



**Transcript of IMF podcast:**

## **Small Elephants Play Big Role in Fighting Climate Change**

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Ralph Chami:

Nature is part and parcel of the production process, it has always been. When you think of the oxygen that we breathe, the water that we drink, the land that we till, they've always been complementary inputs into the production of whatever output we were producing.

Fabio Berzaghi:

More and more people are moving from rural places to cities and are disconnected from nature. So I think this disconnect contributes to not appreciating or understanding the true value of nature. And this is where we get to the elephants. I am Fabio Berzaghi. I'm an ecologist at the Laboratory for Sciences of Climate and Environment.

Ralph Chami:

And my name is Ralph Chami. I am an assistant director in the Institute for Capacity Development.

Bruce Edwards:

And welcome to this podcast produced by the International Monetary Fund. I'm Bruce Edwards. In this program: how preserving a small elephant could have a big impact in the fight against climate change.

Bruce Edwards:

While the African elephant is the largest and probably the most famous land animal in the world, very few people know anything about the African forest elephant, which is much smaller and lives in densely wooded rainforests. Their numbers are declining thanks to deforestation and poachers and likely face extinction before long. Other than local conservationists and the biologists who study them, African forest elephants have very few advocates. But what if the valuable services that these forest elephants provide were more widely understood? What if people knew that the African forest elephant provides carbon capture services valued at over \$150 billion? And what if those countries that host them could tap into that equity and benefit from their conservation efforts?

Bruce Edwards:

Economist Ralph Chami and ecologist Fabio Berzaghi looked into how placing any monetary value on the services provided by natural resources could help curtail the demise of yet another species from our ecosystem. Their article, entitled *The Secret Work Of Elephants*, is published in the online edition of *Finance & Development* magazine.

Bruce Edwards:

So if nature is in fact, our capital, or at least a part of our capital, why have we taken it for granted for so long? And how do elephants fit into this story?

Ralph Chami:

We have to remind people, remind ourselves actually, that for the longest time we lived in balance with nature. We were part of this natural world. The humans view themselves as part of nature, and as nature as an input, also an output, in the process. The divorce, I believe, came with the advent of the Cartesian paradigm. Descartes, if you like. It started with Descartes. What Descartes did, he divorced the mind from the body. And by divorcing the mind from the body, humans were divorced from their natural world. And of course the Cartesian paradigm and what followed, if you like, the Renaissance period, and then all of this fueled the industrial revolution. And when you divorce humans from their natural world, what it means is that the sustainability of our wellbeing and our economic systems are no longer dependent on the sustainability of the ecosystem. Then basically you are growing without paying any attention to the impact of your own activity on nature.

Ralph Chami:

And that's also fueled by a few assumptions that were made by very powerful writers at the time. The presumption is that we are endowed with infinite nature or infinite commodities. So when your existence doesn't depend on nature, you're separate and nature is abundant, then there's no incentive for you to try to understand what nature needs, because it's always there. It'll always be there. As a result, you've got this industrial revolution that basically focused on the humans. Now it's a human-centric view of the world. And so you can now, rather than give and take, as we used to live before, now you're just taking. You're extracting from nature and you're not giving back.

Ralph Chami:

Of course, reality hits, as we see right now with the climate change, with everything that's happening around us. And we realize that nature is not infinite and nature is not separate from us. We are part of nature. So all sustainability depends on the sustainability of the natural world. And that realization basically forces us to understand, so what does nature do for us? The elephants are just one example. The whales is another example. Mangroves trees, bees, insects, all of them, they're part and parcel of what I like to think of as one breath. And that's the work that Fabio has done, is showing the importance of the elephants to our own existence, through the carbon sequestration role that they play.

Fabio Berzaghi:

Yeah, so thanks, Ralph. We've been learning lately about this interconnection between animals, plants, and climate. And we've been learning that forest elephants that live the tropical forest of Central and West Africa... These are different species from the Savannah elephants, which are more known and more studied. So slightly smaller elephants. They are more adapted to live in the forest. They eat huge variety of fruit, plants... And what we've been learning is that these forest elephants are important for enhancing the carbon storage in tropical forests.

Fabio Berzaghi:

So if you imagine these elephants in the forest, they move from place to place looking for fruit

and plants. And in this process, they stomp on small trees and they consume a lot of plant material. So elephants actually reduce the number of trees in the forest, and they allow trees to grow larger, grow taller. And this allows these trees to capture more carbon. And there's another point to the story, because there's different type of trees in the tropical forest. There's trees that grow very fast, but store less carbon per volume. And there's trees that grow slowly and store more carbon. So this process of reducing the number of plants actually favors these slow-growing trees, but with the advantage that they store more carbon, so large trees with a high carbon density overall improve the amount of carbon stored in African tropical forests.

Fabio Berzaghi:

So in this context, we see that they provide this unique service, which we can quantify down to one elephant. So this allows to put some numbers into this service, which then leads directly to the carbon market. And it's quite an effect, because one elephant adds 26 tons of carbon per hectare. So if you think about the size of the Central African tropical forest, and you multiply by the number of elephants, then the effect is outstanding.

Bruce Edwards:

So they essentially, in a nutshell, promote the growth of the larger trees in the forest and bolster carbon sequestration. Ralph, how much carbon are we talking about, and what is the monetary value of that carbon in today's market?

Ralph Chami:

Right. I mean, as Fabio was saying, 26 tons per hectare, and when you look at the overall area, let's say it will be equivalent to the multiples of what the carbon dioxide that captured by, let's say, the trees of Central Park. Multiples of that. And when you put a dollar amount, you get about \$1.7 million per elephant. So the elephant's worth in terms of the carbon services only, is each elephant is \$1.7 billion. Now let's put it in context. If that elephant, due to illegal poaching, fetches about \$40,000 in terms of the ivory from the tusks, so you can do the math, that a living elephant is far more valuable to us in services that are valuable to us than a dead elephant that only fetches maximum of 40,000, and for the poacher and much less. Much less. So this is what we were trying to say, is that a living elephant is valuable to us.

Bruce Edwards:

And so your article in Finance & Development magazine, a very interesting article, but it is based on a comprehensive study that makes the business case for the preservation of large animals, notably elephants. How do you propose to secure more investment in nature conservancy?

Ralph Chami:

Well, once we put it in monetary terms, you can start to build a case around how to help protect and grow the elephant population that's being decimated. Because notice that up till now we know they're dying. Whether it be in the Savannah or in the forest, elephants are under threat and we're unable to stop what's happening to them. The system in place right now, we have penalties, we have punishments, and still the price of ivory keeps increasing and poaching is on the rise. So that method of just purely penalties is not working.

Ralph Chami:

And because what it's doing, it's just saying basically we want elephants to exist because perhaps the rich world would like to come and visit them every now and then, and have a look at them and enjoy them. The people on the ground, in the areas where the elephants exists, do not understand the value to them of the living elephant. Well, the valuation method that we do, and by valuing the services the elephants do for us, especially that elephants are local so we know where they are, we can then start to make the case for the local communities, that, "Hey, a living elephant is far more valuable for you than a dead one."

Ralph Chami:

Meaning for the poacher that has the elephant in the sight of his rifle, does the calculation and realizes, "My goodness. If I were to shoot this elephant, I first run the risk of being caught, if not shot. And what am I going to get out of all of this? Maybe \$10." Because it doesn't go to them, the value of the ivory. "Whereas if this elephant is alive, maybe I can get something else that is more permanent, that is less risky." And this is where the power of the valuation can help you go beyond a system of penalties to a system of incentives, changing people's behavior in a way. And I can elaborate on this if you like, how this can be made, this experience, to be more positive, generating local ownership, because that's the only way you're going to save the elephants.

Bruce Edwards:

And so speaking of local ownership, you also talked about another benefit that would come out of the valuation and monetary valuation of these elephants, in debt-for-nature swaps. How do debt-for-nature swaps work, and who holds the value or administers the value of each one of these elephants that are worth 1.7 million according to your calculations?

Ralph Chami:

Right. So in general, the debt-for-nature swap, briefly. Basically you have a country that's indebted- the debtor, and owes money, let's say, to a creditor country. The creditor country cares about nature and the environment, says, "Okay, I will forgive you part or all of this debt if you, in return, look after nature." That's the debt-for-nature swap. I mean, very simply put. And you can figure out the face value of the debt and you can forgive half of it, all of it, such that the debtor nation looks after nature on behalf of the creditor that is forgiving the country the debt. And this has been ongoing for quite some time now, since the 90s. The way this one would work is by valuing the elephants, then you actually can figure out what is... It gives a floor for the amount of debt that you would be able to forgive.

Ralph Chami:

For example, if a country owes a hundred million and the elephant is worth 1.7 million... By the way, that's the minimum. Because we're using price of carbon of \$22 or \$24, and that's really a minimum amount. The IMF itself talks about a carbon price of \$75. And anyway, so what you would do, you're able now to use the value of the elephant to figure out how much debt you would like to, you-the creditor country... By the way, debt-to-nature swap could be with the government, or it could be with a private entity. And so the private entity or the governments, the creditor countries, say, "Okay, I will forgive you this much of debt in return for so many elephants." And we can do this over... Let's say the maturity of the debt is 10 years. You'll say for the 10 years, you're looking after those elephants, whatever the number is, you can divide a hundred by 1.7, and your job is to look after those elephants. But this is just the beginning of how you would actually protect these elephants.

Bruce Edwards:

But I mean, if an elephant dies, does the country have to actually pay 1.7 million to its creditors?

Ralph Chami:

Yes, exactly. Because now you've created the benchmark. You create the valuation, right? It's looking after the number of elephants that we agree on. Each elephant is worth 1.7 million. And that's your job, is to ensure that these elephants are protected and actually that the population grows. And after 10 years, the ownership reverts back to the country, because after all these are their elephants. But that's just the beginning of the story. Because once you engage, you take the valuation and you already have the legal framework. You have the system of penalties, you have the valuation. Then the next thing is that you need the local ownership, because that's what's going to keep the elephants alive, is the people on the ground around them feel that they are doing something for us, that we can get meaningful employment, meaningful income,

meaningful living, from having these live animals around us.

Ralph Chami:

So by valuing the elephants, you start to create markets around a living elephant, living nature, and that would bring in the private sector in partnership with the public sector to create markets that protect, even- you can think of now, once you have these elephants with all that attention, you can start thinking of tourism. You can start thinking of other services, insurance, that suddenly come around in benefit from it, thus bringing with it funding into this market. The market grows. And again, I always have this image of the poacher at the end of the day, looking at the elephant, thinking, "You know what? If you're alive, I may get meaningful employment. Because no one wants to be shot at. No one wants to spend their life ducking and doing illegal stuff. And I may get a permanent job looking after you, be it in tourism, be it in services, be it in whatever ancillary activities related to protecting and growing the elephants."

Fabio Berzaghi:

We're not discussing the intrinsic value of the elephant. We're discussing the value for the service provided. And it's important that that money goes for protection, for law enforcement, and then of course to deal with some of the local issues that come in places where you have people live in close to animals, human-wildlife conflict. Of course this needs to be part of the equation. If we want elephants in some places, it's unavoidable that elephants will live close to a human dwelling. So some of this money needs to go for resolving these conflicts.

Fabio Berzaghi:

And then of course, what Ralph said about the poacher who doesn't like to be a poacher for life. And I look at this other example of tropical places like Costa Rica, where they've made these huge national parks, and actually the poachers or the miners that used to work in that area became tourist guides or became part of the local tourism industry. So of course we need to think about on the ground with the actual practical problems of the people in these places. And yes, I think I totally agree with what Ralph said. People would prefer to do something more sustainable.

Ralph Chami:

And Bruce, if I may, I mean, your first question to me was, how is it that we forgot that nature is and remains a part of our production process? Our partner? And what this is doing is bringing us back to balance, you see. The elephants is just one example. You can think of the whales and the oceans sequestering carbon. We can think of the mangroves, sea-grass, trees, what-have-you. All of them contribute to our wellbeing. And this is one way of capturing, as Fabio was saying, one aspect of it, which is the carbon side, but it's certainly not the intrinsic value.

Ralph Chami:

So we are not discovering... Actually, I think of it like a self-rediscovery. We're trying to go back to where we were before the Cartesian paradigm took us off in a direction where it divorced us from nature and provided us temporarily with amnesia, forgetting that we are part of this nature, that nature is one breath and all of us are part of it. So on a philosophical level, this to me is quite important, that we are looking at the elephant beyond... Of course, intrinsically it's infinitely valuable. Every species, every living thing. But here, we're just saying, "Hey, let's rediscover our relationship with the elephant. We are all part of this one breath." It's nothing new. It's just rediscovering that humans are part of this natural world. And so the sustainability of the natural world ensures our own sustainability.

Bruce Edwards:

And do you think that this pandemic that we're living through right now with COVID-19 is showing us the power of nature and how it controls our economies and perhaps our very existence?

Ralph Chami:

Yes. Think about it. This is a virus that you can't see, and a local wet market in a faraway place almost brought the world's economies to their knees. How much more do we need as proof positive of the power of nature, right? People all of a sudden, is nature macro-critical? Well, if this is not proof positive, what is? It's just one example of saying nature is very important to our own existence, but I'd like to put it in a more positive spin, that this is the wake-up call of the importance of investing in living nature.

Ralph Chami:

When you say an elephant is worth 1.7 million and that's a living elephant, just like when we say a living whale is worth 2 million, versus a dead elephant is worth 40,000, that means we get more out of a living elephant. But this is just carbon. We're not talking about the elephant impact on biodiversity-

Bruce Edwards:

Tourism.

Ralph Chami:

... impact on tourism. This is just one single aspect that we can measure. That's why we did that work. But the beauty of it is a much bigger lesson, that we are part of this natural world, that this natural world alive brings us far more benefits that we can actually measure with credibility and with concrete numbers that are relevant to us. And we can create economies around a living nature.

Ralph Chami:

I mean, the action is a change in our behaviors. We need a paradigm shift. We need to change the framework that we've been using, including the economics framework that I am part of, that I grew up in, that I worked in. We need to look at nature as our partner, and the sustainability of our economic system depends on the sustainability of the ecosystem. Only when we fully internalize that and we come up with a better paradigm, only then can we really talk about what I would like to think is a sustainable, inclusive, nature-friendly growth. Only then we're talking about the wellbeing of ourselves and of our economic systems.

Bruce Edwards:

Fabio Berzaghi and Ralph Chami, thanks so much for this interesting conversation about the valuation of elephants and indeed important research.

Fabio Berzaghi:

Thanks, Bruce.

Ralph Chami:

Thank you, Bruce. Thanks for the opportunity.

Bruce Edwards:

Ralph Chami is assistant director at the IMF's Institute for Capacity Development, and Fabio Berzaghi is an ecologist at the Laboratory for Sciences of Climate and Environment in France. They are also coauthors along with Duke University's Connel Fullenkamp and University of Notre Dame's Thomas Cosimano of *The Secret Work Of Elephants*, published in the online edition of Finance & Development magazine. Read it at [imf.org/fandd](http://imf.org/fandd).

Bruce Edwards:

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