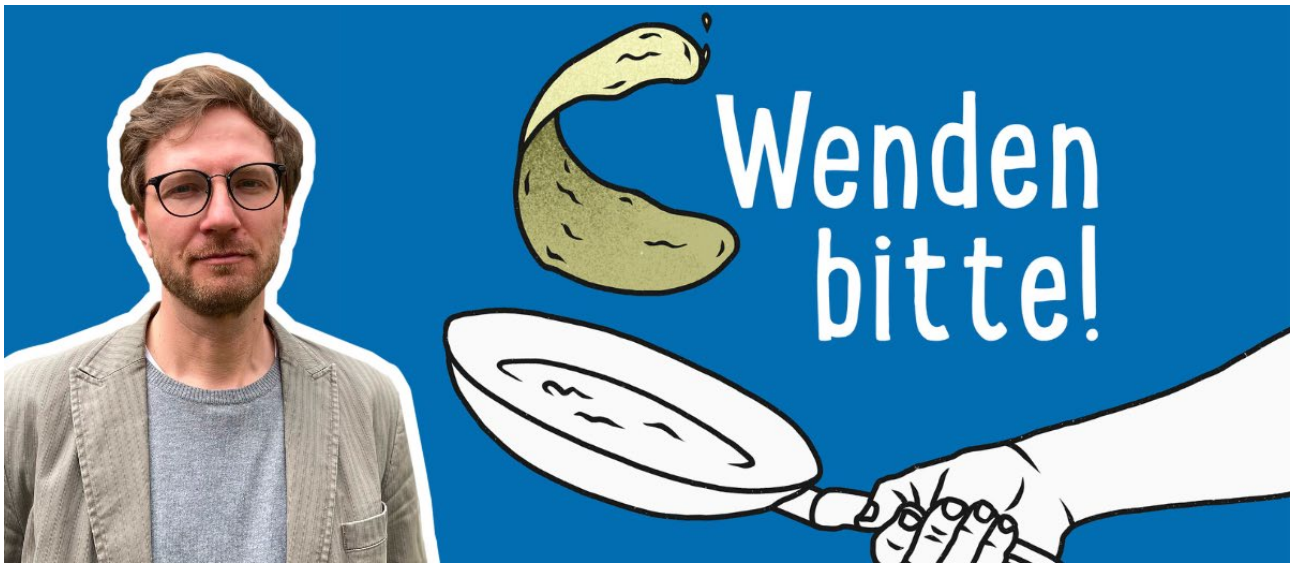


# Transcript of the “Wenden bitte!” podcast:

## Episode 15: “Can the forests still be saved?”

## Introducing the subject and today's contributors:

**Nadine Kreutzer:**

Hello, everyone! Today we're back with you after a short break. Happy New Year to you all. We're pleased you could join us.

**Mandy Schossig:**

A warm welcome to this third series of the "*Wenden bitte!*" podcast. And in 2023, we will once again be discussing some of the hot topics around climate action and sustainability.

**Nadine Kreutzer:**

I'm Nadine Kreutzer and I am here with Mandy Schossig. Mandy, I know we are both looking forward to this third series. Over the past 45 years, the Oeko-Institut has kept a close eye on all the key themes relating to the environment and nature conservation. And as Head of Communications at the Institute, you are our direct contact to dozens of experts. We'll be making use of that again today.

**Mandy Schossig:**

Yes, and we are starting off the new year with an important topic: our forests. Towards the end of last year, at least in Berlin and Brandenburg, the release of the State of the Forests Report sparked much discussion on the radio about the fact that the forests are not faring well. And that's quite a problem, because forests perform an important function for us – and not only for us, but for the climate and biodiversity as well. So today, we are asking: "Can the forests still be saved?"

We have invited Dr Hannes Böttcher to join us. Hannes is a Senior Researcher on Energy and Climate at the Oeko-Institut's Berlin office. He undertakes research on forest management and produces climate audits for the land-use sector, for example. Welcome, Hannes!

**Dr Hannes Böttcher:**

Hello, everyone!

**Mandy Schossig:**

Hi. It's good to see you.

**Nadine Kreutzer:**

Hello, Hannes. You studied Forest Sciences. What initially sparked your interest in forests back then?

**Dr Hannes Böttcher:**

Well, I'm fascinated by the natural world in general. That was certainly an important prerequisite. And then I developed an interest in green careers and started looking at various options. I was even thinking about going into forest education at one point. I had a wide range of interests that pointed in many different directions. What makes Forest Sciences so attractive as a study programme is that it is a broad-based course: you learn all about forests – biology, forest ecology and wildlife – but you also gain very practical skills, such as how to build forest roads, and you study aspects of forest law and nature conservation as well. All of this was covered, so it appealed to me since I had such wide-ranging interests.

**Mandy Schossig:**

But these days, of course, you spend much of the time sitting at your desk in the Institute and you don't go out into the forest so often. How do you feel about that?

**Dr Hannes Böttcher:**

Yes, sometimes I feel nature calling to me; in moments like these, I need to feel the earth under my feet again – the forest floor, I mean. I try to make space for that in my free time as much as possible. But generally, I am happy to have a profession that allows for a relatively high degree of mobility. I can simply pick up my laptop and work on the move. That's something I really appreciate.

**Nadine Kreutzer:**

Even while sitting in a hide in the forest?

**Dr Hannes Böttcher:**

Yes, that would work. With mobile Internet, anything is possible.

**Nadine Kreutzer:**

Let's move on to our topic. Can the forests still be saved? That's the question that we will be exploring today. We'll start with a brief insight into the topic.

## Sound clip (brief subject overview):

The world has four billion hectares of forest – a green landscape that covers around 31 per cent of the Earth's land surface. As well as supplying us with wood, a precious resource, forests store vast amounts of carbon dioxide, are a vital source of oxygen and provide a habitat for countless living creatures.

However, our forests are shrinking. They are under threat from more frequent droughts, heavy rainfall and pests. The impacts of climate change and large-scale forest clearance by human communities mean that the forests are in an increasingly poor state.

So that forests can continue to make their vital contribution to climate change mitigation and the conservation of biodiversity, they must be better protected and forest use must be sustainable. However, the state of the forests and the responsibility for their conservation and use vary from country to country. How can we ensure that our planet's green lungs are preserved?

## The state of the forests and the threats they face

**Nadine Kreutzer:**

Let's start off by asking our forest expert. How are our German forests faring?

**Dr Hannes Böttcher:**

Well, a lot of people are exploring that question. Perhaps I should start by explaining how we work it out. Every year, around 10,000 trees in Germany are inspected by experts who go out into the forests in summer and assess the condition of the trees. To what extent is tree vitality impaired, for example? This can be determined by examining whether the crown is compacted or there are dead branches on the tree. And as I said, this is done every year. And it has been established, in fact, that more than 50 per cent of the trees show signs of severe damage and only 20 per cent – just one tree in every five – is healthy and undamaged. That's worrying in itself.

**Nadine Kreutzer:**

What kind of threats do the forests face?

**Dr Hannes Böttcher:**

Well, the forests in Germany are suffering mainly because of the severe droughts that have occurred over a number of years. This means that the soil has dried out and the trees are no longer able to absorb water, which affects their growth. As a result, they were already in a damaged or weakened state in spring. On top of that, fungal infections and bark beetles have proliferated. Damaged trees are particularly vulnerable to attack. That is exactly what has happened over the last few years, with the result that large areas of woodland have died off. In total, 380,000 hectares of forest – equivalent to 500,000 football pitches – have died off and need to be regenerated.

**Mandy Schossig:**

Wow. As always, we are taking questions from our listeners and one of them seems quite relevant here. Do the polluters who cause the damage have to cover the costs?

**Dr Hannes Böttcher:**

That's a good question. After all, even with climate change, the emitters of carbon dioxide are not always required to pay, unfortunately. Of course, we have now carbon trading, where this does take place, but in reality, there are many emitters of carbon dioxide who are not paying anything at all. So it would be a good idea to determine the extent of the damage caused by carbon dioxide

emissions, for example, and then set up a fund to collect cash to pay for the damage. And of course, that has to include damage resulting from weather extremes, droughts and other disasters attributable to climate change.

This principle does not exist yet, but it is a good idea. The German Environment Agency has calculated that the cost of the damage caused by the emission of one tonne of carbon dioxide is around 200 euros. This money could be collected in order, for example, to give a hand-up to forest owners who have to regenerate their woodlands if they fall victim to climate change.

**Nadine Kreutzer:**

If we take a specific example such as RWE, a major energy and mining company here in Germany: how can they be persuaded to provide a water supply for Hambach Forest? After all, they have pumped out millions of litres of water over the years in order to turn a profit for the Hambach open-pit lignite mine and now the forest is drying out. What do we do: simply go and knock on the door and tell them it's payback time?

**Dr Hannes Böttcher:**

Well, a targeted $CO_2$ levy is one example of how to mobilise funds. We have also looked at a system that would enable forest owners to be compensated or paid for services provided by forests. It could include a certificate trading system that would involve the issuing of forest shares or forest certificates. I imagine that RWE could be forced to purchase these forest shares. That would involve paying into a fund that would then provide cash for forest owners to restructure, adapt or, indeed, restore their forests.

**Mandy Schossig:**

And speaking of damage, forest fires play a major role as well. This topic has frequently arisen in recent years. So what are the main causes of forest fires?

**Dr Hannes Böttcher:**

A forest fire starts in exactly the same way as a fire in a house or elsewhere. Three elements need to be present. First, there needs to be some kind of material that is dry enough to burn, and then an oxygen supply and a source of ignition are required. And if these conditions are present in the forest, it may be enough to start a forest fire. In Germany, fire is not part of the forests' natural ecology or life cycle. The fires that break out here often start in pine plantations, which are not natural forests. And most fires – 99 per cent – are caused by human activity. It's rare for a fire to be caused by a lightning strike, for example. Most fires are started by people.

**Mandy Schossig:**

And have these fires increased overall as a result of climate change? Is there a connection here? If this always has to do with people behaving badly, is there a correlation with the climate?

**Dr Hannes Böttcher:**

As a result of climate change, more droughts are occurring, so the forests and, above all, the soil are drying out. This itself may be enough to cause more frequent fires, particularly ground fires that scorch the grass growing under the trees. This doesn't damage the forest as a whole but as the fire spreads, it sets the grass alight. A key factor here is the extreme lack of moisture in the soil; this may cause the material to burn at a higher temperature, resulting in a more intense fire.

## Forest conservation

**Nadine Kreutzer:**

Let's turn now to the question whether the forests can still be saved and look at areas in Germany: a large proportion of woodland here is protected, isn't it? How much, exactly?

**Dr Hannes Böttcher:**

Actually, in Germany, only a small percentage is protected by law. Just two to three per cent of the forest is protected and therefore not used. Around four per cent of the forest is not in use, either for nature protection reasons or due to some other factor: the woodlands concerned may be growing on steep terrain or are inaccessible in some other way, for example. In any event, the percentage of forests that are protected in this way and are therefore unmanaged is relatively small.

**Mandy Schossig:**

And which rules then apply in forests under a nature conservation regime?

**Dr Hannes Böttcher:**

Indeed, there are some areas where no form of management is permitted at all, for nature conservation reasons. However, there are other protected areas which need to be managed. You may have heard of Lüneburg Heath: here, the trees are even removed in order to preserve the heath. There are also some protected areas which require a specific type of management regime. For example, some species prefer warmth and light, so regular removal of trees is essential so that these species can flourish. Every protected area has its own specific purpose and priorities and is managed accordingly. Only a very small percentage of forest is located in protected areas where no management takes place.

**Mandy Schossig:**

You are saying two to three per cent of the forest is protected. That doesn't sound like a lot. But are we achieving it?

**Dr Hannes Böttcher:**

We have much more ambitious targets. In fact, our aim was to have placed 10 per cent of forests under a protection regime by 2020. That was the German government's own target. What's more,

at the UN Biodiversity Conference, which has just ended, an agreement was reached to protect 30 per cent of land and sea. If we take this as the benchmark and also look at what we are demanding from other countries, we still have a very long way to go.

**Nadine Kreutzer:**

That brings us to the issue of responsibilities. You have just mentioned COP15, the UN Biodiversity Conference. To what extent are these targets binding? As a forest scientist and forest expert, you will undoubtedly have looked at what has now been agreed. Are you saying: “This is a great step forward!” or "Great, I’m happy with this, this is how we will make progress”?

**Dr Hannes Böttcher:**

Sadly, this isn’t the first time that this kind of target has been set. There was an earlier conference where the Aichi targets were drawn up. Then there was the New York Declaration on Forests. That was back in 2014. We have set these targets so often in the past. So now, the question is: how do we get there? And based on the deal reached at COP15, we only have eight years to achieve this goal. Is this really realistic, given that we have made no progress in the last six to eight years?

**Nadine Kreutzer:**

Staying with responsibilities for a moment, but focusing now on the regional state level within Germany: what exactly are the Länder – the German states – responsible for? What are they doing? After all, not all the forests are owned by the Länder; there are undoubtedly many in private hands as well. Is it a patchwork? How can we visualise this?

**Dr Hannes Böttcher:**

Germany has around 11.5 million hectares of forest, roughly half of which is in private hands and half is owned by the state. Around half of the privately owned forest consists of small private woodland whose proprietors own no more than 20 hectares. So yes, in that sense, it is a patchwork, if you like. You can visualise it in the landscape – a little patch here, a little patch there. In total, there are two million forest owners with forests and woodlands of various sizes, often quite unconnected to each other. The other 50 per cent belongs to the state. However, this is not federally owned forest; in total, around a third of the country’s woodland is managed by the Länder. And then there are various corporations and local authorities that own forests as well.

## Forest use and climate action

**Mandy Schossig:**

So before we explore in more detail what action we need to take, let’s look at forest use for a moment, perhaps starting with a general question: what do people use the forests for?

**Dr Hannes Böttcher:**

Well, if we look at the national legislation, it sets various objectives. It says that forests should be preserved to provide economic benefits and environmental functions and that there should be proper management of these forests. This makes it clear that when it comes to the forests, we have various goals, but the management objective is really at the forefront. And that is how we need to understand the forests that we see around us today. Most are intensively cultivated forests that were established for the purpose of wood production.

**Mandy Schossig:**

And what exactly is it produced for?

**Dr Hannes Böttcher:**

In Germany, some 70-80 million cubic metres of timber are felled each year. That is equivalent to 70-80 per cent of the increment – the increase in the volume of wood growing in the forest. We don't use all of the growth. A large proportion of these 70-80 million cubic metres is used as material; in other words, to manufacture inputs. For example, the timber may be sawn up for use in the construction industry or furniture-making. A large proportion goes to the paper-making industry, and around 15 per cent is burned as fuelwood. Most of this is firewood, which is used for heating homes.

**Mandy Schossig:**

The usage may be short-term or long-term as well; it varies. You mentioned firewood: once it has been burned, that's it, it's gone. But if we use timber to build houses or make furniture, it remains in existence for a much longer time. This long-term use is by far the better option, surely?

**Dr Hannes Böttcher:**

In terms of climate change mitigation, using long-lasting timber products is certainly the goal. Here, we need to consider how a tree absorbs carbon dioxide. It is a fairly rapid process if we look at the leaves, but a long process if we look at the trunk. And it takes time for the tree, which will be felled later, to lock up the carbon dioxide – it can take 70, 80 or 100 years. If we are concerned about protecting the climate, it then becomes a problem, of course, if the carbon dioxide is rapidly released back into the atmosphere. The aim, therefore, should be to keep the carbon dioxide out of the atmosphere for as long as possible by locking it up in long-lasting timber products. Another aspect to consider is that wood is a very valuable resource. Treating it as an energy source is not a particularly high-value use of this precious commodity.

**Nadine Kreutzer:**

Yes, Mandy has just mentioned this: the use of timber for building. One of the ideas currently being mooted is the vision of a kind of "building transition" – a *Bauwende*. Conventional building consumes vast amounts of fossil fuel. So let's say we decided to use timber and nothing else for building in future: as a forest scientist, what would be your view on this? How much potential can be unlocked here, and what kind of climate-friendly impact might this have?

**Dr Hannes Böttcher:**

In principle, timber construction is good for the climate as well, primarily because wood can store carbon dioxide for long periods in the building components that we use in construction. And wood production also uses relatively little energy compared to concrete or steel. Carbon dioxide emissions from timber production are low, and a further advantage is that wood is a relatively lightweight material, which saves on transport costs. So there is a whole range of reasons why using timber for building is a sensible idea. But there is one limiting factor, namely that we don't have enough wood available to meet all our needs in relation to timber construction. So it is important to switch to more eco-friendly construction methods more generally. This involves not just timber, but other renewable materials as well, such as straw, which can be used to produce insulation boards. Clay and other easily recyclable materials are also important in organic construction and should be promoted.

**Nadine Kreutzer:**

But couldn't we just say: "OK then, let's just do some fast afforestation and then we will have enough timber"? What is the problem with that?

**Dr Hannes Böttcher:**

The problem is that we don't have enough land. In Germany, the forested area is increasing slightly, but here too, we are seeing competition for land. At the same time, we want to be able to feed the world's population. We want infrastructure, but we also want nature conservation areas. All of these demands taken together would require a certain area. And then the question is: where is this land? And afforestation in particular is a long process. In other words, producing wood on these tracts of land will take time – especially if we don't want to rely on fast-growing plantations. These are all reasons for avoiding large-scale afforestation as a means of producing timber for our building boom.

**Nadine Kreutzer:**

Does the climate footprint vary, then, depending on the type of forest? For example, if I think of the spruce plantations by the motorway in Brandenburg, they are probably not particularly good for the climate, are they?

**Dr Hannes Böttcher:**

Generally speaking, every tree absorbs carbon dioxide as it grows. The forest's climate footprint or carbon sequestration effect depends on what stays in the forest over the long term. Carbon dioxide is absorbed through the leaves during photosynthesis. These are processes which take seconds or minutes. The carbon dioxide is then formed into sugar, stored and converted into timber in the trunk. These processes take months and years to form the growth rings and add thickness to the tree.

If the aim is to store carbon dioxide in forests, it is important to ensure that this takes place in stable woodlands and that the carbon dioxide remains locked up in the system for a long period of time. Carbon dioxide is stored not only in the living trees but also in deadwood and soil. And the

extent to which this occurs certainly varies according to the type of forest and also its location. Forests in the northern latitudes grow more slowly but the processes of decay are slower as well. This means that deadwood remains in situ for much longer than is the case in our forests. Tropical forests grow very quickly, but they undergo very rapid processes of decay when the trees die. Dead biomass is also recycled very quickly so carbon dioxide is released into the atmosphere. In other words, the processes vary considerably, and the same applies to the forests' carbon footprints and how they develop over time.

**Mandy Schossig:**

You and your colleagues have carried out a study on the carbon sink effect of forests. What exactly does the study say? You have already mentioned many of the factors that make a contribution here. What do we need to do to maximise the sink effect; in other words, to ensure that as much carbon dioxide is stored as possible?

**Dr Hannes Böttcher:**

Yes, we looked at various studies that investigated the carbon sequestration effect of forests. The question is how to determine that the forest has stored carbon dioxide. This can be done with modelling; in other words, with scenario analysis. The forest is simulated using computer models. This has been done in a very large number of studies.

We looked at various forest management scenarios and compared how much timber is removed and how much carbon dioxide is stored in the forest in each case. By juxtaposing these scenarios, it is possible to determine, for each cubic metre of wood that is removed from the forest, how much of the carbon sequestration effect is consequently lost and how much carbon dioxide we could have continued to store. This question is important because we have a climate target. So if our idea now is to use wood for building or heating, for example, in order to protect the climate, the question is what effect this will have on the forests.

And the answer is this: if we remove one cubic metre of wood from the forest, we reduce its carbon sequestration effect by one to two tonnes of $CO_2$. With regard to the climate targets, we therefore have to consider that if we extract wood from the forests, we are reducing the forest sink by this amount. So we should use this cubic metre of wood in a way which locks up the carbon dioxide stored within it and keeps it out of the atmosphere for as long as possible. The point is that the forest sink has decreased by this amount of $CO_2$ – one to two tonnes– and we need to compensate for that.

In other words, the carbon dioxide has to be locked up in products for a long period of time. And when we use this cubic metre of timber that we have harvested, we also need to maximise our $CO_2$ emissions reductions to the greatest possible extent. This is known as the substitution effect. It is achieved when our use of timber enables us to reduce our consumption of other materials that produce $CO_2$ emissions. This might be oil, for example. But the upshot is that a better option is to use heat pumps for our heat supply, as they emit even less carbon dioxide. If we compare these options, it is much better to leave the timber in the forest and to build up the forest sink.

**Nadine Kreutzer:**

So using the freshly harvested timber as fuel for the wood-burner would have the opposite effect. And that brings us to another listener's question. We often hear the popular myth that "wood-fired heating is climate-neutral". Is this correct, in your view?

**Mandy Schossig:**

Yes, if we look at your calculation from a moment ago, what conclusion should we draw?

**Dr Hannes Böttcher:**

The myth that wood-fired heating is climate-neutral is just that – a myth, as we showed in our study as well. Yes, the trees have absorbed and locked up carbon dioxide from the atmosphere. That's quite right. But that means that the carbon dioxide has been removed from the atmosphere and is no longer doing any harm. If we burn wood and release carbon dioxide, it then contributes to global warming – just like oil or any other form of energy that is burned. In other words, once the carbon dioxide in the forest is locked up, it is extremely important either to keep it sequestered there or, if we remove it, to store it in products for the long term.

**Nadine Kreutzer:**

Indeed, many people are now buying wood-burners for heating, perhaps because they are worried about the high gas prices. What's your view on that?

**Dr Hannes Böttcher:**

In view of the energy crisis, it is clear that we will need a wide variety of options to heat our homes. And in the short term, wood-fired heating may be useful as a bridge towards homes that are better insulated and equipped with heat pumps. That's what we should really be working towards in the long term. Wood is simply too precious a resource to burn.

**Mandy Schossig:**

We have already talked about many different ways of using wood: heating, building and furniture. So a quick question: do we use more wood than we produce here in Germany?

## Wood consumption

**Dr Hannes Böttcher:**

Indeed, we consume a very large quantity of wood in Germany. In addition to the 80 million cubic metres that are felled in Germany, we import 12 million cubic metres – not only in the form of timber but also as wood products. And we export wood as well. Overall, our wood consumption is very high. We would not be able to produce all of it ourselves here in Germany.

**Mandy Schossig:**

Yes, and above all, if the wood is harvested elsewhere, in other countries, how do we then take responsibility for forest conservation there? After all, we are already falling short in Germany, from what I understand. How can we ensure that we fulfil our responsibility in other countries as well?

**Dr Hannes Böttcher:**

Wood consumption in Germany is very high, and this makes it clear that we have a responsibility here as well – not only for our own forests, but also for the wood products that we import. And again, this shows that we need to reduce our wood consumption. The fact is that we use much of the wood as a direct energy source; in other words, we burn it. And a large proportion is processed into relatively low-value disposable goods.

This shows that it is important to reduce our consumption and, above all, our wastage of wood overall. The fact is that a large amount of the wood that we harvest or import is used to manufacture relatively short-lived products that are used up very quickly, such as toilet paper and packaging materials. All these products are manufactured from freshly cut wood – wood that took decades to grow and is then consumed in a matter of minutes. The task now is to redirect these material flows in order to make better use of the wood and convert this valuable resource into genuinely meaningful products that are long-lasting and offer us major benefits.

**Nadine Kreutzer:**

And who decides how much is harvested? Is it the foresters? Putting it simply, is this where forestry comes in? Who takes this decision?

**Dr Hannes Böttcher:**

The question of when a tree is felled is a matter for the forest owners to decide. There is no legislation in place stipulating how long a tree should be left in the forest to grow. Some trees are removed from the forest at a relatively young age. This is known as thinning. This timber is removed when the forester walks through the wood and takes out some trees in order to create more space and improve the growing conditions for others. But when it comes to the age of a tree, that is ultimately a decision for whoever owns the forest.

## Sustainable forest management and climate-resilient forests

**Nadine Kreutzer:**

If you were asked right now what “sustainable forestry” look likes from your perspective, what is the first thing that comes to mind?

**Dr Hannes Böttcher:**

Foresters are always keen to claim that they invented sustainability. And it is true that the concept of sustainability originated in the forestry sector. It mainly refers to the sustainable production of

timber. It means that the amount of wood removed from the forest should not exceed the amount that can regenerate. In fact, in Germany, we only extract 70-80 per cent of the growth, so it could be argued that this is sustainable forestry.

But there is much more to sustainability than that. We want the forest to be preserved for the long term so that it performs specific functions such as nature conservation. And these functions will not be performed if we extract everything that regenerates itself in the forest. Various factors come into play here, and it also depends on which forest ecosystem we are dealing with. But it is fair to say that removing half of the forest growth would be a sustainable level of use. There are many other aspects to consider with sustainability as well. For example, when removing the timber, it is important to protect the soil. The soil should not be damaged or compacted, and it is essential to leave enough deadwood and structures to provide habitats for flora and fauna.

**Mandy Schossig:**

And does this also mean that we should be planting more of one type of tree than another? In other words, if we look at the species of trees?

**Dr Hannes Böttcher:**

The tree species issue is important because tree species composition tells us a lot about the stability of the ecosystem and whether it is near-natural. If we want to create stable, near-natural forests, the tree species issue is critical. It is about maintaining a certain level of diversity in the forest, but it is also about having tree species that are adapted to the ecosystem, the climate system and the soil. That’s why it is essential to look at the tree species.

**Nadine Kreutzer:**

And here we have another question from a listener: to what extent can forest use ever be sustainable? Shouldn’t the forest simply be left to fend for itself?

**Dr Hannes Böttcher:**

The question is, what kind of forest do we want? After all, the forests were here long before people came along, and leaving the forest entirely to its own devices would mean that the forest would change. A forest without people is different from the kind of forest we see around us today. What we see today is a cultivated product that has evolved over centuries of human influence. And the tree species that grow there are not necessarily the species that would occur naturally. At least, that is the case in many of the forests around us.

If we want to preserve the forest in its present form, we will need to make some major investment. A further problem we are seeing is that the forests cannot be preserved in their present state under the conditions created by climate change. And many of the tree species that were planted are simply not well-adapted to the site, climate and soil.

This is an important reason why the forest has to change. This is the formula for the future: we need to create forests that are capable of adapting to climate change. So we don’t want to

preserve the forest with its current structure and composition; we want to create a forest that is fit for the future. As part of that, the forest has to change.

**Mandy Schossig:**

And when you say “fit for the future” and adapted to climate change, what exactly does that mean? What does a climate-resilient forest look like, and can a forest become climate-resilient of its own accord? Or do foresters have to intervene and support this process?

**Dr Hannes Böttcher:**

Tree species composition is one aspect of this. We need tree species in the forest that are capable of withstanding climate change. But because we don’t know what lies ahead, we can’t go along and decide at this stage which species will be suitable. The forest has to be adaptable. So it is not only about tree species composition; it is also about structure. In other words, a forest that is fit for the future has a structure that is resilient to climate change. It is important to prevent the trees from suffering sun damage and dying during heat extremes and to ensure that water circulation continues so that juvenile trees can grow on to maturity. These are important functions that we can support with our choice of tree species but also with forest structures so that the forests build their own resilience to climate change.

## Policy measures for forest transition

**Nadine Kreutzer:**

Turning now to policy measures, what are all the practical aspects that need to be addressed, would you say? In light of all the aspects you have just mentioned, what kind of practical action needs to be taken to bring about forest transition?

**Dr Hannes Böttcher:**

At present, forest owners’ only way of generating an income is through the sale of timber. But the fact is that forests don’t just provide timber – they do much more than that. We have already listed all the functions they perform in relation to the climate, and we have talked about their nature conservation functions as well. If we want forest owners to support these functions and make a contribution to enhancing the services that forests provide, it would be sensible to recompense forest owners for these services – for their climate and nature conservation services, for example. And the funding needs to be designed accordingly so that forest owners are not dependent on having to sell timber but have other options for generating income from forests.

**Nadine Kreutzer:**

But who is in control here? For example, if we say, that is a matter for the Länder, does this mean that the responsibility lies with the Länder, or would the federal state be the better forester here? Whose responsibility is it? Who should be taking action and creating incentives?

**Dr Hannes Böttcher:**

When it comes to the provision of funding for forests, the responsibility lies primarily with the federal government. It can set up a funding programme and draw up the criteria for payments to forest owners. The Länder can then work out the details.

**Mandy Schossig:**

How does this look in practice? So there is a funding programme. How are the funds accessed? Firstly, how are they disbursed, and secondly, how do we encourage private forest owners to participate? What is their incentive to do so?

**Dr Hannes Böttcher:**

At present, there is a federal funding programme, and forest owners are encouraged to apply for these financial resources. There is a set of criteria that have to be fulfilled. For example, forest owners are obliged to take five per cent of the area out of use. They must use specific forest tracks to access the forest, and they must also comply with other nature conservation requirements. And if they do so, they can then be granted funding of up to 100 euros per hectare; they have to register for this. In this way, they can generate an additional income apart from the sale of timber. It must be said that 100 euros per hectare is not a particularly generous amount. If you have a forest that is ready for harvesting, you can potentially earn several thousands of euros per hectare. So the question is how this compensation can be increased without causing distortions of competition; in other words, without pushing the funding framework to its limits.

**Mandy Schossig:**

And you and your colleagues have probably developed some ideas, am I right?

**Dr Hannes Böttcher:**

We developed a system that rests on two pillars. The first consists of a funding programme in its present form. In other words, forest owners can register, they have to comply with certain rules and they then receive funding for meeting the criteria. However, these funds are not enough to compensate for the losses that forest owners face if they decide not to harvest the timber. That's why we thought about the option of a second pillar, which allows forest owners to participate in a certificate trading scheme. It would work like this: private and, indeed, state-owned companies would purchase these forest shares to demonstrate their commitment to sustainable forestry in Germany and to show that they are willing to pay for it. The forest owners could then use the cash to carry out additional nature conservation measures.

**Mandy Schossig:**

But just to be clear: this is not an allowance trading scheme. You can't say: "OK, I have funded this amount of forest so I can emit a bit more $CO_2$."

**Dr Hannes Böttcher:**

Exactly, these certificates are not allowances or offsets; they are nature conservation certificates that companies can have credited to them, but not in the form of an offset. This is not about balancing out the emissions that companies produce.

## International forest conservation and outlook

**Nadine Kreutzer:**

Let's look briefly at the international level. The European Union has adopted a Fit for 55 package. What does the package have to say about forest conservation?

**Dr Hannes Böttcher:**

The Fit for 55 package includes a regulation on land use in Europe. This regulation says that Europe should be storing 310 million tonnes of carbon dioxide in its forests and agricultural soils by 2030. At present, this sink – this land-use sink – is well below that level. So this is an ambitious target to increase the sink capacity of forests and soils.

**Nadine Kreutzer:**

So overall, then, there is still some way to go. Do you have any advice on what we can do on an individual basis to help preserve the forests if we are not large-scale landowners?

**Dr Hannes Böttcher:**

Everyone can play their part in preserving the forests. Above all, this is about making sparing use of wood as a resource. It starts with saving on paper packaging when we go shopping. For example, disposable cups are certified but they are still manufactured from fresh wood fibre. If we reduce our consumption here, this benefits the forests. But looking at certification is also helpful. In other words, when buying wood products, check that they come from sustainable forestry. FSC and Naturland are certification schemes with high standards; they ensure that forests are managed sustainably.

**Mandy Schossig:**

That sounds positive; we can all make an effort to do that.

**Nadine Kreutzer:**

I suppose we should also buy recycled toilet paper.

**Dr Hannes Böttcher:**

Yes, definitely. Recycled goods are always better than virgin fibre products.

**Mandy Schossig:**

It's a bit of a leap from loo paper to my last question, but let's give it a go. The last question is always the same for everyone. If you were Chancellor, what would your urgent forest action programme look like?

**Dr Hannes Böttcher:**

Sadly, the Chancellor doesn't have a great deal of say on issues concerning the forests. The Chancellor has no powers here – not even to issue guidelines. However, there is a great deal that the Chancellor can do in other areas to benefit the forests. Payments for ecosystem services have already been mentioned. Taking that forward would be an important step. I think we need private investors, who must be persuaded to fund forest conservation. Promoting timber construction is another important area, although we also need to keep the limits of sustainability in mind here. We need innovations in our use of wood as well. For example, how can lower-grade timber be formed into long-lasting products? Timber recycling also needs to be improved. When we collect scrap wood today, it is not necessarily separated according to its level of contamination. But that's important to facilitate timber recycling. I have already mentioned disposable paper items; we need some curbs on that. And protecting the forests from infrastructural schemes, infrastructural expansion, motorways and so on is another important aspect.

**Nadine Kreutzer:**

As a forest expert, what kind of future do you see for the forests?

**Dr Hannes Böttcher:**

I'm optimistic about the future: I believe that we now understand the important issues that we need to address. We have also set ambitious targets for nature conservation in forests and for climate change mitigation. Now, all we need to do is to take the appropriate action, and I hope we can make this work. But I am confident that if more people visit our forests, take an interest and make space for them in their daily lives, forest conservation will improve and the forests will benefit.

**Mandy Schossig:**

Yes, that is quite a positive note to end on, despite all the problems. Do you have any tips for our listeners about where to find more information about forests and forest conservation?

**Dr Hannes Böttcher:**

Yes, there are many sources of information on forests on the Internet. The German Environment Agency (UBA), for example, provides information on how timber is used and looks at the problems with wood as an energy source. It has also compiled a large amount of information on climate issues. The German Federal Ministry of Food and Agriculture (BMEL) provides a wealth of information about forests. And if you are interested in the National Forest Inventory – in other words, how we assess the forests and obtain data about them – you can find information there as well. There is the Scientific Advisory Board on Forest Policy, which has produced a comprehensive report on forest adaptation to climate change. I would also recommend looking at some of the

NGO websites. The WWF covers global forest issues, and of course there is the Oeko-Institut's website, with information about the transition, as well as our studies on forests.

**Nadine Kreutzer:**

Can the forests still be saved? This was our question today, and we have heard a lot of answers from Hannes Böttcher, Senior Researcher on Energy and Climate at the Oeko-Institut's Berlin office, who joined us in the studio today. Thank you, Hannes, for taking time to talk to us in such detail.

**Dr Hannes Böttcher:**

Thank you for inviting me!

**Mandy Schossig:**

Thank you, Hannes! And finally, of course, a look ahead to next time. We will be asking how digitalisation can contribute to sustainability. On the one hand, digital technologies can save energy and resources, but on the other, the more platforms and tools we use, the more energy and materials we consume. So the question is: how do we set a course towards sustainable digitalisation? That will be our topic next time.

**Nadine Kreutzer:**

Perhaps you already have questions. If so, do please contact us at podcast@oeko.de and of course we would be pleased to receive your feedback about today's podcast if you have time and would like to get in touch. Thank you for listening to this latest episode to start off the new year and we hope you'll join us again next time. Until then, goodbye!

**Mandy Schossig:**

Goodbye!