ACTIVE R.E.M.E.D.Y LTD

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Active Remedy Ltd. is a not for profit limited Company which has been primarily established to address the environmental problems related to the imbalances of Earths' Fresh Water and Cooling Systems. Our purpose is to gain a greater understanding of these problems and to offer a potential solution for resolving them. This potential solution is intended as a Global Remedy, to help mitigate the effects of disasters brought about by 'Climate Change' and to help bring about and safeguard, a long-term sustainable future for all life on Earth.

In 1992 at the United Nations Conference on the 'Environment and Development' it was agreed that the protection of the environment and social and economic development are fundamental to sustainable development and that long-term sustainability is dependent upon the health of Earth's natural environments. When considering long-term sustainability, Earth's fresh water system is one of the most important issues that need to be addressed. This is because fresh water is fundamental for all life, regardless of species, culture or economic status.

Earth' fresh water system is naturally a regenerating system and given the right conditions and ingredients, of varied forest plants it can provide enough water for all, continuously. Surely it is better that we work together to help nature regenerate the global fresh water system through concerted, connected mountain reforestation and by stopping all mountain area deforestation than through any quick fix ideas.

In considering Earth's Fresh Water System, it is vital to think about Mountain Regions.

"Mountain regions cover approximately 25% of the Earths' land surface and source most of the Earths' fresh water repositories" (U.N General Assembly 29/9/05).

"They are the primary sources for the Earth's supply of fresh water. They provide critical storage of fresh water, stored in the form of ice and snow and in lakes, wetlands and reservoirs. This water is later released, providing critical flows to rivers and streams. Many streams and rivers would cease to flow entirely if their headwaters did not supply this delayed flow. Such valuable storage of fresh water is vital for all life on Earth. All of the world's rivers originate in the Mountains and flow to the oceans, sustaining the life of all beings, in all ways of life here on Earth." (United Nations, Agenda 21,1992)

Great rivers such as the Ganges, which is sourced up in the high Himalayas, provides the fresh water for millions of beings. If its source waters dry up with the melting of its glacier, millions in India and Asia will die.

It has also been proven that the ice and snow on the high Himalayas regulate the climate for the entire Northern hemisphere. Hence wherever we live in the Northern hemisphere the great glaciers of the Himalayas affect our environments.
Likewise the Andes affect the Southern hemisphere. These glaciers are melting and not being replenished as fast as they should be. We all therefore need to pay some attention to this situation for the well being of our families and all life on Earth.
In mountain regions cloud forests are particularly valuable for their capture of water that is combed from mists and moving clouds. They are also of immense importance in maintaining a steady supply of fresh water to all the lowlands and downstream areas (Hamilton, L.S. 1996). These high altitude forests, through the action of precipitation and transpiration, are also responsible for the creation of mountain snow *(*Bandyopadhyay, J. 1995).

Precipitation is the process by which water molecules (H_2O) in the air form rain and snow and fall to Earth. This occurs in relation to a combination of different factors, particularly when plants and trees are present, especially deciduous species. Deciduous trees such as oak release large amounts of a powerful hydrocarbon, known as isoprene into the atmosphere., Isoprene breaks down into a compound called dihydroxypoxide. This is very reactive and forms multitudes of bio-aerosols. These act like a vacuum cleaner of the atmosphere and are an essential factor in cloud formation (F. Paulot, J. D. Crounse, H. G. Kjaergaard, A. Kürten, J. M. St. Clair, J. H. Seinfeld, P. O. Wennberg, 'Unexpected epoxide formation in the gas-phase photooxidation of isoprene', *Science* 325, 730-733 (2009). It is possible that the formation of clouds at high altitudes would not be possible without them. Even young oak trees produce this chemical and it is very interesting that the oak species is one of the main indigenous plants of the Himalayas. However, because it is slow growing and quite fragile when young, it needs the support of numerous other plants and trees to be able to take root and survive; especially in present seriously eroded areas.

Another factor in precipitation is known as ice nucleation, whereby bacteria produced by plants and which live on the leaves of plants are blown into the atmosphere. These form the nuclei seeds around which ice crystals form. Snow and most rain begins with the formation of ice in clouds (C.E. Morris, D.G. Georga Kopoulos, D.C. Sands).

As mountain forests disappear there is less precipitation and transpiration, hence less snow and rain at high altitudes is made, land drains more quickly and soil temperatures rise.

"Despite all of the great benefits that mountain forests provide they have been disappearing at a startling rate in the last decade."
(Bishkek, Global Mountain Summit, 2002)

According to a group called Mountain Forum only 25% of the Earth's indigenous mountain forest is still intact. This implies that 75% is missing. This is proving to be very dangerous to global stability and undermines all long-term sustainability and development. It is an enormous loss and surely adds to the problems of global warming; considering that these forests are the natural mechanism, which would normally be making the mountain snows. Mountain snows are important for keeping Earth's climates regular. Nowadays there is an enormous reduction in mountain snows and glaciers worldwide. This is highly exacerbating the problems of 'Global Warming'. These snows normally act like a mirror reflecting certain solar radiation.

As they melt, the mirror thins and more solar rays penetrate through to Earth's Polar regions,, thus increasing the heat on Earth and threatening many with raised water levels. Also, when this ice melts, it increases the quantity of water vapor in the atmosphere.

Water vapor (H_2O) is a very powerful greenhouse gas, which normally stays in the atmosphere for no more than nine days. However if it is not brought to Earth through precipitation, it rises into the upper atmosphere and increases the problems of the green-house effect and Global Warming (Santer 2007). To reduce this problem and to stop it from escalating, certain indigenous, high precipitating, fast growing plants need to be planted throughout mountain regions as soon as possible,

The stability of Earth's rivers and water tables depends upon maintaining the integrity of watersheds. These, in turn, depend upon the healthy biodiversity of the high altitude forests. It has been recognized that the protective function of stable forest cover is vital for the safeguarding of mountainous settlements and infrastructure *(U.N 1995).* The root systems of indigenous mountain forests are also responsible for channeling fresh water into the underground aquifers and water tables. If they are not present this necessary action cannot take place and springs and wells thousands of kilometers distant from them, dry up and disappear.

Nowadays with so many of these great mountain region forests seriously depleted and still being cut, we are losing precious soils, as without them, there is nothing to protect the mountain slopes from erosion. Great devastation occurs as the streams and rivers fill with rocks and silt and flood the lands below. This causes massive flooding in some areas and extreme drought in others. This situation threatens all sustainable development and hence all of life on Earth. Fresh waters from rivers finally feed into and clean the oceans. Without a steady flow of clean fresh water the oceans become too high in salts and become too imbalanced to adequately support marine life.

This is a global problem that affects all life, so it needs to be addressed and remedied without much further delay. Any action that is taken needs to involve all levels of society. Co-operation between groups is necessary to enable the long-term sustainability and effectiveness of an endeavor of this magnitude and importance. Thus it needs to involve governments, scientists and equally importantly, the local people and rural grass-root communities. The involvement of mountain communities is absolutely fundamental. Therefore, the methods used to address this critical situation needs to fit with the requirements and traditions of these different social groups.

In consideration of this we have looked at how these communities have traditionally preserved their environments through cultural and religious practices. One of these, that has proven to be particularly effective is that of designating specific areas as Sacred Groves. Traditionally these groves have been created and protected by the local communities and have become sites where religious and cultural activities take place. Well-preserved Sacred Groves are storehouses of valuable biodiversity. Many of the plant species found in them have great medicinal, land restorative and economic value. Sacred groves can benefit local agriculture by preserving a habitat for birds that control insect outbreaks in adjacent crop fields and may also serve as seed banks for locally adapted crop varieties and medicinal plants. Even small groves can be surprisingly effective in conserving biodiversity (Warren and Pinkston 1998).

This has proven to be a well-tried and tested method for thousands of years all across the world and provides valuable traditional wisdom, which could be utilized to help solve present environmental problems and potentially make long-term sustainable development realisable.

Sacred Groves provide a continued reminder that human cultures and biodiversity have evolved together and that encouragement of such a link is likely to be a key element in an ecologically and socially secure and long-term sustainable future.
"A scientific understanding of the Sacred Groves would be significantly important for designing strategies for rehabilitation of degraded landscapes, involving local people's participation, and training for promotion of traditional and social norms"
(Gadgil and Berkes, 1991)

It is possible that the tradition of Sacred Groves could be utilized as a method of land reclamation and regeneration throughout mountain regions. It is a method, which is still in use and accepted by traditional mountain communities and could potentially be adopted by many other communities. This would involve the creation of new Sacred Groves and the preservation and restoration of existing ones. It could provide a way of linking mountain communities throughout large areas of mountainous regions and even the world. Also because it is quite a flexible tradition it can be easily adapted to the requirements of individual communities (i.e. in non religious areas these Groves can be designated as community 'Peace Gardens').

Green Corridors could be the means by which the groves are linked and hence biodiversity is able to spread. They would be areas of land between the groves and would be managed and maintained by local communities. In this land useful medicinal plants and vegetation can be planted for cottage industry. This would provide resources and education for the communities. Thus it would naturally provide employment and short-term and long-term benefits for the communities. This would naturally motivate long-term sustainable conservation.
We recommend that the management of these Green Corridors is linked with the local schools and Healthcare clinics so that the resources will be beneficial to the whole community. Education programs would have to be included in this for the children and people of all ages.

We recommend establishing new Sacred Groves and helping to preserve existing forests and Groves as community medicinal plant projects. It is vital that this is done using local indigenous medicinal plants such as Oak, Cedrus Deodar, Tulsi, Peepal, Yew, Birch, Walnut, Vetiver, some of the legume family and many others, according to the particular area. Many of these medicinal plants have beneficial properties for land conservation. By using a combination of methods ranging from local traditional knowledge, forest garden, companion planting and permaculture techniques as a way of establishing high altitude forests fast, it might still be possible to mitigate 'global Warming' and rebalance Earths' fresh water and cooling systems. This could conceivably work as a global environmental restoration and conservation program.

This Remedy offers a means by which countries of the world can take effective action to regenerate their own unique Eco-systems and prevent further breakdown and inevitable collapse. This method can be adapted for different environmental and cultural needs. Here is a way for activating and implementing the millennium goals for Long-term Environmental Sustainable Development made by the U.N governments at Earth Summits.

Because it is a method, which is so interrelated with both the ancient and present day traditions of indigenous communities, it could be a method that spreads fast and easily, without the normal resistance that many conservational efforts so often come up against. It could be a model for global environmental action. With local mountain people working together, supported by others around the world, fast mountain regeneration is potentially possible.

It is very important that the connecting of different areas of land, communities, cultures and knowledge systems takes place. This is because isolated patches of biodiversity and local preservation do not have a very large environmental impact on a global scale. They also do not have real long-term sustainability, when considering the present fragility of Earths' fresh water and cooling systems. The regeneration of high altitude forests needs to take place in a connected manner, both locally and globally, to be truly effective in this issue. Sometimes it is important to not only ask the question:

"What can be made from a venture?" but also **"What can be saved?"**

In these circumstances there is much to be saved. Something needs doing swiftly and we do not have time for further long discussions and deliberations. Research shows that the way to potentially do this lies in the reforestation of high altitude regions promptly. Unless a substantial percentage of mountain forests can be restored globally, fresh waters could become so scarce, as to make life on Earth almost impossible. To conserve the natural environments and species including our own, existing on Earth, fresh water is vital. It has already been agreed by world governments that high levels of funding, investment and greater support are required in mountain areas. This is essential for the survival of both highland and lowland communities (U.N,General Assembly, 29 September 2005).

"It would be of benefit for downstream communities to invest in mountain region rehabilitation, as, through watershed protection, they provide direct economic benefits andensure necessary environmental services such as protecting fresh water supplies."
(Bishkek, Global Mountain Summit, 2002).

The system of payment for environmental services (PES) is already being explored for protection of watersheds in the Andean regions of Peru (Martínez de Anguita *et al.*, 2006) and in N. America. This way protection of Earth's environments through empowering mountain communities and true sustainable development is potentially still possible.

Recognizing that mixed indigenous mountain forests and biodiversity are fundamental components for stabilizing the Global Climate and Fresh Water Systems, we have outlined a potential restoration method that could be used throughout mountain regions globally.
We believe that if Earths' mountain regions can be reforested by 25% globally within 30 years that the natural balance of these systems can be restored. This will potentially enable the natural systems to re-balance themselves and life on Earth to continue for many thousands of years. Due to rapidly deteriorating environmental conditions on Earth, and due to the fragility of mountain regions, it is urgent that an interconnected method is applied as soon as possible if there is to be any possibility of effectiveness and success. Therefore a Feasibility Study, showing the effectiveness of this method, needs to be conducted imminently. It is our wish and intention to establish a Feasibility Study to demonstrate how this might be achieved.

This Feasibility Study is intended to create a blue print model, which can demonstrate a method for fast indigenous mountain forest regeneration globally. To effectively do this, it is vital that remaining mountain forests are protected and sustained and that we restore as much as we can of their natural biodiversity as fast as possible.
In order for this Feasibility Study to demonstrate fast growth of indigenous forest over mixed and varied terrain, it needs to take place over a substantially large area (approximately100killometers).

Because it would be virtually impossible to make one single plantation covering such a large area, the 'Sacred Grove and Green Corridor Method,' involves creating many small plantations (Groves) over a large area and linking them with green corridors/ belts. If Earths' fresh water and cooling systems can be re-balanced, then life on Earth can potentially still continue and thrive for a long time. This way long-term sustainable development is truly possible.

Throughout the world there are many environmental groups and government bodies, working on local environmental problems and doing great and valuable work. However unless we consider the greater picture within our given projects then we cannot expect to effectively succeed over a long time.

If we consider our Earth as one great house, with the mountain regions comprising the roof, we can conceive how important they are for the stability of the whole. Forest cover in the mountain regions could answer so many of the serious problems we're facing at present and which are likely to occur if nothing tangible is done With only 1% of the finances presently spent on environmental projects being focused on the roof it can still potentially be repaired and the house could be saved. This does not mean 1% more; it means redirecting 1% of the 100% towards "The Roof of the World." This would support and give a chance of long-term sustainability to the other 99% used in the house.

This could be a way whereby many seemingly unrelated groups and individuals could join together and support a common program for the benefit of all their projects and the greater good of the whole.

"Where there are threats of serious or irreversible damage; lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation." *(*UNCED, 1992 *.Principle 15)*

We believe that it is still possible to reforest 25% of Earths mountain regions within the next thirty years, so enabling the natural systems to re-balance themselves and for life on Earth to continue for many thousands of years. However for this to be successful and for long-term environmental sustainability, it is important that different groups and individuals include the health of the global fresh water system in their programs. The nature of Earth is an interconnected system. If we can view it from this perspective we have more chances of working in harmony with it and of solving problems related to it and ourselves.

We welcome all help and advise from everyone willing to join together with us in this.

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