (Ref 17). This equates to all the many biomes which comprise our tropical forests. (The total global agricultural-crop productivity accommodates only 4.0 PgC annually!)

All forests are conduits for the sequestration and storage of carbon as a sink into their own biostructures and for their assimilation into soils in the superior lithosphere. The tropical wetland and peatland soils notably in Amazonia and in particular in Insular South East Asia are noted as centres for amassed concentration of carbon in their soils of orders of magnitude above that stored as sinks in natural forest's biota (both above and below ground biomass) (Ref 18). However currently the storage and sinks that such soils provide, is of great concern for in the case of tropical forests, their associated soils are part of the biome and their loss is of very great disquiet particularly in view of the quantity of direct carbon emitting compounds released, including methane and other oxides of carbon. We have only to think of the smouldering rainforests on Sumatra and Borneo in 1997/8, 2002 and 2005 to realise the effect such nefarious fires had on the general population of all of South East Asia and the economic losses were equivalent to greater than U.K.'s proposed spending on the modernisation of the Trident Missile development!

The distribution of tropical forests in their respective biomes can be accessed particularly on the F.A.O and U.N.E.P – World Conservation Monitoring Centre (WCMC) websites which provide interpretive analysis of their distribution and status. In ecological terms the distribution of forests in the tropics is aligned with that of the NPPP of these biomes in the tropical regions. Ecology does indeed rule. The current extent of all tropical forests amounts to 2.6 billion hectares; 1.75 billion as aforementioned in addition to the 0.850 billion of available restored forest lands. (Ref 19, 26).

The causes of deforestation both global and in the tropical biomes and are allied with the causes of misdeed, and is a global phenomena. When a natural biome is given little value apart from its conversion to a product in the global market economy, then it will converted to an alternative land use, without thought of its actual natural and associated social capital value. Many advocates of the real value nature provides for humanity's existence, have accredited the value of natural biodiversity and ecosystem services attributable to tropical biomes as being equal to a minimum of 15% of the Global Gross Domestic Product (Ref 20).

This equates to greater than the 500% of the value of the current outsourcing of the commodity trade from all tropical forest nations in respect of their so called, "economic value" (Ref 20b). The theft of the "ownership of the natural forests which has been "carpet bagged" by the state oligarchs is the fundamental reason why this new Initiative has to be addressed from a "bottom up" (or an arising conceptual level approach) and **it is fundamental**. There are innumerable institutes of repute which will describe the causes, but F.A.O., U.N.E.P., W.C.M.C., and the independent Global Canopy Foundation and its scientific alliance with the Global Canopy Programme have detailed the main culprits and causes of deforestation (Ref 21).

So the next time you furnish your home or garden with rainforest and other tropical timbers of "reputable origin", eat beef, drink your soya or eat tofu, use an aluminium can and in particular consume 20% of products in your larder which contain industrially produced palm oil (and others) from Borneo or Sumatra, Amazonia or the Congo Basin, ("Congolia") it is due to the extirpation of these wonderful natural forests, whose natural value to saving our planet from, "climate burn" is beyond our imagination (Ref Appendix 2). By outsourcing these commodities of our desire, we are indirectly responsible why ownership of closed natural tropical forests are controlled by these tropical nation's government authorities, or "oligarchs" either at the local or central level, and their rule is often in the manner of an "iron-hand" level of despotic "statute". Beginning with "Fiefdom" attitude of the Suharto regime, the "Bob Hansen's" of East Kalimantan and the newly arisen illicit classes of Borneo; Barito Timbers exterminating life in the peatland rainforests and soil in West and Central Kalimantan, with their Oligarch colleagues across the border in Sarawak Malaysia. APP continues to advocate an extirpation of the peatland rainforests in Riau and Jambi Province in Sumatra, Indonesia; where Samling Timbers with those aforementioned have caused the extirpation of millions of hectares within and external to Malaysia and Indonesia, inclusive of the current slating of the frontier forests here and now also in West Papua, whilst completing the forest extermination process in West Africa, via Liberia and Sierra Leone.

Rainforests have always been undersold many times than their real value (Ref 22). Similar "oligarchs" also exist in Africa and Latin America but these persons are not particularly special, for in a real economic sense are "poorly educated". **They have devalued their rainforests natural and social capital to a level which defies logical imagination;** have caused the disappearance of hundreds if not thousands of local and international campaigners (including Bruno Manser) and even devalued their financial wealth of their bank accounts in Switzerland by a factor of unknown proportion, because of their indifference to ecological realities and the real financial value of these forests. This is "theft from the Community" and for them it is defines the meaning of absolute criminality!

Both Malaysia and Indonesia have **lost upwards of 90% of their income from the anachronistic and sunset economy of illegal "deforestation-logging"**. Such criminal syndicates are known to launder their illegal profits into Palm Oil developments which use the assets accrued by "natural asset stripping" of the real natural capital value of the forests which no longer exist, providing "concentration camp" industrial areas of destructive development (Ref 23). In contemporary times any new Palm Oil developments are being sponsored by foreign enterprises external to Indonesia, because the costs accrued from the deforestation products to fund the like are now becoming commercially extinct. There are no such high valued forests remaining, apart from those in the Heart of Borneo as aforementioned.

Ironically Indonesia as is the case of the majority of countries notably in continental and insular South East and Southern Asia have deforested themselves to economic chaos, yet at a time when their remaining natural forests will have a new role to play.

With respect this has to change, not only in SEAsia but throughout the tropics. Extirpation of these primary tropical forests in their entirety will come to fruition within seven years and this is why we need to re-establish an holistic model of development, for then and only then will the Initiative I am suggesting provide a role from which we and all life in our biosphere will benefit. This is the crux of my Initiative.

The Climate Conference in Copenhagen is to be the most important U.N conference ever to be convened and is scheduled for December 2009. However it is feared that the UNFCCC Conference of the Parties (COP) 15 convention will not address the climate chaos issue comprehensively unless it takes into serious consideration and acts impartially on the realities and fundamental concepts within my SEEBif Initiative.

The Initiative advocated in this paper contains **three fundamental realities**.

- That the **avoidance of deforestation** of natural forests has to become a natural phenomena and where the term "deforestation" has become an anachronism. (Ref 24).
 - The **sequestration and storage of carbon**. The NPPP within a particular tropical forest biome (and its variant associations) has to become a process of inevitable reality.
 - That for the substantial areas of degraded forests which occur there are opportunities for **promoting the dynamic-momentum for the restoration and succession to the full complement of future natural forests**.
- **Avoidance of deforestation.** The premise of this paper is to assimilate this very important function into the sequestration and storage process. Deforestation of primary or frontier forests is by far the most repugnant and nefarious act of biodiversity and ecological apocalypse. It has to STOP and do so NOW. This paper suggests choice achievable sustainable development support for communities to reserve such areas for natural processes alone (Ref 24). The main remit of this Initiative is to avoid deforestation and as such without this fundamental responsibility then the whole carbon amelioration project would be wrecked.

The biggest argument to resolve is the relationship of the quantity of carbon emitted during the deforestation and degradation (dad) process from all tropical forests in relationship to its value for carbon tonnage (ct) and the whole integrative processes within the SEEBif Initiative. The figures given that deforestation and forest degradation emit 18%-22% of the total carbon emissions, equating to approximately 1.5 GtC, (Ref 24), which is equivalent to direct extirpation of over 75,000kms² of tropical forests annually (Ref 32). Degradation factors increase this level by an additional 100% thereby increasing such a carbon based source by an additional 1.0-1.5GtC. Using this data, **upwards of 3.0GtC** originates from the deforestation and degradation process in the

tropical realms; total sources from all realms in our biosphere **could increase this figure to one half of all the anthropogenic carbon based sources** emitted annually. In light of this those countries that show responsibility by not deforesting would benefit from such an interpretation of financial support in my Initiative, for the avoidance of deforestation would relate to the quantity of carbon stored in the forests. Therefore as the forests would be permanent structures to continually sequester and store carbon in their respective communities and associations there would be a direct link with my second and third fundamental realities advocated herein.

- **Sequestration and Storage of carbon NPPP.** This is one of the main fundamental parameters for the implementation of this newly developing SEEBif Initiative. When an international agreement is made for the level of a carbon levy, as aforementioned, it can be constituted into international law, and then we will come to know and be thankful that we have at last taken our responsibilities seriously, in respect of this Initiative. By conferring on the natural forests therein a legally binding level of financial support for each carbon tonne (ct) sequestered and stored as a "sink" the initial and one fundamental practise of this Initiative will be activated. It must be realised that this financial protocol will be associated with the other prerequisites this paper is representing and as such tropical nations will benefit by further additional activities as will be expressed. This method is fair and equitable and should be taken as a serious means in helping to resolve the financial needs of those nations currently involved in the outsourcing of commodity products which from their acquisition have caused the massive deforestation initially. For in reality **this** element of the Initiative is basically about carbon sequestration and storage and there are few regions in tropical nations which do not sequester and store carbon in their natural forests.

This Initiative will provide a re-adjustment to include all forests of the tropics, because all trees sequester and store carbon. (This is a reality which the current REDD programme fails to incorporate.) This should gain interest for almost a billion people who would otherwise be excluded and that in itself is offensive!

- **Restoration of degraded forests.** Throughout the tropical nations of our planet there are between 800-900 million hectares of degraded forest lands (Ref 25). This land has the opportunity of being returned to natural forests **and** for some form of equivalent land use for local communities. (Ref 26) Tropical landscapes should furnish contiguous natural forest interspersed with areas to provide for human development goals which are within the social capital remit of choice achievable sustainable development models. This is axiomatic. Funding for natural forest expansion in such regions would be financed within the new remit of this paper inclusive of the carbon input levy which can be guaranteed against the quantity of carbon sequestered and stored in both the natural forests and accompanying soils. Incremental financial facilities would occur on an annual basis as the restoration process expands in line with natural succession and restorative biodiversity programmes. These would be initiated across local and regional tropical landscapes to implement the SEEBIF Initiative through relevant choice achievable sustainable development models.

In consideration that 18-22% of climate change is due to the deforestation process in the tropical (and sub tropical environment), it is only logical and with equity being a constant

in this whole argument, then an **insurance protocol funding**, (as described and aforementioned above,) equivalent to this level of input should be directed to a **Socio-Ecological-Ecosystem-Biodiversity insurance finance Initiative, namely the SEEBif Initiative** which has a structured equity framework.

The Social–Ecological- Ecosystem–Biodiversity–Insurance–Finance, the SEEBif Initiative.

- The term, **Social (S) Capital** is used with an integrative inference because of the cultural evaluation of its meaning to the societies in which the Initiative will be focused. The description of Human and Social Capital has for the vast majority of local societies in the tropical forest countries no strict delineation, compared to the same differences which exist in a more mechanistic meaning from a western viewpoint. (Ref 26b). However this Initiative will provide for them a fundamental right, as both human and social (or community capital), to gain a certain level of income, based on a concept of a choice achievable and a sustainable use of their natural capital of the biodiversity, in association with the ecological and ecosystem services which interplay holistically in the local communities which would be supported by a new, incorporated and pragmatic legal constitutional reality. For this Initiative to come to fruition we will use our common insuperable abilities to negotiate, cooperate, and interact with the known ecological, ecosystem and biodiversity scientific methodologies in relationship to our understanding of a constructive and conclusive integrative interpretation with climate science. This interaction must play a complete holistic role in order to make this Initiative become a serious paradigm shift in our relationship to this whole situation.

The human communities within and surrounding these great panoplies of nature require our admiration and not platitudes by disallowing centralised oligarchs of any tier of government fundamental executive control. The SEEBIF Initiative can resolve this process and control the anachronistic input of such Government Oligarchs irrespective of their level of hierarchy. Out of respect, all hierarchal tiers of Government should be part of this initiative: they should be “shared stakeholder” partners **BUT with the direct executive governing statute attributable to community councils with an observer from the SEEBif country executive.** The regional and national government attendees should be official observers with non executive powers and be inclusive of a UNFCCC/UNEP/UNCOB team. The big fear is the lack of revenue which the anachronistic REDD programme directs funding to local and central governments directly. In the case of SEEBif local and national governments **will legitimately receive their income but by the normal routes of democratic revenue methods!** Only then will the **pragmatism of this Initiative be overwhelming**, in the same manner of interpretation which has to come into being within the U.K. with the supportive legal framework of the Sustainable Communities Act. (Ref 30b). For it will be completely axiomatic that the outcome will be choice achievable sustainable development, something our own society could follow in their constructive shadow!

- The overriding capital value of our tropical forests, as with all biomes of our biosphere, relates directly with the capital in nature or to put into the more appropriately used description, the **Natural Capital** value. The natural capital value holistically incorporates that of the **ecological** and **ecosystem services** interacting with the

natural biodiversity heritage. For in the natural forests of the tropics, in providing a “**natural Ecological**”- (**Ec**) and “**integrated Ecosystem**” - (**Es**) services of an unequalled complexity the forests themselves are embraced with a level of **biodiversity (B)**. The Initiative is revolutionary in that the secondary indirect effects are virtually beyond our imagination in its level of importance to promote a paradigm change. (Ref 20). Many others including my colleagues at the Green Economic institute believe that the natural capital of our tropical forests is currently undervalued by a fact of twenty! (Ref 20b)

- The **(B) Biodiversity, in all our tropical forest biomes is of an unparalleled prominence**, (Ref 1, 20, 20b) and provides all the natural living capital “wealth” of living organisms which provide an ecological link, (**Ec**) of the an insuperable level of integrativeness. Until now this inter-relationship **has not been valued holistically**, (Ref 20, 20b, 27). The living organisms, as stated within SEEBIF have been the cause celebre for a innumerable number of good hearted wildlife conservation bodies which have been associated with literally fighting a, “ regard action” for nearly fifty years (cf Appendix 1). Such organisations have informed and educated three generations of individuals around our world and very few have not heard of the major players but alas although attempting a “fortress firewall” they are and will continue to be unsuccessful in their laudable efforts on our behalf. However with an **holistic revaluation** of the natural capital containing our biodiversity, the paradigm shift favours our living organisms and the organisations that at last can reclaim the moral high ground because we now know that they were and still are correct in protecting them for their unconditional value, be it biological, spiritual or utilitarian. (Ref 20, 20b, 28). The significance of **(B)**, as part of the natural capital cannot be assessed exactly at present until further biodiversity and synecological evaluations are considered. In reality and unfortunately this will take an inordinate amount of time to assess together with a paradigm shift of our communal attitudes to actual real natural value including that of the financial, of tropical forests.

It is intended that **with the inclusive arguments presented in this paper and the global broadcasting of the value of this Initiative, such actions will promote the essential momentum for change which has been necessary but not forthcoming during the last sixty years**. The only undervalued input is the comparable value of the carbon which has been under assessed by a factor of five at a minimum, upwards to one hundred! When the scientific rationale of identifying the biodiversity and the ecological and ecosystem service values in all our tropical forests are provided with a quantifiable assessment which is **only** based currently on the price of carbon tonnage sequestered and stored, then in reality the absolute importance of the biodiversity of these forests, which has been assessed as at least one half of all the biodiversity in all biomes on our planet. Therefore their true value can be hypothesised as to be one half the total value of the natural capital present throughout the entire biosphere. (Ref 20, 20b). What makes this Initiative exciting is that it will open up a paradigm dimension of scientific and social study investigation of so huge a magnitude it will make past previous enquiries into the nature of ecological, biodiversity and human social systems in tropical landscapes pale into insignificance!

- The SEEBif process will be providing an **Insurance (i)** in maintaining the natural and social capital within these forest of our tropical forest biomes; the social capital of local communities will bring a new and conceptual meaning to meeting human development

goals, through choice achievable and realistic sustainable development methods. For every year that the forest's natural cover and the **B** and **Ec** and **Es** parameters are perpetually maintained, the levels of carbon storage will increase, thereby increasing the level of funding as given below in (**f**). Again this is an exciting situation as the funding will not only provide the sustainable continuity of the Initiative but will lead to greater development goals being completed for reasons of greater international cooperation and commitment with an integrated purpose.

- The method of **Financing (f)**. A carbon levy will be provided with a pragmatic and equitable means to address deforestation in the tropical nations of our biosphere. This currently amounts to a global total of US\$ 109.5 billion per annum; equating this to less than US\$0.65c per week for each citizen in all G20 countries, but legitimised to a sliding scale of payment which is dependent on an individual's income. (The little you have the less you pay; the more you have the more you pay; exact criteria will be analysed to ensure absolute equity). SEEBif will be able not only to maintain but also expand the pragmatic reality of ensuring that the biodiversity within our tropical forests will be of a permanent nature. Nature can really succeed in both an ecological manner and for the sake of life's "intergenerational children". A conceptual shift of allowing us an insuperable understanding of the BRA acronym will provide a glimmer of hope initially, for our common survival, if we really seek an inhabitable and biodiverse world.

Financing the Initiative as given will promote all aspects of, "Avoidance of deforestation", "Sequestration and Storage of carbon", and the, "Restoration of natural forests within tropical landscapes"; the end result will be a paradigm of progress for humanity and all life across the tropical regions (and far beyond) including helping ameliorate the impending climate chaos

Integrating these three fundamental realities into SEEBif will hopefully begin to resolve some crucial questions which have been asked in relationship to the whole development process in tropical forest countries. And shamefully they have been answered in the following ways:

- The tragedy of social and economic disharmony, civil and international wars.
- The unparalleled levels of the extirpation of the vast array of the incumbent biodiversity.
- The ecological obliteration of natural systems of an unequalled intensity in most tropical forest landscapes.

One fundamental reason why these "results" have occurred is due to using the highest conceptual level or top down approach argument **which to all intent and purposes has failed to address the so called development process, and has failed miserably.** However we must not confuse such failures with all the wonderful and empathetic input which the United Nation's operational organisations, and the myriad of magnificently motivated Non Governmental Organisations (NGOs), to the compassion provided by international charities which have afforded such pragmatic help to alleviate poverty and deter ecological devastation. Sadly the current "result" is axiomatic.

My SEEBif Initiative will not be able to answer all the concerns in the tropical regions but it can offer a new and fundamental foundation which can be enacted both morally and legally by all humanity because of the direct threat "climate chaos" will burden us all in every biome with looming catastrophes. This I am sad to say is the reality which will make all our lives,

"hell on earth"... We have to address this ultimate serious issue, and address it we must **NOW**. The only fundamental reality as not mentioned is the fourth reality...time. **Time**, (with the natural capital) is unfortunately the most valuable commodity in respect to the action required. For 84 months is not a long period of time in which to act in line with the objectives of this Initiative.

This Initiative can make a paradigm shift in both **attitudes and outcomes** for all tropical forest nations. Indonesia again, exhibits conflicting ideologies in its relationship to its own natural forests, as it is also the new "big boy" promoter of industrial biofuels (industrially produced agri-palm oil) which is causing great alarm, particularly as much of central Sumatra has been devastated by such plantation philosophies especially in Riau and Jambi provinces and now in various provinces of Kalimantan, Borneo where up ten percent of the remaining natural forests are intending to be slated for this insidious crop. (Ref 32). However hope may be on the horizon and will be shown that such a destructive philosophy to natural forests occurs in this instance in the form of the SEEBIF Initiative. With the global concern which forests of Indonesia are being converted to agri-palm oil plantations, it is now the time to broadcast the reality that such an insidious crop is not needed **because the value of standing primary closed tropical forests is actually higher than the production of industrially produced agri-palm oil.** (Ref 22). This reality is similar for tropical forest nations as a whole when comparing the outsourcing of so called commodities of seemingly limited natural capital values. This alone is one fundamental shift into realising the true reality of the objective of this Initiative.

So now we can envisage a conceptual shift in the manner by which we can help over 25% of all "our family" of 1.6 billion human beings, (60 million being native peoples) using the SEEBIF process. But will it be observed just as another Initiative with a liberal approach to Overseas or International funding to recompense the so called "backward, poor and destitute people" of tropical forest countries who continue to deforest for, "fibre, fuel wood, fabric materials, and food space"? For until now "progress" has been directed by ill perceived and unsustainable models of development devised by the "top down-casino economists" of the National Governments and Corporate Boardrooms in the country capitals of the G20 group of nations. So **the answer to this question is a deep-seated NO! These forests are providing an unparalleled material service** which to date has been completely ignored and has led to the nefarious activities which have accrued to their demise, particularly over the last 60 years.

In saying this we can seek the truth about life in tropical nations, notably on Kalimantan, Borneo. I could not continue without paraphrasing from the article in National Geographic of November 2008 (Ref 33).

"If you want the "red man and the little grey hairy man" (this means the Orang-utan and the one species of Grey Gibbon et al) of the forest to remain alive, then pay us to look after the forest, so that we can live well, I can buy my little motorbike, a mobile phone, afford to get married and for me to be able to hunt our wild pigs....plenty of forests = plenty of pigs and space for all wildlife!"

What this local resident, Pak Yang of the Barito Dayaks in Central Province, Kalimantan in Borneo was requesting was the same as the Penan, Punan, Kenyah and Iban Dayaks; each group serving their own form of self reliance in relationship to their cultural and economic needs, for themselves, their community and reinstating their human and development rights from the denigrating market economy whose sole purpose is to use their families and themselves, and all in their communities as economic hostages of the old guard of "Oligarch control" so embracing in these countries. This similar reality could be the same across all nations which are blessed with tropical forests. (Appendix 4).

It is so difficult for us here in this resplendent University to really appreciate the adversity which these members of our human family have suffered owing to the anachronistically irrelevant economic models of development. The SEEBif Initiative will provide an opportunity for the loosening of this nefarious grip. This new self reliance will be a resurrecting release for these wonderful people. A **dynamic SEEBif Initiative** can gain for them a new realisation of both self respect and self determination which has so far eluded them, not only on the outer islands as mentioned of Sumatra and Borneo but also, and in particularly on West Papua...the new apocalyptic outer isle of biodiversity and ecological armageddon due to the Centralised Oligarchs of Jakarta, to the plethora of indigenous and cablocas communities in Latin America and native groups and peoples in throughout tropical Africa.

Indeed my Initiative will bring hope to the local communities throughout the 69 tropical countries who are our partner-guardians of the 1.75 billion hectares of tropical forests and the 800-900 million hectares of degraded forest lands which could be made available as restored natural forests across these tropical landscapes and integrated areas of human goal sustainable development based on choice achievable community methods.

Now is the time to **unify our philosophical development differences** irrespective of our background or singular support. At UNFCCC-COP 15 gathering in four months time, there has to be a no recycling of the "Usual Suspects" of inertia which guided and weighed down its predecessor protocol, namely Kyoto 1. Administrative protocols have to be redesigned. For if **we really believe that the normal routes of development accomplishment will give a real momentum to change, I feel we are all sadly mistaken (Ref 5, 31).**

We must therefore ask this fundamental question is 97% of "our" human family guided by our inertia. **Because all the knowledge in the world without being responsibly aware of its reality is worthless.** Have we really failed "Our Common Family" or are we who are now in the know, going to act on our awareness. In effect, it is we as knowledgeable individuals who are going to have to **barrage with factual scientific, accepted and popular truths to the media centres of Central and Local Governments and Community Council's across our world, harry the one million global NGO's who would support my Initiative, deluge the global news broadcasting organisations and demand on behalf of us all that this Initiative, as a singular protocol, be assimilated into popular global culture as an assurance for the perpetuity of us all and our tropical forests.** The "domino" affect will be remarkable. It sounds a daunting task but it is not. In the event it will be as we are speaking with our neighbours and passing on this information as of a "Chinese Whisper"....from which literally miracles can happen. Therefore my **Initiative** (unlike the REDD programme)....**is not just a service based on a monetary value of carbon....but it is also a medium for our awareness of a deeper meaning of the**

values we all hold and may open us all to a new sense of being human. And the Initiative will naturally provide the basis for an improved way of life for those communities who have suffered in ways we cannot in our deepest nightmares comprehend. This would never have happened if we had **truly valued their natural and human-social capital of their forests properly and at an earlier time** (Ref 29, 30 and 30b).

To all our human family in local communities across tropical nations I would like to apologise on behalf of us all in the “carbon excessive polluting world”. We now have to become truly responsible human beings and be prepared to redress our past mistakes and to begin urgently to promote the SEEBif Initiative (and the BRA-acronym), by taking positive and direct action on using the natural capital of our planet in a wise and constructive manner. This is as much a soul seeking change in the way we see ourselves as one human family as it is in promoting a long term self awareness of our global responsibilities.

This whole structured but personal paper comes back to my original belief. For as I walk pass this little woodland today, I marvel at how our community stood together to save something which is special for us. For if we value anything which we love then we make an effort to really care and nurture it. This little oak seedling I hold up before you is testament to this reality. “Our” real values for our forests, and I mean all of us including those who we will entrust to steward the tropical forests of our planet, must be based on a nurturing value and one which they know has been bestowed on them by all of us **who are to provide them with not just an income but self realisation that they are our partners on our planet and are acting on our behalf. Their actions provide a benefit for us all.**

This is the whole crux of this paradigm programme and it has to be made to work; there is **no alternative to the deforestation process unless there is a paradigm shift in psychological philosophy towards the overall concepts as advanced in this paper.**

For the time is up for the majority of our forest biodiversity and human communities in the tropics. **The “social, biodiversity, ecological and ecosystem service-armageddon express” must never reach the precipice from which there’s no return.....we** owe it not only to our children to stop this apocalypse but also to reverse it for their sake and for the sake of our ancestors who with an assimilation of the knowledge we now possess would have never wanted this catastrophe to come to fruition!

What I have advocated in this paper is just a small “shoot” of an idea which has relevance and I hope that others will see the sense of both the pragmatism and sincerity from which these ideas were generated. I would like to believe what the great visionary Paul Erhlich expressed about planetary issues, over twenty years ago on which this paper declares,

“We have to act with imagination and courage; imagination to think in all ways of the fundamental and practical meaning of ecology and to have the courage to act upon the implications.”together as one compassionate human family!

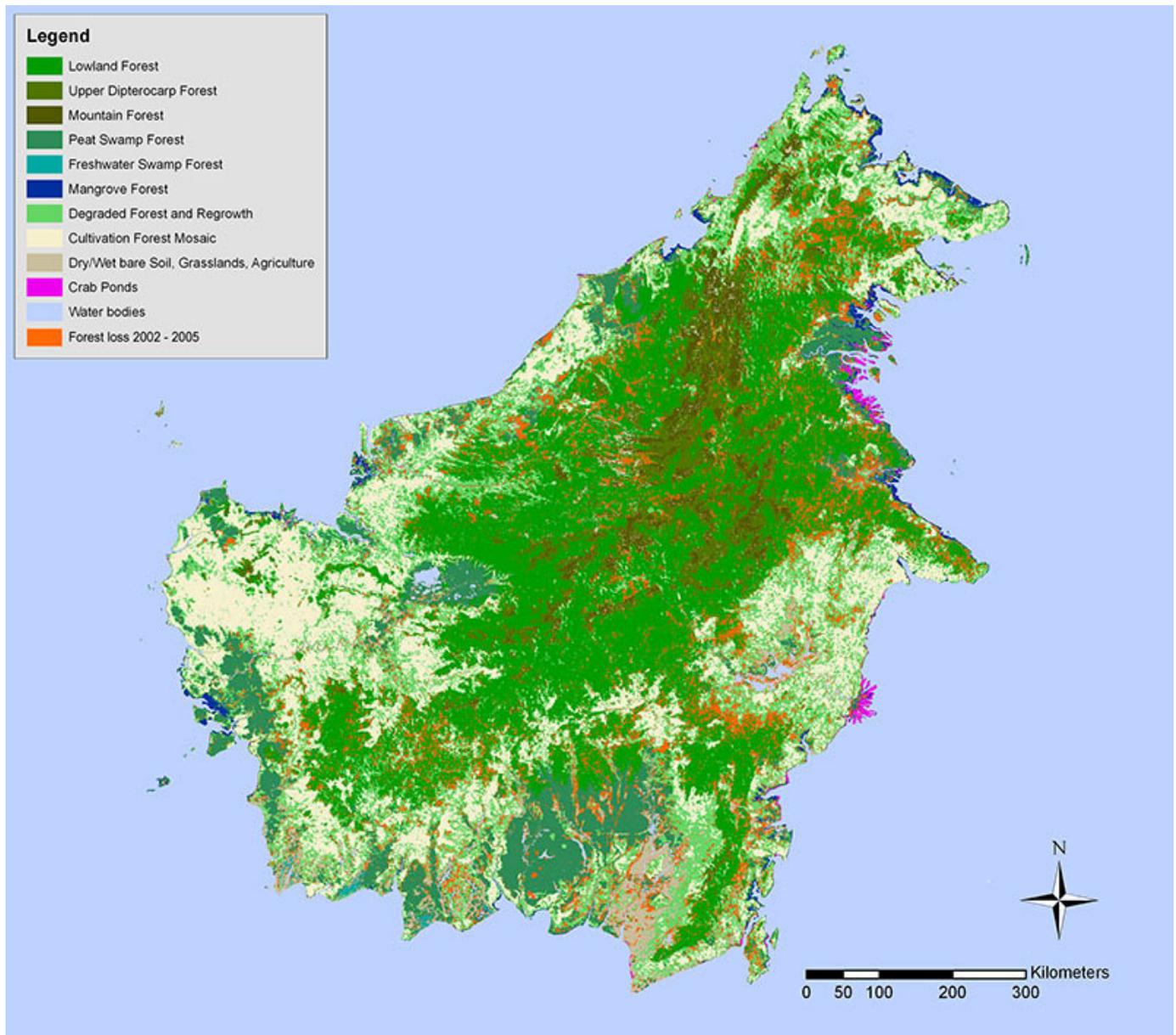
Thank you.

(This paper contains 11,541 words)

Appendix 1

Reference: Borneo- REDD.....Realism for SEEBif!

Borneo: "Treasure Island at Risk". **Recent land-cover condition of Borneo: 2007**



Reference: Langner A, Miettinen J and Siegert F. 2007. Land cover change 2002-2005 in Borneo and the role of fire derived from MODIS imagery. *Global Chang Biol* 13: 2329-40. [Land cover types were classified based on SPOT VEGETATION (2002) MODIS (2002) with 250m resolution]

Reference: Kanehiro Katakana 2008 – "Risks and Co-benefits of Biodiversity Conservation in REDD: Suggestions based on a Case Study in Bornean Rain Forests" Centre for Ecological Research, Kyoto University, Japan Voluntary Paper Submitted a MEETING OF THE AD HOC TECHNICAL EXPERT GROUP ON BIODIVERSITY AND CLIMATE CHANGE First Meeting, London, United Kingdom of Great Britain and Northern Ireland 17–21 November.

Appendix 2

Deforestation.... a synopsis

In reality this has only occurred because of the lack of vision of any realistic natural and social-human capital valuation of the forests themselves. Currently all oligarchs of centralised governance are liquidating their forests at a value for which they are.... "clueless".

The outsourcing of all commodities from our tropical forests comes at a price. For in less than 84 months the last ancient, frontier, or primary forests anywhere in the tropical biomes will be extirpated...forever. Millions of commentators globally describe this as a crime against the biosphere and against any emotional and rational thought. Only now can it be stated that this Initiative values and seeks to enact such legitimate concerns.

Be it for any commodity; timber from illegal sunset "deforestation logging", for the highly subsidised agri-industrial soya, beef or palm oil industry or more...it matters little when we consider that unless we have a paradigm change in our philosophy to forests being of greater value alive than dead through the SEEBif Initiative, then all will be for nothing.

The destructive conversion of carbon from material structure of forests to its atmospheric gaseous form accounts for the **equivalent loss of NPPB of 1.5Gtc-3GtC**, from a minimum of 75,000 kms² of outright deforestation to 150,000 kms² to include degradation, within tropical landscapes annually.

Appendix 3.

Towards a Radical Initiative.....SEEBif synopsis

Three fundamental factors for this to become a pragmatic reality.

- **Avoidance of deforestation and degradation: unquestionable.**
- **Sequestration and storage: without which this Initiative is worthless.**
- **Restoration: over the 800-900 million hectares of tropical landscapes available.**

Social..... the person, the family, the community...the human and social capital value which is the essence of the human interaction with their natural capital where they live and for their own choice achievable sustainable development needs.

Ecological..... it begins with the fungi/mycorrhizal associations... without which there are neither trees nor forest; part of the natural capital.

Ecosystem..... "its raining"; all non but interactive parameters which together affect the ecological biodiversity and is part of the natural capital.

Biodiversity... the natural capital.

Insurance.....will ensure continuous financial input to allow acceptable forms of choice sustainable development models to guarantee the permanence of the SEEBIF Initiative

Finance.....a fair "carbon levy", equivalent to less than US\$ 0.65c per person per week from G 20 nations; an equitable sliding scale of payment per capita.

Appendix 4.

Local communities within 69 nations which will receive financial benefit for choice achievable sustainable development from the SEEBif Initiative.

Regions.

Countries.

Latin America: Mexico, Guatemala, Belize, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Cuba, Jamaica, the Islands of the Caribbean, Colombia, Venezuela, Guyana, Suriname, French Guiana, Peru, Ecuador, Brazil, Paraguay, Argentina. (21 nations, including French Guiana which politically is a province of France)

Africa: Benin, Sierra Leone, Liberia, Guinea, Guinea Faso, Ghana, Senegal, Gambia, Cote Ivoire, Nigeria, Chad, Mali, Cameroon, Central African Republic, Gabon, Congo, Democratic Republic of Congo, Sudan, Ethiopia, Somalia, Kenya, Uganda, Tanzania, Mozambique, Malagasy Republic, Zambia, Angola, Zimbabwe, Namibia, Botswana, the Republic of South Africa. (31 nations.)

Asia-Pacific: Republic of India, Nepal, Bhutan, Bangladesh, Myanmar, Thailand, Laos, Cambodia, Vietnam, China, Malaysia, Indonesia, (et al including East Timor, and West Papua), Papua New Guinea, Solomon Islands, Pacific Republics. (17 nations.)

Appendix 5. **SEEBif Operational Costs: effective cost of sequestering and storing 21.9 Gigatonnes of carbon per annum at US\$5.00 per ct, equates to US\$ 109.50 billion.** This is an **absolute minimum figure** and represents only a carbon levy of US\$0.65 each week per capita from G20 nations. This corroborates with the Stern Review Report Funding of approximately US\$108-110 billion pa.

Appendix 6. **Regaining 350.** The IPCC have declared that humanity must reduce the current level of carbon dioxide (as carbon) in our atmosphere by 40ppm from the current 390ppm to 350ppm to prevent climate chaos. There is a need to "sink" an additional 30GtC from the atmosphere into the biota. This can be achieved by endorsing the current proposals presented from the SEEBif Initiative in association with other holistic and pragmatic methods. A full explanation is available on request from the author.

Appendix 7. **Extended information.** There will be made available a lengthy thesis on the SEEBif Initiative which will be part of a course of higher educational study. A resume of this including the full factual and statistical analysis of details in its support will be made available for summary publication as a licensed document and will be made accessible to any person or organisation on request.

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