

# The key transformational role of forests as basis for an ecological civilization

## Speech by Marc Palahí, Director of European Forest Institute

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Thank you Chair, Dear Ladies and Gentleman, Dear colleagues,

As Director of the European Forest Institute, it is a great pleasure to be with all of you here today celebrating the 60<sup>th</sup> Anniversary of the Chinese Academy for Forestry. On behalf of EFI I wish the Academy a very happy anniversary!

A Chinese proverb says that “when the winds of change blow, some people build walls, others build windmills”. I would like to share with you some reflections on why forests and forest-based solutions are called to become the windmills of change, change that we urgently need for a sustainable future.

But first, let’s start by reflecting on why we need change.

After 200 years of relying on a fossil-based economy, an economy based on fossil energy and fossil-based materials, we have arrived at a tipping point. The world has become too big for our planet. It is true that the fossil-based economy has resulted in unprecedented economic and population growth as well as social and technological progress. For instance, in the last 30 years, poverty has been reduced from 40% to less than 10% of the global population while the global GDP and global middle class have tripled. But the fossil economy has another side too as **it has generated the largest environmental externalities of our history**. Basically, we have changed the climate of our planet and we are crossing its resilience boundaries due to the loss of biodiversity and the degradation of our natural resources. And the problem is that in the future such environmental challenges will be more difficult to address due to population growth, and especially due to an unprecedented expansion of the global middle class. By 2030 we expect an additional 2 billion people joining it. This has great implications for the demand for food, water, energy and materials and of course for our environment. So having arrived to such a tipping point, we should remember Albert Einstein’s words: he said that we cannot solve our current problems with the same thinking we had when we created them. This is what we exactly need now, new thinking as a basis for a new economic paradigm, for an ecological civilization.

**A new economic paradigm where prosperity takes place within the renewable boundaries of our planet.** A paradigm where renewable energy and renewable biological resources are the basis for a sustainable economy. A paradigm where a bioeconomy, bio means life, **becomes the prosperity engine for sustainable development.**

Why is a bioeconomy so fundamental in creating a new economic paradigm?

Well, while the energy sector in the long run will be almost fully decarbonised, we will still need to produce an increasing amount of materials to meet the needs of a growing middle class in terms of clothing, buildings, transport, packaging, etc. However, in order to address climate change and other environmental problems, these materials should not come from fossil sources like plastics or non-renewable materials like concrete or steel. They need to come predominantly from renewable biological resources. However, biological resources, are renewable, but not unlimited. This means that their use and transformation needs to be intelligent, efficient and sustainable. This is what a bioeconomy needs to make possible the sustainable transformation of biological resources into bioproducts, biomaterials that can replace fossil products from important industrial sectors. But at the same time, developing a bioeconomy in the context of climate change requires that we also ensure the resilience of our biological resources to climate change. Therefore, investing in biodiversity in adaptation, should be a key investment for a sustainable and resilient bioeconomy. So, bioeconomy and biodiversity should be seen as the two sides of the same coin as they are connected by our need to adapt and mitigate climate change.

**This is why the bioeconomy is not only about replacing fossil products by bio-based solutions...above all, the bioeconomy is an opportunity to address the past failure of our economy to value nature, to value our natural capital. So the bioeconomy offers us the possibility to build a new and synergistic relationship between economy and ecology, as the basis for a new economic paradigm, as the basis for an ecological civilization.**

And to catalyse such transformational change, our forests, forestry and forest-based solutions offer the greatest potential and should play a central role

Why?

**Our forests are the most important land biological infrastructure we have, not only in our continent but in our planet.** Our forests are the largest terrestrial carbon sink, main terrestrial source of precipitation and oxygen and main host for biodiversity. They are key to the resilience of our global natural capital. **Forests support life and help life adapt to change.**

But our forests play another fundamental role too, which is key for the bioeconomy. **They are the most important source of non-food non-feed renewable resources. Resources that with emerging technology can be transformed into a new range of bio-based solutions that can replace and outperform fossil-based and non-renewable products.** Products from the plastics and textiles industry which will need to address a demand 3-4 times higher by 2050, or the construction sector which still needs to build 50% of the urban fabric needed by 2050. Such important demand increases will require change to renewable solutions and sustainable business models. Forest bioeconomy solutions can help catalyse this change.

Let's see two examples.

My first example comes from the **textiles sector**, one of the most dynamic and also rapidly growing sectors. Nowadays, 90 M Tonnes of textile fibres are produced every year, by the way more than 50% of such production happens in China. Two materials dominate the sector:

polyester (fossil-based) and cotton. Polyester represents almost 63%, while cotton about 24% of global production. Wood-based fibres represent only 6% but their relevance will increase in relative and absolute terms due to three main reasons:

- The first reason is that the demand for textiles is expected to increase by almost 400% by 2050 due to population increase in urban areas and the expansion of the global middle class, which results in higher per capita consumption. However, the production of cotton is already stagnated and it will not be able to meet increasing demand for textile fibres. 50% of the cotton globally is produced in China and India. These countries will need land for producing food and cotton competes with agriculture for arable land and water resources. Wood-based fibres can fill the gap left by cotton.
- The second reason, is that if we are serious about fighting climate change, polyester is not a material of the future as we will need to replace oil-based materials like plastics by other options. Wood-based fibres can be such an option.
- The third reason is that in recent years we are experiencing a technological revolution in terms of new wood-based fibres produced with new technologies, like Lyocell Tencel or Ioncell. These technologies reduce the carbon footprint compared to synthetic fibres and water consumption compared to cotton, while at the same time they do not use contaminant solvents like the ones used in the production of viscose.

My second example is about one of the most important economic sectors globally: the building construction sector. A sector with huge environmental implications as the use and construction of buildings is responsible for 40% of the carbon emissions related to energy consumption globally. Considering that we still need to build 50% of the urban fabric needed by 2050, the materials we use in construction can make a difference in combating climate change. And the fact is that nowadays two materials dominate the sector: steel and concrete, which are not environmentally friendly. Producing 1 Tn of steel releases at least 1.7 Tns of CO<sub>2</sub> while producing 1 Tn of cement, a key ingredient for concrete, results in about 1 Tn of CO<sub>2</sub>.

So, how can our forests help to make this become sustainable, become climate-smart?

Well, our forests provide wood, which is the only significant construction material together with bamboo that is renewable and can be grown sustainably. Using wood in construction is one of the most effective carbon sequestration and capture technologies we have, because 1m<sup>3</sup> of wood products store 1 Tn of CO<sub>2</sub>. If we replace concrete and steel with wood, we can reduce the carbon footprint of a building by around 50%. At the same time, due to the high strength-weight ratio of wood compared to other materials, we can also reduce the total amount of materials by 50%. The good news is that new technology allows us to build wood buildings as large and tall as with concrete. There are no technical limitations any more in building with wood. But wood is not the only thing that our forests offer. Placing trees and urban forests near buildings can reduce the energy consumption for cooling and heating by between 20 to 50%.

Therefore, wood, trees and forests are called to become the backbone for sustainable cities!

These examples show the transformational potential of our forest-based solutions in important industrial sectors, but the bioeconomy can have a broader impact and help the revitalization and modernization of rural areas, by bringing innovation, new technologies and

infrastructures that will catalyse change in urban areas, sustainably. **This aspect is very timely in China, as this week, President Xi mentioned during his visit in Guangdong the need to balance urban development with rural development, within the framework of the Rural Revitalization Strategy that he proposed last year.**

Therefore, this transformational potential of our forests and the bioeconomy should make us reflect on the increasing importance of sustainable forest management globally in order to ensure a sustainable provision of forest resources to make such a bioeconomy possible, while maintaining their resilience to climate change and their provision of ecosystem services.

We urgently need the right policy framework to ensure that. One that recognizes the transformational importance of our forests and sustainable forest management. One that attracts investments and provides the right incentives to catalyse an urgently needed forest virtuous cycle built around **good governance, resilient forests and an ambitious bioeconomy.** This virtuous cycle is a prerequisite for developing a new economic paradigm, an ecological civilization. And China being the largest producer of non-renewable materials like cement, steel, plastics or textiles but also a hub for forest products and trade can become key catalyst for the transformational change that we need as the basis for a sustainable future.

Let me finish with a quote from Brian Arthur, an economist who says:

“Our deepest hope as humans lies in technology; but our deepest trust lies in nature”  
- W. Brian Arthur

In my opinion, a bioeconomy can connect both technology and nature so that we trust our hopes for a better future.

Thank you for inviting EFI to this very special event.