

Ten Replies to Ten Lies

Planting trees can be very good, but it can also be very bad. It all depends what you're planting them for, the scale and site of the plantations and the costs or benefits they bring to local populations. Large-scale plantations of rapid-growth species such as eucalyptus and pines generate most negative impacts, both in social and environmental terms. Because of the kind of impacts caused by this type of plantation, resistance struggles against them have become generalized. The response of the firms responsible for these plantations and of the people who have promoted this model of plantation has been to deny such impacts and to elaborate and disseminate campaigns of disinformation designed to win them support amongst sectors of the population who are not well-informed. Below are ten of the most common misleading statements being disseminated about large-scale mono-culture tree plantations:

Lie No. 1: Tree Plantations are “planted forests”

Forestry professionals and forestry firms insist on calling plantations “planted forests”. This confusion between a crop (of trees) and a wood or forest is the starting point of all propaganda in favour of tree plantations. In a world in which people are highly aware of the grave problems caused by deforestation, “planting forests or woods” is an activity generally perceived as something positive. However, a plantation is not a forest and the only thing they have in common is that in both, trees predominate. There ends the similarity. A real forest contains:

- numerous species of trees and bushes at all stages of growth
- a large number of other vegetable species, growing both on the forest floor and on the trees and bushes themselves (vines, epiphytes, parasites, etc.)
- a huge variety of species of fauna which find food and shelter in the forest and which can reproduce there.

This great diversity of plants and animals interacts with other elements such as soil nutrients, water, solar energy and climate in such a way as to ensure its self-regeneration and the conservation of all the elements which make it up. (plants, animals, water, soil).

Human communities are also part of native forests since many human beings live there, interacting with the forests and obtaining a number of goods and services from them which ensure their survival.

Unlike a native forest, a large-scale commercial plantation is composed of:

- one or a few species of fast-growing trees, planted in homogenous blocks of the same age
- a scarce few species of flora and fauna which manage to survive in plantations.

Commercial tree plantations require preparation of the soil and plants must be carefully selected for rapid-growth and other technological characteristics needed by the industry. The plants must then be fertilized, “weeds” must be removed using herbicides and trees must be planted in regular lots and harvested after as short a growing period as possible.

As far as human communities are concerned, not only do they not inhabit commercial plantations but they are normally not even allowed access since they are considered a threat to them. At best, they are perceived as a source of cheap labour during planting and later on, when the trees are harvested.

Since the main objective is to produce and harvest huge volumes of wood in the shortest possible time, these plantations can be considered to have the same characteristics as any other agricultural crop. Therefore they are not a “forest”, but rather a crop, as is often admitted by plantation companies themselves when they are questioned.

In short, a tree plantation is not a “planted forest”. It is plainly impossible to “plant” the enormous diversity of plants and animals which characterize a native forest, nor is it possible to obtain the overall series of interactions which occur between the living and inorganic elements which make up a forest.

Lie No. 2: Tree plantations improve the environment

When plantations are presented as “planted forests” it is said that they serve to protect and improve soils, to regulate the hydrological cycle and to conserve local flora and fauna. This is all true in the case of native forests, but not in the case of commercial tree plantations. Indeed, large-scale tree plantations not only do not improve the environment, but they have negative impacts on:

- 1) Soils – this type of plantation tends to degrade soils because of the combination of a series of factors:
 - soil erosion, particularly because the soil remains exposed during the first 2 years following the plantation of the new trees, as well as for 2 years after the harvest, thus facilitating the erosive action of water and wind.
 - Loss of nutrients, both through erosion as well as thanks to the harvesting of large volumes of timber every few years
 - loss of balance in the recycling of nutrients. Since the tree plantations are made up of non-native species, the local organisms which are adapted to bring about the decomposition have great difficulty in acting on the organic material which falls from the trees (leaves, branches, fruit) and this means that the nutrients which fall to the ground take a very long time to be recycled. Both in the case of pines as well as eucalyptus, it is common to note an accumulation of large quantities of un-decomposed dead vegetable matter and foliage beneath the trees.
 - soil compaction, because of the use of heavy machinery, which prevents good drainage and further facilitates soil erosion
 - reconversion to other uses. Because of the above and other impacts, in many cases it will be very difficult to reconvert these lands back to agricultural uses.

- 1) Water: both the quantity and quality of this vital element are affected:
 - generally, the volume of water tends to diminish in basins where these plantations are established. In locations as diverse as Southern Chile, Espirito Santo state in Brazil, in South Africa or Northeast Thailand, the water system has suffered important negative impacts as a result of the plantation of large areas of fast growing pine and eucalyptus. This is due to various factors, but mainly to the high water intake of these species. In order to grow, vegetable species take the soil nutrients from the ground up to their leaves, where photosynthesis takes place. The vehicle which is used to take nutrients from the soil to the leaves is water. To grow faster, they need more nutrients, which means they need to use more water to transport these up to the leaves. The impacts on the water table become more and more serious, until whole water courses and natural springs disappear altogether.
 - to confuse people, the promoters of these tree plantations argue that some species of trees (eucalyptus in particular) produce more biomass per unit of water used and that they are thus more “efficient” -in the use of water- than native trees. But they ignore the fact that eucalyptus plantations are notably “inefficient” in producing foodstuffs, fodder, medicine, vegetable fibres, fruit, mushrooms, and other goods people need from local forests. Moreover, it hardly matters how efficient eucalyptus plantations may produce wood from a given quantity of water if they use up more water than the locale can easily provide -- which is often the case in drier areas.
 - the species most commonly used in plantations (eucalyptus and pines) make it hard for water to filter down through the soil so that, added to their enormous water-intake, these species worsen the impacts on the basin as a whole.
 - water quality is also affected, not only by soil erosion but also by the generalized use of agro-chemicals, which contaminate it.

- 1) Flora: the impacts on local flora are multiple and serious, as a result of the huge scale of these plantations which affect an enormous number of habitats:
 - in many cases, plantations bring about deforestation, since before they are established, the existing forests are felled or burned. This often happens in tropical rainforest areas, notably Indonesia. Here the impact of plantations is huge.
 - in temperate zones, the richness and variety of prairie ecosystems are lost when plantations are established there.
 - in plantations themselves, the majority of local species of flora are exterminated so that they will not compete with the planted trees. Only a few species succeed in growing inside the plantations and even these few are eliminated every few years when the plantation is harvested and re-planted, using herbicides to eliminate plants competing with the new trees.
 - among the flora which disappears inside the plantations, it is important to emphasize the loss of ground cover which plays a vital role in maintaining soil fertility over a long period of time.
 - the above-mentioned impact on water also affects local flora, even at a great distance from the plantation site.

- 1) Fauna. Impacts on local fauna
 - for the majority of species of local fauna, plantations are deserts in terms of food sources, so that these species tend to disappear. The few species which succeed in adapting are either exterminated (because they are considered a "pest" in the plantation) or lose their new habitat each time the plantation is harvested for the sale of timber.
 - when the plantation is preceded by deforestation, there is maximum impact on local fauna
 - in the same way as in the case of the flora, a wide range of species of fauna is negatively affected, first by the deforestation which takes place before the establishment of the plantation, then by the changes in water sources and soil which take place thereafter
 - the plantations cause an upheaval in the biological balance and this frequently leads to the arrival of new pests which affect agricultural and ranching activities in the areas around the plantations.

Lie No. 3: Plantations relieve pressure on native forests

This argument goes thus: since plantations make more timber available, this will lead to less timber extraction in native forests. Although this may seem logical, the reality is that plantations generally prove to be yet another factor leading to increased deforestation. This is because:

- in many countries, plantations are established after previously eliminating native forests. In some cases, this is done by setting gigantic forest fires. In other cases, timber is felled and then sold in order to finance the establishment of the plantation. Plantations have even been used to justify deforestation, since it is held that felling large areas does not constitute deforestation if these areas are later re-planted. Sometimes the mere announcement by forestry firms that they are interested in investing in a certain region is enough to provoke a wave of speculation which leads to the buying up of areas of native forest which are rapidly degraded so that they can be taken over by plantation firms.
- in many cases, the above-mentioned process leads either to voluntary or forced migration by local communities who are obliged to enter new forest areas which they need to open up to cover their basic needs. In such cases, the deforestation process resulting indirectly from the plantation is greater than the one generated by the plantation itself.
- the timber produced in plantations is no substitute for valuable species of tropical hardwoods, since the two have quite different markets. The wood from plantations is mainly destined to the production of paper pulp and other low-quality wood products, while the majority of timber extracted from native tropical forests is transformed into high-quality wood products.
- this argument also ignores the fact that the need for wood is not the only cause of deforestation. Large areas of native forest are often eliminated and then replaced by cash crops for export or by extensive cattle-ranching; other areas disappear beneath giant hydroelectric dams; mangroves are eliminated and replaced by industrial shrimp farming; drilling for oil and mining destroy vast areas of native forest, etc. Monoculture plantations cannot lessen the forces behind these types of destruction.

Lie No. 4: Plantations enable degraded lands to be improved and made better use of

This argument is absolutely untrue of those plantations promoted by large plantation firms. Large-scale commercial tree-plantations are seldom established on degraded lands, for a simple reason: they do not grow well there, and thus do not ensure a commercial return.

Having said this, it is important to clarify several points. First of all it is important to understand what “degraded lands” actually means and to emphasize that some non-commercial plantations which are carried out on degraded lands do improve them.

For most ordinary people, the expression “degraded lands” suggests some sort of a lunar landscape, with seriously eroded soils and scarce or no vegetation. In these cases, any activity which attempts to recuperate these soils, either by planting trees or by other methods, can be considered as being essentially positive. However, the expression “degraded lands” may simply refer to an area of native forest which has been logged or an area of subsistence farming, both of which preserve their productive potential. Land is also referred to as “under-utilized” as if this were synonymous with degraded. In other words, it is the plantation firms which define whether the land is degraded or underutilized so that they can justify their plantations to the public. However, local communities are not usually in agreement with this assessment and even less with the notion that there is a need to plant eucalyptus, pines or other commercial species near them. This is what often explains the resistance of local populations to the approaching wave of plantations, where firms attempt to acquire productive land which is neither “degraded” nor “under-utilized”.

Second, it should not be assumed that large-scale commercial plantations of pine or eucalyptus have an ability to rehabilitate degraded lands like that of small-scale plantations of species which provide cattle fodder, foodstuffs and firewood for locals, or which fix nitrogen.

Lie No. 5: Plantations serve to counteract the greenhouse effect

This argument has recently become very fashionable. It is said that as the trees grow, they take in greater quantities of carbon dioxide (the principal gas producing the greenhouse effect) than they emit.

However, in general terms, any area covered by tree plantations, in the absence of proof to the contrary, should be considered a net source of carbon, not a sink. Firstly, because in many cases these plantations replace native forests, which means that the volumes of carbon released by deforestation are greater than what a growing tree plantation can capture, even over the long term. Even when they are not the product of deforestation, they are established in other ecosystems which also store carbon (such as prairies) and this is released into the atmosphere as a result of the plantation.

Moreover, there is a second crucial issue: are these plantations to be harvested or not? If they are, then, at best, they are only temporary sinks: the carbon is stored until they are harvested, then released in a matter of years (in some cases in a matter of months) when the paper or other products produced from the plantations are destroyed. If the trees are not to be harvested, then the plantations are occupying millions and millions of hectares of land which could be used for much more useful purposes, for example, for the production of food.

In other words, there are many doubts concerning the supposition that plantations are always carbon sinks, not only over long periods of time but also even in the short period of rapid growth between planting and harvesting. This “common sense” supposition needs to be backed up by a lot more scientific investigation before tree plantations can be accepted unhesitatingly as “carbon sinks.”

Finally, it is fundamental to see the issue in its totality and to analyse the series of environmental and social impacts which the promotion of great areas of fast-growing, monoculture tree plantations produce. Knowing that these plantations have an impact on the environment (on soils, water, flora and fauna) and on local communities, it is not acceptable to promote them as having an “ecological” objective such as to counteract the greenhouse effect. The solution to this problem must come from the reduction of the emission of CO₂ gas (derived from the use of fossil fuels) and from the protection of native forests, not from attempts to colonize huge areas of land without having thought through the consequences.

Lie No. 6: Plantations are necessary to supply the growing need for paper

Paper consumption is generally perceived as something positive, associated with literacy, access to written information and thus to a better quality of life. This public perception is used by forestry firms to justify huge plantations of pine and eucalyptus. But:

- a large part of the cellulose produced in the Southern Hemisphere is not used to supply the populations of these countries, but those of the North. The U.S. and Japan have an annual *per capita* consumption of between 330 and 230 kgs. respectively. Countries exporting paper pulp such as Chile, South Africa, Brazil and Indonesia have, respectively, an average *per capita* consumption of 42, 38, 28 and 10 kgs.
- almost 40% of world paper production is used for packaging and wrapping, while only 30% is used for writing and printing paper, so that the literacy argument is not as relevant as it would seem.
- what's more, a huge part of the paper consumption for writing and printing purposes is used for advertising. In the US, 60% of the space in magazines and newspapers is reserved for advertising, while 52.000 million units of different kinds of publicity material is produced each year, including 14.000 million mail-order catalogues, many of which go straight into the waste-basket. This kind of excessive paper consumption is not exclusive to the U.S. but is true of most of the countries in the Northern Hemisphere and, what is more, this model is being exported to the countries of the South.

In other words, today's pattern of paper consumption is environmentally unsustainable and a great deal of it is socially unnecessary. It is difficult to justify plans for the expansion of tree plantations by saying that "humanity" needs more paper.

Lie No. 7: Plantations are much more productive than native forests

At first glance, this claim, which is based on the observation that eucalyptus and pine plantations grow very fast, may seem convincing. However, it depends what is meant by “productive” and who benefits from this production.

A commercial tree plantation produces, per hectare and per year, a large volume of wood for industry. But this is all it produces. The direct beneficiary of this production is the firm which owns the plantation.

Like tree plantations, a native forest produces wood which can be sold, but it also produces many other kinds of products: other kinds of trees, vegetables, game, fruits, mushrooms, honey, fodder, compost, firewood, woods for local uses, vegetable fibres, natural medicines, as well as serving a number of other purposes such as conserving soils and water resources, protecting biodiversity, maintaining a micro-climate .

When it is claimed that tree plantations are much more productive than native forests, the volume of wood which can be extracted from both for industry is the only thing which is being compared and in this equation, tree plantations appear to be superior.

However, when you compare the overall number of goods and services provided by tree plantations and native forests, it becomes clear that the latter are far more productive than tree plantations. What’s more, in many respects, the tree plantation produces nothing at all (for example in terms of food, medicine or fodder) or has a negative production because of the way it affects other resources such as water, soils or biodiversity.

This is particularly true in the case of local populations who are suffering the effects of the introduction of large areas of monoculture tree plantations since they lose the vast majority of the resources which had, up until then, ensured their livelihoods. For these communities, the productivity of these plantations is nil, or rather decidedly negative.

Lie No. 8: Plantations generate employment

In the vast majority of cases, this claim is totally false.

Large-scale plantations generate employment mainly during planting and harvesting. After the trees have been planted, employment opportunities fall dramatically. When the trees are ready to be harvested, workers are hired once again but, increasingly, these jobs are tending to disappear because of the growing mechanization of this operation.

The few jobs generated are usually of the unskilled, seasonal variety, with low salaries and labour conditions which are characterized by bad food, inadequate accommodation and non-compliance with current labour legislation. Accidents and labour-linked illnesses are common. The predominant model in the Southern Hemisphere is that the plantation conglomerates subcontract informal firms to hire labourers for planting and harvesting work. Thanks to the low level of investment required, the competition among these informal firms is fierce and contracts are won by saving on labour costs, which explains the appalling salaries and working conditions of these forestry workers. Only where harvesting is done with expensive, modern forestry machinery, do these tasks remain in the hands of the plantation firms which are forced to offer better working conditions.

In many countries, plantations cause the former occupants of the land to lose their former livelihoods. It is common for these plantations to be established on land used for subsistence farming, so that the tendency is towards a net loss of jobs. Moreover, when plantations displace native forests, the local population is deprived of occupations and money-making resources which used to be provided by the native forest. In almost all cases, tree plantations lead to the expulsion of local communities, especially to the slums on the outskirts of cities.

It has been seen all over the world that tree plantations generate far less employment than agriculture and less employment even than large-scale extensive cattle-raising. As for factory employment opportunities, tree plantations do not always lead to the creation of local industries, especially as in many cases production is aimed at the direct export of unprocessed logs. Even when pulp and paper industries are established, the high degree of mechanization in these factories means that few jobs are created.

Of all the activities capable of generating local employment, tree plantations are probably the worst option. The aim of the forestry firms is not to generate employment but rather to generate income for their share-holders.

Lie No. 9: Eventual negative impacts of industrial monoculture plantations can be avoided or mitigated through good management

In the final instance, the promoters of tree plantations may accept that these plantations are not forests and can cause negative impacts, but they add that these are caused by bad management and not by the tree plantations themselves. The solution, they claim, is therefore technical: good management methods must be applied.

Yet this is not a technical matter, rather an essentially political issue, a question of power, with winners and losers. From the world centres of power, decisions are taken with the aim of being able to supply the world market with wood products and these decisions affect the lives and survival of local populations as much as do government conditions. Local needs and aspirations simply do not come into it. This fact cannot be changed by "good management". In reality, good management by plantation firms consists of, firstly, convincing governments to allow them to invest in certain regions of the country; getting them to grant certain advantages (direct or indirect subsidies) and getting them to intervene, where necessary, to evict or apply force against local communities. In a significant number of cases, the principal tool of "good management" consists of developing different forms of pressure or repression which will be used to resolve social conflicts provoked by the establishment of tree plantations.

As far as the environmental impacts which commercial plantations generate, it is also utopian to pretend that these can be resolved through good management. The very characteristics of the model make it basically unsustainable, whether or not conservationist practices or monitoring techniques are used, which are in any case designed mainly to improve the image of the firm in the face of possible opposition by environmental activists. This model is characterized by:

- huge scale. The impact generated by a solitary eucalyptus or pine is not the same as that generated by dozens or hundreds of thousands of hectares of them, concentrated in one region of a country. There is a huge modification of the geographical space. In order to disguise this, promoters of plantations insist on using percentages these days, saying that plantations "only occupy 1 or 2% of a country's total area". However, you cannot hide the sun behind your hand. The fact is that large concentrations of monoculture tree plantations are a problem irremediable by "good management".
- monocultures of non-native species. While it is true that most species used in farming are non-native, in the case of the species used in the plantations, this has strong negative implications. The choice of these exotic species is partly due to the absence of pests and diseases which might affect them in the countries where they are introduced. While this is perfectly logical from the point of view of the planter, it produces problems for local animals, for which these plantations constitute a desert in terms of sources of food. When this uniformity is added to the problem of their huge scale, the impact, particularly on local fauna, is truly enormous. The biodiversity at ground-level is seriously affected since the fallen vegetable waste from pines and eucalyptus is toxic for a large proportion of ground-level flora and fauna. Moreover, the system presents a great intrinsic weakness: when species appear which can feed off the living trees, they become pests and endanger all similar plantations in the region.
- rapid growth. Rapid growth helps ensure that plantation investments make good business sense. This rapid growth is based in part on the species selected for the plantations, but is also stimulated by the use of fertilizers and herbicides (which affect the soil and water), as well as enormous quantities of water. All this affects the region as a whole. As if this were not enough, biotechnology in forestry also aims to design "super trees" with even greater growth rates which

will be resistant to herbicides, so that the impact becomes double: greater contamination because of the use of agro-chemicals and a greater consumption of water.

- ever-shorter growing periods. Trees are felled every few years, meaning a huge loss of nutrients in the system and an increase in erosion, as well as the destruction of the habitat of those few local species which were beginning to adapt to the plantations.

It will be clear that there are few technical measures which can be adopted to avoid or mitigate the above environmental impacts. While some impacts may be mitigated (use of less toxic agro-chemicals, preparation of the ground by contour ploughing, care not to encourage erosional processes at the time of tree-felling, maintenance of patches of natural areas among the plantations, monitoring of soils, water, flora and fauna, etc), the fact is that it is impossible to prevent these impacts because the model itself does not permit it: it is not possible (from the point of view of good business practice) to make the trees grow more slowly, or to make them consume less water, nor is it possible to avoid the need for fertilizers, nor to prevent deleterious effects on the soil, nor to prevent reductions in local biodiversity. in short, the problem is the model, not the adoption of suitable management methods for it.

Lie No 10: Plantations cannot be judged in isolation

This is one of the plantation promoters' most recent arguments. They claim that there is a "continuous system" between a primary forest and a "planted forest". That is to say that there exists a system, known as a "forest" which includes protected primary forests, productive forests, protective forests, secondary forests and all kinds of plantations. Therefore, it is said, that this "forest" system must be analysed as a whole, rather than separating one of its components: the large-scale monoculture of tree plantations.

This argument is intelligent, but as false as the other ones. One cannot talk about a "continuous system" between what are intrinsically different elements. One analogy would be to say that native fauna and dairy herds constitute a continuous system and that therefore it is not possible to judge the impacts of raising dairy cattle without analyzing its broader context.

Second, commercial tree plantations, generally speaking, not only do not complement native forests but, moreover, often constitute the direct or indirect causes of deforestation. The same can be said of the way they affect biodiversity, soils, water, and in particular, local populations.

Finally, this reasoning is intended to justify the destruction of nature in a given area, under the pretext that its conservation is ensured in another area. On including tree plantations in this so-called "forest" system, the social and environmental destruction generated on the basis of large-scale monoculture tree plantations is concealed. With respect to the impacts on biodiversity, the answer of those thinking up this lie is to say that biodiversity is ensured by the existence of protected areas...although hundreds of kilometres apart. They have the same reply concerning the hydrological regime ... although the plantations and forest are located in different basins. They do not address the issue of soil...as they do not have any rationale and appeal to the argument of job generation (Lie No. 8), to conceal the social impacts of plantations that also show the difference between a forest (where people live) and a plantation (where people are evicted).

The heart of the matter is that this argument attempts to justify a rationale that divorces production from conservation, and in fact, uses conservation as an excuse to enable destruction to take place. The existence of protected forest areas (that effectively protect the soil, the flora and fauna and regulate the water cycle) becomes a justification to implement large-scale monoculture (in this case of trees) that destroys all the natural resources and the rights and the means of survival of the local populations.

Given that the only way of ensuring social and environmental sustainability is to incorporate conservation into productive processes (and not separate them into watertight compartments), these monoculture tree plantations can by no means be considered as integrating a forest system and therefore, their impacts should be examined separately, as is the case with any other crop.