



INNOVATIONS FOR SUCCESSFUL SOCIETIES

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Interviewee: Luciano de Meneses Evaristo

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JACKSON: It is September 23rd. This is Rachel Jackson, and I'm here at IBAMA [the Brazilian Institute of Environment and Renewable Natural Resources, or Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis] with Director Luciano de Meneses Evaristo. Thank you for agreeing to speak with me.

I first was hoping you'd tell me a little bit about when you first joined IBAMA and how you came to work here.

EVARISTO: *I started in 1992, working on the project Quelônios da Amazônia (Amazon River Turtles). This was the world's largest project of its kind at the time, with more than 3 million river turtles at the end that we used them for repopulating specific areas that the population had been fallen. In 1999, I was in the Department of Strategic Management of IBAMA. In 2001, I took over coordination of environmental monitoring. In 2002, I became head of the Department of Environmental Protection for the first time. Then I was in the internal affairs office to combat corruption. Then I took over the coordination of environmental inspection. In 2009, I became for the second time director of environmental protection. In 2012, for the third time, I became director again after heart surgery. Therefore I had some experience.*

JACKSON: I understand that 2003 was the beginning of a new federal initiative, the PPCDAM. What were the initial challenges IBAMA faced in trying to implement that plan, and how were your office and the leaders of IBAMA thinking about how to deal with those challenges?

EVARISTO: *Before that, we have to understand how IBAMA would monitor and inspect the areas before 2003. There was no GPS, there were no high-res satellite images for real-time monitoring. There were images that were provided by the INPE so that we could monitor the environment, but they were released only once a year. We also had an institution here inside IBAMA that monitored the deforestation based on those images in the period of one year.*

At the end of each one-year period, these two institutions would fight about who had the correct data or not. So there was no monitoring system that would support us in combating the deforestation.

With the administration of Lula since 2003, there was a high demand for controlling deforestation in the Amazon. So in 2003, the head of IBAMA told this institution inside IBAMA that dealt with the monitoring of the deforestation that it had to deal with the monitoring for the combat of deforestation only.

Also, the government, the administration at the time, requested the INPE to provide IBAMA with modern technology so that we could take the right action to do the monitoring of the deforestation. Also, based on a decision

that was made by previous administrations, we would have government exams so we had analysts that would perform the activity of inspecting the deforested areas. They were specialized in deforestation monitoring.

In 2004, we had one of the highest rates of deforestation: 27,000 square kilometers of deforested area in the Amazon. It was high; this indicator moved everybody to mobilize. This was the main reason that mobilized the government to create the first major plan to combat deforestation, which is the PPCDAM, the Plan for Prevention and Control of Deforestation in the Amazon.

It had three main subdivisions. One was related to land regulation and was responsible for legalizing or registering all the land in the Amazon. With that it would combat the illegal activities and the illegal occupation of the land.

Another pillar was resources support: sustainable resources so that people would benefit from the biodiversity of the region to sustain economic activities there.

The most important one for us is the axis or the pillar of command and control, which is our responsibility. What do I mean by that? Monitoring the Brazilian Amazon and the direct actions to fight crimes. So, our responsibility is to do the monitoring of the environment, to take care of environmental emergencies in the country, to fight fires related to deforestation, and to prevent them. So, those are the three main categories we have, and those are the tasks we're supposed to perform under this department of IBAMA.

So, with the PPCDAM then, 13 ministries were involved in the plan. But among the three pillars I mentioned, the one that advanced the most was the one of command and control that I mentioned last. Major operations were put in place in the field.

We had operations with high volumes of people and equipment at first. Afterward, INPE developed a revolutionary technology that would monitor deforestation. The technology is based on a satellite; it is a low-resolution satellite—250 meters—but it is capable of monitoring or mapping the Amazon every single day. What INPE did was develop a way to interpret the images that these satellites would get and give us indicators of deforestation in real time.

That new system changed our way of managing deforestation. We were able to attack critical areas of deforestation immediately. With the new system, we were able to create a history of deforestation right in the first years of the deforested areas in the Brazilian Amazon. We were able to map all of these areas and identify the most critical ones, the ones we knew required the presence of the federal government to contain this deforestation.

JACKSON: In the early years, how did you identify which areas were the most critical?

EVARISTO: By those images that we would get from the satellite every year. With this new planning, we occupied nine critical points or bases that represent 70% of the deforested area in the Amazon. We started with six bases, and then we expanded to nine bases. We maintain our personnel, our staff, in these critical areas 365 days a year.

We've also adopted credit limit measures by resolution 345 with the Central Bank. So those areas that have some kind of embargo prohibited are not allowed to receive credit. By 2008, 6,321 of those were by-products from areas that have been prohibited. They are also going to be considered coresponsible or liable as well for the offense.

So the idea is that we wanted to adopt a strategy of dissuasion. We didn't occupy the entire area; we occupied critical points. With this set of tools, we were able to limit the illegal activities or the people who were the offenders from getting credit or getting resources to continue doing what they were doing. We call it decapitalization. Whenever we find offenders, we take their tractors, take the resources they had at their disposal—and limit the offense. That is what happened.

With those measures, the deforestation rate fell dramatically. In 2008, when I took over coordination of environmental protection, at that time we had a deforestation rate of almost 1,000 square kilometers in November and December, in the rain, almost 2,000 square kilometers at the end of the year.

With these new measures and the new planning based on the new monitoring tools, we were able to reduce that rate dramatically. With time, we became specialists in specific operations against deforestation. For example, in 2010 we carried out the first operation called Boi Pirata. Translated literally, it means Pirate Ox. We removed 3,500 cows from someone who had invaded the public or government area. This was just one of several examples. There are similar examples we had in that area of deforestation.

The cattle were donated to the Ministry of Development and used in a government program called Zero Starvation. The conversion of the cattle sent to resources went to about 3 million reais, which was used in government social programs. It was by using this strategy of decapitalization that we were able to reduce to zero by July 2010. The deforestation went down to zero just by using this strategy of decapitalization.

Thousands of cows were removed from this occupied land, the government land. After that, we had some operations that were slightly

different from the ones we had been conducting. In the state of Pará, we had very few landowners with the deed of the property, land tenure. So these areas, they are like war zones. They have the people who deforest and the people who occupy the land illegally.

One of the main reasons for deforestation, we would say, is this federal roadway, BR163. We have several indigenous areas and preservation areas in the region. Since five years ago, it represents 2% of the illegal Amazon. So we measured this period from August until July of the next year. From last year, that area corresponded to 20% of the deforested area in the entire Amazon. This is the major focus of crime. We have all sorts of criminals there like illegal occupants, assassins, all kinds of criminals. This is no doubt one of the most dangerous areas, and we're developing our actions there.

In order to face this challenge, we tried to equip ourselves, to arm ourselves. We were able to obtain seven helicopters and 450 trucks with satellite communication and GPS. With all this equipment and all these tools, we have been able to maintain the deforestation—I mean all the criminal segment of that area, they depend on crime. They just invade the government land, and they have the illegal timber businesses there that will take the timber to sell at market. Then they are going to cut down the rest of the trees to finish the deforestation in that area. Then they finish the deforestation with fire.

Families depend on the timber business. The gas stations also depend on the timber business and those that occupy the land illegally. We have people digging for gold there, so these people also. Any action we take there is going to generate unemployment, and unemployment generates social chaos. A novelty that I am going to share with you that you can share in your study is breaking news. We made an agreement this year with the Kayapo tribes right next to this federal highway 163. Several tribal leaders came to meet here in Brasília. They came here asking us to remove the timber businesses that were destroying their areas. I personally went there to the region and identified a new type of deforestation taking place.

The land occupants, illegal land occupants, were trying to fool the satellite monitoring system. In the past, they would use tractors to deforest. In the past, we would go there and remove the tractors or destroy them. Now they are using chain saws. So they would set up camp and use chain saws to cut down the trees. But this is what I found in April of this year: instead of setting up a large camp with many people with chain saws, they were now setting up several small camps with 10 people at most in each camp. In these camps they would have the cook, the person responsible for maintaining the chain saws, and eight people to cut down the trees. One chain saw would be responsible for three hectares per day.

So because of this new way of deforestation, IBAMA was not able to take action in real time immediately to stop the process. We found 140 kilometers of deforested area without satellite detection. How do we fight this? The Kayapo Indians took me to all the camps, and I arrested everybody. So we established this agreement with the tribe. We removed all these illegal camps from the surrounding areas and their areas, and we took the chain saws, and we arrested all these people and those who sent them there.

At the same time, here from Brasilia, I ordered my personnel to remove all the gold diggers that were there trying to find precious stones. In this way, we freed this indigenous area from the criminality that was taking place. So my eyes there, around this federal highway, are the indigenous people living there.

JACKSON: I see.

EVARISTO: *So this is the problem of Pará, and this is how we've been trying to fight this. On August 27, IBAMA and the federal police, customs, and the federal government discovered the biggest scam of illegal occupants of the Amazon. We arrested 11 people. We followed the instructions of the police with dozens of police actions, and we were able to make them responsible, make them liable. We reached 46 years of imprisonment just because of these types of crime.*

The strategy was to put together the environmental crime. IBAMA took action first and presented this crime to the federal police. But we also requested the support of the prosecution office which invited customs to investigate money laundering and tax evasion. This was the first and the largest blow that they received since we started monitoring and arresting.

In the state of Pará, we have other areas of deforestation. We have the Transamazonica region, and there we have the predominance of small deforested areas. We have the midland, where I said we had the Boi Pirata operation. We have the road Pará 150 in the east of the state. So the deforestation concentrates on the surrounding areas of the roads and federal highways.

All these actions that we took together with the policies and programs that we have. We have one called Green Municipalities. With these actions, we were able to control the deforestation in the eastern side of Pará. So let's move on to another state. The state of Pará is where we have direct contact with the criminals, and we face them directly.

Now let's look at the largest state of the agribusiness, Mato Grosso. Deforestation there takes place in a different way. It happens with the expansion of the areas in which we have crops and the low capacity of the state government to license the production.

Because of this low capacity to license production, these crops just expand, and they start planting or growing crops in areas that can be authorized or are prohibited because the state doesn't go there to check. Most of the deforestation that occurs in Mato Grosso, for instance, could be authorized. But they are not authorized.

We also use the satellite tools that I mentioned to locate the deforested areas. But unlike in the state of Pará, we are not besieged with firearms or weapons, rifles. Instead of destroying the equipment like we did in Pará, we try to just take possession of it. So what happens in the state of Mato Grosso, there is the property, the land there, and the owner of that land. There is a person liable for the deforestation. Our combat, our fight, is a lot less aggressive, so to speak.

One of the main emblematic operations to fight deforestation is the pirate soy. So we locate the soy that is grown in prohibited areas. The landowner is fined because of that. The fine is around R\$100,000, \$50,000. We take the production. We send it to the social programs of the government. We did that with rice crops too. We did that with soy and rice.

More breaking news: I was just there. This is the Juruena National Park. It has beautiful, fantastic waterfalls but is threatened by the timber businesses. I was surprised that I found management plans that were authorized by the state at the borders of these parks. This management plan, it is a different plan that is authorized by the state, a sustainable plan, that follows an exploration plan. With this plan, we are able to produce wealth and maintain and preserve the forest.

But I didn't understand why the state of Mato Grosso allowed this management plan right at the border of this national park. So I arrived there with my eight cars for inspection. I traveled all night to get there. Early in the morning, I found a line of trucks full of timber that would use the road inside the park to transport all this. When I stopped these trucks, they would show me this document and say this timber came from this management plan. I would ask, "Why are you going through the national park? Who authorized you to do that?" So I arrested all the trucks, I took all the trucks. I arrested the owner of this management plan. I arrested this man in handcuffs because this man had five different IDs.

At that time, we prohibited and isolated the area. We took tractors, equipment, machinery. We warned, we sent a notification to the owners of the management plan that they were not allowed to go through the national park or the road of the national park; otherwise, they would have their equipment and machinery destroyed.

I call your attention to this national park, Juruena National Park, because it is an illegal form of extraction or exploration of the forest.

JACKSON: I wanted to ask, from your perspective, how committed do you think the state governments of Mato Grosso and Pará are to dealing with deforestation?

EVARISTO: *The state government started implementing management in 2006. They organized themselves in 2006. They prepared their environmental secretariats to do the licensing and to authorize the deforestation in specific areas. They forgot that they have the job, the responsibility, of inspecting the illegal deforestation of the Amazon forest. So the state governments license a lot of deforestation with very little inspection, almost no inspection.*

It generates a lot of credit for the exploration of timber in the area. The high volume of credit is used to cover the illegal activities of timber extraction in the national parks and indigenous areas. IBAMA has found a solution to this problem. The new forestry code forces the states to abide by this National Management Forest Remanagement system created by IBAMA.

With this new plan, we are going to be able to detect the origin of the management plans, and we are going to be able to check if the timber is legal or not. If this system were already operating today, these people would not be stealing the timber from the national park.

JACKSON: I wanted to ask—if we could just jump back in time a little bit—I understand that from 2005 to 2007, there were a number of cases where people had detected unethical activities within IBAMA. Licensing that was illegal and there was an effort to try and clean that up. Can you tell me a little bit about how that happened?

EVARISTO: *In 2005, IBAMA was responsible for licensing. We had several problems—not only corruption—and we didn't have the technology. Today we are able to monitor this management plan and area just by using this high-resolution image. IBAMA has high-resolution images like 5x5 images of the entire Brazilian territory. So whenever we identify a management plan or area that has an exploration plan, we are able to detect through these images if they are actually following this plan. There are specific areas that are characteristic. If they are not adequate, we can check on the image.*

When the forest is not being properly taken care of, these images also detect the problems. Based on the analysis of the images and the management plan, we are able to identify the production chain and prohibit or isolate areas. These new technologies with high-resolution images, we started using them in 2007, not in 2005. So the deforestation management went from IBAMA to the states. Since 2003, IBAMA tried to combat corruption, and we fired 43 public servants.

Corruption already had reached the secretariat of the environment, the state secretariat. To operate with legal timber is better than to operate with cocaine. So if 'you're doing drugs, it is a serious crime. People go to prison for that. To deforest, to destroy the Amazon is less of a crime. The penalties for that are less severe. That is why I mentioned we have cooperation not only from IBAMA but also from the federal police, the prosecution office, and customs so that we can identify all the crimes that are being committed and apply penalties that have an impact.

JACKSON: When you first started working together with this new policy with the federal police and the prosecutor's office, was it difficult logistically to coordinate between all those different offices?

EVARISTO: *There was no conversation before me. As head of this department, we implemented this doctrine of inspection. This is an intelligence sector. We were part of the Brazilian intelligence system. We have a number of—our staff is very well trained and very well armed. We fight crime in these areas better than any type of police. The forest is our domain.*

So the partnerships with the prosecutor's office and the federal police and customs made it possible to hold people liable for their actions. On the other hand, we have the IBAMA prosecution office. We are coordinating several actions against people who deforest. We are requesting they recover the areas that were destroyed, as the Brazilian constitution requires. Do you want to move on to another state?

JACKSON: I just wanted to ask you about the recuperation efforts. I imagine that a lot of people don't have the training or the knowledge on how to recover these areas. Is IBAMA involved in teaching people, or is that a different agency?

EVARISTO: *These people are going to put everyone in prison. There is no instruction there, no guidelines, no support.*

JACKSON: I understand in some areas where the deforestation is from agriculture and somebody owns the land and they haven't maintained the legal reserve, for example, do you give them time to restore the land, or is it considered just a crime?

EVARISTO: *Now, with the new forestry code, all the landowners have to have a registration. So you have to register. If you have any type of land, you are supposed to register. Those who do not have this registration of the land will not have access to any government service or public service or regulation—anything. Those who don't have the land registered and don't have the legal reserve, they are supposed to present a plan for the recovery of that land. So in the card, the registration of the property, they are supposed to identify the areas that can be explored, the permanent preservation areas, and the ones that need to be recovered.*

JACKSON: I see.

EVARISTO: After all the properties have been registered, we are going to be able to identify these areas by their economic activity and not by the biomes. I am going to be able to monitor the deforestation just like the US monitors the resources. I am going to create my own system to catch people. Every year, I am going to select a group of landowners, a group of properties, and I am going to monitor throughout time the progress of deforestation. If there are any fines that should be enforced, they are going to come from my desk. The fake companies are going to go away.

JACKSON: It is an impressive system.

EVARISTO: These people with fake IDs, they disappeared. I will have all these private properties in a system that will allow us to make inspections in a much more efficient way. That is why the government bought the images of 5x5 meters. These images are available to anybody, anyone like the secretariat, state secretariat, any government agency that is trying to do this. I think the success we have obtained with the targets for climate change is because of environmental monitoring and inspection. With the CAR (acronym for "Cadastro Ambiental Rural", that means Rural Environmental Registration) we'll have the largest program of carbon sequestration. We are going to replace inspection for the recovery of the environmental images.

JACKSON: I wanted to ask: I understand that from 2005 to 2007 there was a lot of focus on getting the technology together and going after the worst offenders on federal land, but in 2008, you shifted gears and began what I believe is the Arc of Fire operation, which focused on the specific municipalities responsible for the worst deforestation. Could you tell me about the evolution of that strategy?

EVARISTO: In 2008 there was no Arc of Fire. There was the Amazon Guardians operation. This operation had the objective of fighting deforestation in its origin. The Arc of Fire operation had the objective of fighting deforestation, but it was attacking more the transport of timber that was extracted. IBAMA was there with military police during the Amazon Guardians operation. In the Arc of Fire, we were together with the federal police fighting the timber business, the storage of this timber. I was the commander in both operations.

JACKSON: Where did the idea come from to focus on the specific municipalities rather than the people who were encroaching on federal land?

EVARISTO: The strategy came from the concentration mapping. If you look at these maps, you'd see an arc being formed by the deforested areas. By looking at the roads and the paving of roads and the agribusinesses in these areas, we were able to predict where the deforestation would go. With this mapping and with the monitoring data, we were able to specify some

locations because not even the United States is able to cover 5 million square kilometers. So, with a staff of 1,100 and all the national forests, 80 policemen, we tackled nine critical areas that correspond to 70% of the deforestation of the Amazon forest—again, by using satellite images and the detection system as the basis of the operation.

JACKSON: Thank you. I wanted to ask: obviously, you anticipated a lot of resistance from local communities, from people who were illegally deforesting, but were there any unexpected challenges that you ran into during the past 10 years of working on deforestation of the Amazon?

EVARISTO: *Several. Let me mention a few. The IBAMA branch in Novo Progresso is one of the most hated IBAMA branches that we have. Let me show you. This is the monitoring of the deforestation. Our branches are constantly threatened. They want to invade the area. We have these Molotov cocktails, bombs. Our space was invaded once. They tied some chains to our helicopter engine. This is how we fight deforestation, this is just one example. So each red dot has a geographic coordinator. This is how we are positioned in the field.*

JACKSON: I see.

EVARISTO: *So, since August of last year until July of this year, the number of fines that we imposed was 1 billion. Let me give you the current data.*

JACKSON: Thank you.

EVARISTO: *I'll get the current data, but it is more than 1 billion in fines, and when I mentioned Molotov cocktails, people were threatening them with all that. This is a gift that I'm going to give you.*

JACKSON: Thank you.

EVARISTO: *Here is all the data.*

JACKSON: I wanted to ask: given that a lot of the people whom you're assessing fines against have false IDs or aren't supposed to be where they are, is it difficult to collect the fines?

EVARISTO: *There is no problem. This is not an issue. The problem is how many times they can appeal in order not to pay. There are two levels to appeal, and then after that, there is the judiciary branch; it takes a long time.*

JACKSON: It must create a lot of work for the judicial system.

EVARISTO: *For us it presents—this is the map, you see the areas. If I don't have branches there I won't be able to control the deforestation. These are the critical areas. That is the indicator for inspection. When they go to a location, they take this data: this is the deforestation. So, I go there with*

the GPS, and I characterize all the area, take all the coordinates to map the deforestation.

JACKSON: Have you had to move your bases over time, or have the hot spots stayed mostly the same?

EVARISTO: *They're mobile. Look at the federal highway. Twenty percent of the entire deforestation. In 2014, 20%. Look at how the deforestation takes place; you don't see the tractor there. Where is the tractor?*

JACKSON: Is it right there?

EVARISTO: *There it is. It is camouflaged. It is green.*

JACKSON: They're smart.

EVARISTO: *Now the action: This is the news describing what happened to the helicopter. This is the national plan for environmental action. All the operations that I'm going to implement in 2015 were planned in December 2014. Because of the technology that I have available, I can anticipate and plan what I am going to do. Look at our bases. You can keep that.*

JACKSON: Thank you.

EVARISTO: *So, all the areas that we isolated and prohibited, they go to a public Web site. All banks and credit institutions check this Web site to see if there is any area suspended. You can check in the Environmental Ministry. This is a secret. I am going to let you keep this. These are the state governments, timber credit authorizing the system. Then I converted this into forest. This is not state data; it is ours. So here we have 10,350 square kilometers of forest in this system—so keep that. This is the group that discovered the robberies. This is my team that fights deforestation.*

JACKSON: That is a great picture.

EVARISTO: *These are the results of the inspection. There was R\$1.9 billion in fines. I suspended 140,310 square kilometers of area. This is on the Web site for all the banks to see. We have taken 158 tractors, and most of them were destroyed. We took 86 trucks, 291 chain saws, 44 guns. That is the number of sawed timber. Approximately 68,000 meters of timber and approximately 12,000 tons of grain.*

It was the Kayapo leaders who led me to the criminals. This is the national plan for private change. The target is 80% reduction of deforestation by 2020, and we've met, we've reached, 70%, so we have 10% to go.

JACKSON: Very impressive.

EVARISTO: *This is the chart—by competence—of who has the competence to fight. In Mato Grosso it is 82% the state and 7% federal, but the states didn't do anything. Here, 11% belongs to the state, 42% federal; the state hasn't done anything, and again, nothing, nothing, nothing. Where is the rest? Keep that. We have an indication for inspection there—and here.*

JACKSON: I see.

EVARISTO: *So when they do that type of deforestation, you can't see it here, the small groups, small camps. So June 25 they had this deforestation. In July, you were not able to see anything, just the indications. These people found a way to avoid detection, but now let me show you. This is me.*

JACKSON: Over the past 10 years, have you increased the number of agents you have, or has the number stayed about the same?

EVARISTO: *Yes, and we improved the quality. In 2002, when I was director, the only one left is me. [They are just talking over each other.] They know how to use a firearm, heavy firearms.*

JACKSON: When did you start training them differently?

EVARISTO: *In 2008. In 2008, it started to increase again, the deforestation, so we adopted this strategy. Since 2008 we started training. We had this approach that was more aggressive. We wanted to send inspectors who were more qualified and prepared to reduce from 7,000 to 6,000. Then we had 5,000; we had 4,500. Now we are in between 5,000 and 6,000 kilometers. You are going to ask me, "Isn't this too much?" But this is including legal deforestation. We don't know how much that is because it is difficult to get that type of information from the state.*

In a country where we have growth of around 3 to 4% a year, there is legal deforestation, or there could be legal. With the current development of the country, the deforestation rate is at a normal level and based on the law. I think that, as head of this department, this is the optimal point of control regarding deforestation.

In order to differentiate legal deforestation from illegal deforestation, we have a series of plans combined that will help us do that. The states following the national management forestry system, this is one factor. This system is going to be transparent for all society. We will be able to monitor the origin and destination of forest products. We are also equipping the state with a free system that will allow them to manage the licensing of the agribusiness in a more efficient way.

With all these tools and all this information, we will be able to differentiate legal deforestation from illegal deforestation. With that, we'll be able to

show that Brazil is doing its part in terms of controlling deforestation and controlling CO₂ emissions.

JACKSON: I wanted to ask: the case studies that we produce—one of the goals is to help other countries that are dealing with the same issues that you faced here with deforestation. So, I wanted to ask if you could go back to 2004 and change anything about the strategy you've used during the past 10 years or do anything differently, is there anything you would change?

EVARISTO: *I don't know any other country that has the same threat the Amazon forest has, but I think Brazil today has one of the best rain-forest-monitoring systems in the world. We'd be happy to share our monitoring system with any country that has tropical forests. What I would recommend to more-industrialized countries would be the adoption of stricter rules with regard to the products that arrive at their borders, the origins of those products.*

We could have bilateral agreements, and we could fight these crimes together. The Amazon forest is important for the world. As long as there is demand for timber there is going to be crime.

JACKSON: Those were all my specific questions. I know I've used a lot of your time. Is there anything we haven't discussed about the work you do here that you think is important for us to discuss?

EVARISTO: *I think we had a lot to talk about, and the time is short. We had a lot to cover. We interrupted our trip. So, the deforestation at the border and the state of Pará and Maranhão is basically concentrated along the indigenous land.*

JACKSON: OK.

EVARISTO: *Right now we are sending our teams to the state of Pará. When I say send, understand that we are going there by helicopter. We are going to destroy all the equipment, all the machines they are using. Part of the indigenous population is used by these illegal explorers. I cannot fight them directly because I'm not here to kill any Indians.*

JACKSON: Of course.

EVARISTO: *My targets are the white people there, the offenders.*

JACKSON: Is it more difficult to work in indigenous territory than it is in other areas?

EVARISTO: *It is difficult everywhere. There are very hostile areas. If you look at the map, you'll see where the helicopters are. These red spots, these are stations to fight fires. We are there to protect the conservation, the federal conservation units, the indigenous lands, and the settlements of land*

reform. Look at the size of it. And I go there. Personally. In spite of the surgery.

JACKSON: Difficult territory.

EVARISTO: *There is a lot to talk about. If there is anything you would like, if you want to arrange some other time to talk more—*

JACKSON: That would be very helpful. I have more questions, but I understand that I've used a lot of your time today.

EVARISTO: *Yes, because I have to attend this other meeting, but we can schedule another time. I have transparency; anybody can come here and ask about anything I'm doing. Even if you don't belong to the press, if you want to go there you are welcome to. Obviously, you have to sign an agreement saying you are responsible for your own life.*

JACKSON: Actually, we were in Alta Floresta talking to the municipal government there.

EVARISTO: *I was there yesterday. I am going to give you a gift.*

JACKSON: Thank you.

EVARISTO: *Defenders of the Forest. This is the symbol of the federal inspection.*

EVARISTO: *It is called law enforcement, environmental law enforcement, federal law enforcement course. So all of those that have the profiles who participate in this training have to register annually because we do this annually. Our training is 60 days. We include several topics such as inspection of the fauna, fishing practices, biopiracy, degradation pollution, prospecting activities and degrading activities, flora, Brazilian biomes, and protection of the forest. We also teach them to build inspection blocks and how to approach offenders. We teach them about arms and shooting and the progressive use of force.*

We also include aspects of environmental legislation. We include psychological aspects, how to approach citizens, and how to deal with them. We have professionals coming from academia. When they arrive here with this background—biologists, veterinarians—they have this education in police practices. Today we have over 1,100 officials trained to legally enforce and perform the activities.

Our training is so good that we haven't lost any of our personnel since 2003. They come back and fight.

JACKSON: In 2003, what was the number of officials? Has it grown or has it stayed the same?

EVARISTO: The number was—in the beginning, in 2001, we had professionals who came here from the four different institutions that originated IBAMA. So we had professionals who were from the Superintendence of Fisheries, Rubber Development Superintendence, and a special secretary for the environment. Also, the Brazilian Institute of Forest Development. It was a heterogeneous group, but most of them had medium-level or support-level backgrounds. Many of them were semi-illiterate.

This group didn't have physical conditions—or physical preparation to face war zones and rural areas. They didn't have enough skills to collect enough evidence to build a case so that we could file the administrative process and make the offender pay his fine. The level of corruption was also very high. At the time in these institutions, there was no system to fight corruption. There was no system like the one we have today to fight corruption.

So, with the lack of technology, they were able to do anything they wanted because they used only papers. Sometimes they would give these vendors fines—fines that were very high—and then they would negotiate the high fines so they could get some bribes and then lower the fines.

In 2004, with Lula's [Luiz Inácio Lula de Silva's] administration, we started this huge operation called Curupira. It was carried out in the state of Mato Grosso. More than 130 people were arrested—among them, 60 public servants inside IBAMA. Out of those 60, 39 were fired. We started this new cycle to fight corruption and those who were corrupting these people.

After the Curupira operation, they had several operations in the state of Rondônia and the state of Pará, so we were able to reduce the rotten part of the institution, so to speak. With the arrival of this new environmental analyst, inspection of the process was improved. So, space for semi-illiterates and those of low-level education was dramatically reduced.

Law enforcement was based on the new technology that was made available through satellite imaging. Those officials who had low levels of education were not able to use this technology. All these officials with low levels of education started to leave the institution, although we offered them training to update their knowledge. We wanted to use their experience in the field, but many of them still left.

The landmark was this electronic document that is going to record offenses. He is going to bring here this electronic file to register the offense. It doesn't accept any type of deviation that is going to compromise the legality of that document or that law enforcement. So, you cannot categorize it in the wrong way with this file, with this electronic record. Even if the official wants to make a mistake, this electronic document is not going to allow him to introduce that mistake.

This electronic document is embedded with a GPS system. It has a digital camera and cell phone communication so that people can register data from the field to the headquarters. So this electronic document can be opened only if there is an authorization signed by someone who is competent to sign that authorization to open this electronic file.

So, what happened is, the agent or the official who received the indication of deforestation in the area goes to the field and checks everything. They do GPS and the camera. They register the offense electronically. They register the data. They issue the fine. I don't know if you can see it. This is the system. Here we have the official taxpayer ID of the official and the password provided by IBAMA.

This is a test environment, but it replicates the real situation. We have an order for inspection. There is an inspection order issued by the director or coordinator; otherwise, the system is not going to continue from there. So, this is the key to continue with the system. There are several there, because this is the test environment.

So, you choose one of the orders. The order is going to determine the action of the official, how the official is going to proceed. So if you are in the field, you can create an inspection action. I want to show you the ones that are already there. To create one, you just click this screen here. This is the action. We insert the municipality there, location, references, geographic coordinates, and then the IBAMA unit that is going to be responsible for that administrative process.

So, we went to issue the fine notification, embargo, interdiction. We also have the possibility of inserting photos. You might have 10 officials, for example. And in that specific action, you probably have three officials there. So, here we're going to include people involved in that action.

We have an option to start the recording of that action: it says causes and circumstances. The report is going to be finished in a different model that we have. It is called SICAFI. It is not completed here. It is within the Web model. So, inspection and registration system: all the information that is input here is transferred to the other system. They finish the report there on the other system by using the information.

When we issue the fine there comes a number that identifies this action. Everything is automatic. Then we have to select a biome, the type of offense. Here we put flora because you're destroying the forest. The fine is going to be very high. The coordinates—longitude and latitude—are the same. You have the satellite indication, the satellite data. Sometimes you might be—the official can edit this information to put the area which may be smaller than indicated. The delivery, how this fine is going to be delivered, it may be in person. They have the option to set it by career so we click here and put your name. It says you're not registered, so you write down your name.

JACKSON: Rachel Jackson.

EVARISTO: *Rachel, what are you doing here? [laughing]*

It does not find the name Rachel Jackson. It is looking for some identification. You use your Social Security number, right? US, OK. It needs an address. Now you are arrested.

JACKSON: International incident!

EVARISTO: *When you confirm it, the screen is blocked. You can edit or go back. So now we're going to select the person. You've been fined. You destroyed a thousand hectares using a chain saw. You destroyed two different species, and this is a serious crime. This is very self-explanatory. You can pause and end; the other is delete. Who are your friends? So we include flora. We don't know the species. You can put yes or no there. We'll use the popular name of what you destroyed. So, it searches a database trying to find all those species. You select it. How much? We'll keep it medium. You destroyed a thousand meters of this big preserve. So, the amount and the units. If there are any notes. It is confirmed. Cubic meters. To sell to illegal timber businesses. This is the evidence.*

We're going to use the legislation to frame you and fine you. These are the articles we can apply, according to the legislation. It describes your offense to deforest especially the specific type of tree that is protected by the federal constitution.

The important thing is, you can't make a mistake in characterizing the crime. In the description, it usually adds the area that has been destroyed. So in our legislation, Field 1 refers to federal law, and this federal law has to match the article in the decree. There is a specific article for that act. There are now 45 related to flora. So, based on what I've chosen, Field 1 combines with the third article of the decree, and we have article 45, which is going to describe the events. If there is any additional item, we are going to put it there.

It is worth remembering that this inspection is law enforcement. We say, "This is law enforcement. Do you have firearms?" First, we stop the offense. Then if we neutralize everything, we're going to measure the size of the offense. We're going to measure the area that was destroyed and how much of the logging was extracted. If we come to the conclusion that you have committed a crime, you're going to be arrested and taken to the nearest police station.

So, we can capture the polygon. We won't be able to do it here because you have to go to the area, but this is not a mandatory field. So I arrive there in the area, and I walk through the area, and this device is going to

capture the area that I walk through. I can do it by foot, by car, or by helicopter. Or I could just check the satellite indications that I received.

What happens in most of the cases today is that we already received from the satellite imaging the indication of the area that was destroyed, that was deforested. So the job is a lot easier now; you just have to confirm the area of the satellite.

We have two different types of fines: the open type and the closed type. The closed type means the amount of the fine is already indicated in the decree. The open type means there is a range of around R\$5 million. So, the fine is ready. They can check everything again by going back to the tabs. We remove the handcuffs so you can sign. Go back. There is a list of fines, and we can issue several fines off-line. Then, whenever we have Internet access, this is going to transfer all the data to our system.

JACKSON: When did you start using that system?

EVARISTO: *Last year. we had the training, and last year we had already installed it. The first fine was in July of last year. During the first semester, we used it just to train the officials and the professionals.*

Remember that in the beginning, she had to enter the CPF; everything she did here is registered by her; everything is under her name. She cannot cancel anything without justification or explanation.

?????: *So she is not able to cancel anything from here. To be able to cancel it, the professional has to write a memorandum and send it to a superior to cancel it. Everything is subject to audit. There are error messages. So you get this with the bar code.*

EVARISTO: *So, Rachel, 5 million. For the timber. This is the number of the official, the registration in the agency. This is your data.*

JACKSON: I see.

EVARISTO: *Here is your name.*

JACKSON: Thank you.

EVARISTO: *This is the type of technology that avoids corruption and the mistakes that we see in certain types of inspections. We have 500 of those. One device for each team, not each person. So, whenever these devices are used in the field to give fines to the offenders, all of the data is transferred, so in real time, I have almost all of the data and all of the fines that were issued. This gives me the information with regard to whether I have to increase the number of staff or not. All this data is available for everyone; this is public data; it is transparent. This device is revolutionizing the way we work with the law and environmental regulation.*

So we have internal regulation and inspectional law enforcement. This is what normalizes or regulates all our police actions. This includes information with how it should be addressed and how I became an environmental federal agent, my uniform, the arms I use, my duties. What I cannot do. This is what regulates, this is what keeps us from abusing authority. This is what really limits our job.

We have a good training course that lasts for two months. We have the satellite images and internal regulations. We also have annual planning. So, in December now, we will be planning 2015. By using historical data provided by the satellite, we are going to decide where we are going to work in 2015 and what the force we are going to supply and what time of year we are going to apply that force.

We have fewer personnel involved in the operations during the rainy season because it is difficult for the people who destroy the forest and for the agents. The personnel or staff involved are going to increase based on the growth of deforestation or the business as business grows.

When the people in the agrobusiness start to think about expanding their crops, this is when we start expanding the number of people, increasing the number of people working.

There is also another factor that is important in addition to the history of deforestation: intelligent law enforcement regarding the market. This is why they chose an economist director. This is the science that manages scarce resources. So, say you're going to look at the price of commodities in the country and internationally. On one hand, what is the price of soy? Is the American crop or harvest bad or not? Brazilian and US soy crops compete, but in different seasons. If they have problems in the US, the prices here are going to rise. If they have bad crops here in the US, we have to increase inspection in the state of Mato Grosso because this is the state that is responsible for the soy.

On the other hand, we also look at the price of beef. If beef prices increase, we focus action in the state of Pará, which has the most cattle ranches. Also, the price of gold has an impact. When the price of gold is high, mining activities in the Amazon forest increase as well, and money circulates. The money that is available and circulating there is used to buy stolen lands. This is a warning sign for the federal inspection law enforcement team.

JACKSON: I understand that putting a new training system in place and using all of this new technology must have been very expensive. Was it difficult to get a budget allocation from the federal government to do all of these things?

EVARISTO: Good question. When I took over the department of environmental protection, the budget was R\$13 million. Today it is R\$128 million. It is a

big investment. Whenever the criminals adopt new strategies, we also adopt new strategies to stop them. So, for example, for the strategy of the multipoint deforestation practice—we had to invest in a company here that gives support in terms of providing us with data so they were able to develop this system that would help us identify this new type of deforestation by using a different system, the Landsat. That is the satellite Landsat. This is a warning system to try to find this multipoint deforestation practice. This requires investment. As the criminals specialize, we have to make more investments.

JACKSON: Those were all the specific questions I had that we didn't get to in the last interview. Is there anything that we haven't discussed, any aspect of your work that you think is important?

EVARISTO: *Everybody says I'm a dreamer, but I want to do this. Deforestation in the Amazon is a serious problem, but it is being very well attacked. There was a new government committed to reducing emissions internationally, and this is very important. From the countries that made similar commitments to fight climate change, Brazil is one of the countries that most fulfills its obligations. And considering the importance of the Amazon forest for the global balance of climate—. We are one of the countries providing support to prevent deforestation in the Amazon. One single country that really invests is Norway.*

Those that release CO₂ into the atmosphere—even the US—didn't sign the Kyoto protocol. You didn't sign the protocol of biological diversity. So, the biggest democracy on the planet, the country has to find a way to support those who are doing something because this is the future of humanity.

My dream is to see an Amazon occupied by farmers who sequester their carbon. They are going to get paid to inspect and maintain the forest contributing to balance of the climate, the world climate. The effort today is huge. Brazil is the only country that has a legal reserve, and 80% of the property is reserved. Only 20% can be explored. This 80% to make it viable economically, this 80% should be compensated by the international community.

JACKSON: One of the reasons we're here is that Brazil is so far ahead of many other countries in terms of dealing with deforestation and climate change.

EVARISTO: *We have the world's best monitoring system for tropical forests. We are also providing support for neighboring countries that also want to preserve the—. And a great partner that has supported us is the Japanese Aerospace Exploration Agency and the Japanese International Cooperation Agency. With the project ALOS [Advanced Land Observing Satellite], which is a radar monitoring system.*

Brazil is financing the capacity building of personnel in neighboring countries as well. In terms of environmental law enforcement, we are very much ahead. In addition to the 1,100 agents, we also have the support of the National Public Security Force, which is together with our standard and which works with us. When the situation is critical, we also have the support of the armed forces.

I would be really happy if I could go to your university to talk about how we can protect the Amazon forest, how we fight deforestation in the Amazon. Everybody is going through life, and next week, I'm going to Portugal. If I find some time in my schedule, I'm going to go there to try to talk about fighting deforestation in the Amazon. I will give you this piece of data that I collected yesterday on mining activities.

Prospectors are even worse than the people who cut trees. We are fighting prospecting activities in the middle of the state of Pará, in the indigenous areas. This is happening now in this area. This is the first operation—official operation—of the special IBAMA law enforcement group. It is my SWAT team.

JACKSON: Wow.

EVARISTO: *My SWAT team had 16 members. Excavators, those big machines, one truck, another truck, two camps, and nine barges that are used to get the gold and transport the gold. Everything destroyed.*

JACKSON: And these are very expensive.

EVARISTO: *Second day—that was just the first day—the second day, seven of the barges. The third day, four excavators and another barge. Everything has been destroyed.*

JACKSON: Big operation.

EVARISTO: *We had two helicopters and six officials, special operations, this group here.*

JACKSON: They're very effective.

EVARISTO: *I discovered that big operations require lots of investment; they don't have the mobility and the efficiency that small operations have. So, two helicopters move very fast, and the enemies cannot mobilize themselves to face them. A large operation may face problems because it is big and static; it doesn't move. With the small group, a special group, I have been able to obtain better results than with the large groups and large operations.*

We are going to the illegal businesses in the state of Maranhão. The idea is to locate these people, locate the camp, and destroy all the machinery

and equipment. We are going to break this economic chain, this illegal chain. Now, if only I could go to Princeton to teach it.

When you finish the case study, please publish it. This is important for us all. If you need these images, let me know. Let me give you this picture; I am going to print it out for you.

JACKSON: Thank you.