



# INNOVATIONS FOR SUCCESSFUL SOCIETIES

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CAMERON: This is Blair Cameron at the World Bank in Washington, DC and I'm with Stefano Pagiola. I have been speaking with people in Mexico who recommend speaking to you. First of all I want to ask when did you first start working on PES (Payment for Environmental Services) as a concept?

PAGIOLA: *Around 1998.*

CAMERON: What were you working on before that?

PAGIOLA: *A variety of environmental economics issues including things very similar to PES but we weren't calling them PES at the time. We started using the term PES after Costa Rica coined it in '97 or '96.*

CAMERON: Right. When was your first involvement in Costa Rica?

PAGIOLA: *In '97, '98, I'd have to check exactly.*

CAMERON: In what role?

PAGIOLA: *Costa Rica had established the PES program in '96, it became operational in '97. At that point they asked the World Bank to support it. Initially they were looking for a small grant and eventually that ballooned into much larger support. I became involved in assessing that project.*

CAMERON: Who was the first person in Costa Rica that approached the World Bank for that?

PAGIOLA: *I wouldn't know—it was FONAFIFO (Fondo Nacional de Financiamiento Forestal) and I assume Jorge Mario Rodriguez (Zuniga) or it could have been somebody else there. The person they approached is John Kellenberg who was the Bank person in Costa Rica at the time. Well, he was here actually, later went to Costa Rica. He was the point man on Costa Rica.*

CAMERON: So could you describe what your role was once they asked the World Bank to come on board when ecomarkets was beginning?

PAGIOLA: *Well every project needs an economic analysis and I was asked to work on that economic analysis.*

CAMERON: What did the World Bank's involvement—how did that change the program in Costa Rica?

PAGIOLA: *That's a whole big topic.*

CAMERON: Right. What were the most important things?

PAGIOLA: *There were two projects. There was the initial Ecomarkets project that ran from about 2000-ish to 2005 and then there was the second project that had a much longer name but everyone called it Ecomarkets 2 that went from 2006 I think to 2012 if I remember right. It was extended to '12 or '13, I don't remember exactly.*

*There were a number of changes. It was a preexisting program at that point; we didn't help establish it, it was an existing program. We were helping improve it in a variety of ways. One of the big changes that we supported was the introduction of much better targeting; initially the program was completely untargeted. Any forest, anywhere in the country would have been eligible to participate. So under*

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*Ecomarkets 1 they introduced eligible areas, at that point defined primarily on biodiversity criteria. Since there was a strong geo-financing of Ecomarkets 1 and they had an existing mapping of the areas of biodiversity they adopted those as the areas for the program. That was a big change.*

*Over the years we helped them define that targeting. We also helped them move away from the one-size-fits-all prices that they had to more different shaded system of payments. They also introduced target prioritization criteria. For a long time the program was first come-first served until they ran out of money. They eventually introduced prioritization criteria along similar lines as what Mexico is doing, that ranks applications according to criteria and picked the highest ranked ones.*

*The other large change was introducing separate procedures that allowed indigenous communities to participate. The original rules were not very conducive to participation by indigenous groups. Just as an example, there was a maximum size, I forget, I think 50 hectares but don't quote me on the 50; something like that.*

CAMERON: It was 300.

PAGIOLA: *It was large, so that really didn't do anything for them. So they introduced different application procedures, different maxima and so forth to cater to that. At this point—that actually worked out well. At this point the PSA (Pago de Servicios Ambientales/Payment for Environmental Services) program is the largest single source of income to most of the communities that are participating. In fact, at one point they were providing more revenue to these communities than all other government support programs combined. So I think that worked pretty well.*

*Most of it was gradual improvement over time, get the program better targeting, better price differentiation and so forth.*

CAMERON: What were the main drivers behind these changes? Was it World Bank priorities or were they coming from within Costa Rica or them asking for technical assistance?

PAGIOLA: *It wasn't our priorities. It was basically trying to help them have a more effective program.*

CAMERON: Right.

PAGIOLA: *More effective, more efficient. That is a work in progress. It is not something where you say it wasn't and now it is; it's a process of gradually figuring out what works and making it better. Remember when we started nobody knew anything about this. They didn't know anything about this, we didn't know anything about this, so we all sort of tried to figure things out as we went along. By the time we got to Mexico we had already a better sense of things. It is a work in progress, right?*

CAMERON: Could you speak briefly about what you think the biggest successes and biggest failures of the Costa Rica PES have been?

PAGIOLA: *It depends what you mean by success but certainly I think Costa Rica had a huge impact on other countries in the region. We now have across the region, several national-scale programs in Mexico and Ecuador. There are various*

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*Brazilian states with almost national scale in size. We have a very large number of local watershed scale programs and other programs. It is hard to say whether any of that would have happened without Costa Rica, but it certainly all happened after Costa Rica. The amount of interest that was generated by that program and this kind of approach was huge. Really it had a snowball effect. It certainly was a huge impact.*

CAMERON: What about failures?

PAGIOLA: *Even with all the improvements I think it is certainly not as efficient as it should be, as it could be. It is hard to say exactly how efficient it is because there was never a control group of any kind so it is very hard to actually assess its impact. There have been various efforts to carry out impact evaluations have given fairly disparate results. So it is hard to really put your finger on how effective it has really been. But certainly it is clear that you could make it more efficient than it is.*

*Again, it was the first one off, the first one to try things and you're going to get a lot of things wrong. It is not a criticism; it is simply saying there is a lot more they could be doing.*

CAMERON: What do you suggest? How do you think it could be better?

PAGIOLA: *Well, that is one of the questions that we wrestle with because again, because without a good impact evaluation it is hard to know exactly what works and how much it works. But there is still a lot of scope to improve targeting, the eligible areas for examples aren't that restrictive, they cover a big chunk of Costa Rica, so it doesn't really restrict them that much. You could improve special targeting, you could improve household level targeting in various ways. At one point we did an analysis showing if you concentrate your contracts in certain areas that are important for biodiversity and important for water and important for poverty, you could spend the same amount of money in areas where you have all of these benefits rather than spreading them and maybe getting (only) some of them.*

*So there are a number of ways. But again, it is a work in progress as all of these programs are. They're never going to be perfect. In Costa Rica, having started off being the first one there has all the disadvantages that come with that.*

CAMERON: When you started seeing the program was having some success in Costa Rica, early on, how did that change things here? Did you start encouraging more countries or more people to take up PES as a policy too?

PAGIOLA: *We didn't have to push a whole lot. There was a lot of pent-up demand for things that worked, which is why we've seen so much happening. A lot of what is happening is not through us. A lot of it happens with other donors, with other assistance. A lot has happened, just self-motivated without external assistance. So we've been able to provide some help to that, but certainly we weren't the prime mover. We didn't originate it. We were in large part responding to demands. In fact, in many cases we found ourselves saying well no, in your case this is probably not the best approach. You should try something else. So we were really responding to demand rather than pushing it.*

*To the extent that we were pushing it we were more trying to say well, this is how it works, you might think about this because this is how it has worked there and then providing information to countries to see whether that is something they wanted to consider. It was not saying "do this!" It is more well, you have lots of*

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*options, this is one of them and we think this might be a good option for you but here are others.*

*In a lot of cases you probably want the combination anyway so we actually—other than Costa Rica and Mexico we have done very few things that are just PES. Usually PES is embedded in a larger project and does other things as well.*

CAMERON: Do you remember when PES first started becoming an option in Mexico, when that idea first came up?

PAGIOLA: *No. In the early 2000s. It could have started earlier. I know that by around 2000 they were talking about it. Jorge Munoz Pina—.*

CAMERON: Carlos.

PAGIOLA: *Yes, Carlos Munoz. He is probably the best person to talk about those early days, very early days if you're into that. You've probably seen their paper.*

CAMERON: Right. When did you go down there or start talking to these people about it?

PAGIOLA: *I went there on what initially was an unrelated topic. We were supporting a survey of ejidos to look at the links between poverty and foresters, most forests are in ejidos, most ejidos are poor. So we were examining that relationship between poverty and forests. That had been started by somebody else and I was asked to take over when he moved to a different region, so I went down as part of that. We never actually did end up finishing that paper because at one point the Bank decided to cut budgets and a whole bunch of research activities and this is one that got cut. So we never actually finished writing it.*

*I went down as part of that and the government was also interested in this, not just for its own sake but also because it was going to serve as the baseline for what they wanted to do in PES. Since again most forests are in ejidos and so anything they did with forests was going to largely involve ejidos. So the idea was this is going to help us find out about issues and also serve as a baseline for that. So that got me involved in the discussions, in the early discussions of the PES program.*

CAMERON: Who were the people sort of at the table there? You had Carlos Munoz—?

PAGIOLA: *[Indecipherable00:15:47] early on. So Carlos Munoz and his team. They were the counterpart on the survey so I mostly dealt with them. I have no idea to what extent all the other actors—at that point I didn't know Mexico well. I don't know who else was involved at that point. Eventually I got involved with discussions with CONAFOR (Comision Nacional Forestal / National Forest Service) as well. I remember participating in a couple of meetings at CONAFOR.*

CAMERON: So is this 2001-2002?

PAGIOLA: *Yes, 2000, 2001, 2002, 2003 even. At one point as input to all this I got some funding from a Dutch trust fund to organize a workshop in Guadalajara about what we knew about the links between forests and hydrology. So I used that funding to bring in people like Sampurno Bruijnzeel who has done a lot—probably Mr. Forest Hydrology. He is one of the leading world experts on the relationship between forests and hydrology.*

CAMERON: Can I ask you about that actually because a couple of people in Costa Rica sort of raised that as an issue as far as paying for water services in that there is not really any—suggesting that there wasn't really any water service generated. What is your take on that?

PAGIOLA: *Well—.*

CAMERON: How clear is the link between—what is the plan?

PAGIOLA: *It is a complicated link. It is complicated in part because there is no such thing as water services. There is a variety of different dimensions of water that you might be interested in some of which we have a fairly clear link and some of which we have much less of a clear link.*

*There is a fairly clear link between forests and water quality. Forests at catchments tend to produce fairly high quality water partly because the forests filter it, partly because if you have forests you don't have other land uses that are much more damaging. So it is not just that the forests are necessarily good; it is partly that having the forest there means you don't have the bad land uses.*

*So there is fairly clear evidence on forests at catchments being good for water quality. So if that is your main concern, then forests are good.*

CAMERON: Right.

PAGIOLA: *There is reasonably clear hydrological evidence that forests consume water net and so if you're really interested, if you're really worried about total water availability forests may not be your answer because they actually consume water through evapotranspiration. But in fact, even though you often hear people saying well we don't have enough water, what they really mean if you sort of probe, is that there is not enough water in the dry season, not necessarily that there is not enough total water in the year.*

*You probably have less total water in the year when you have a forest at catchment because there is a certain amount of input from rainfall and if you have evapotranspiration then there is less net left over. So total water, total yield may go down. But in fact that is probably not what concerns people. What often concerns them, again, if you get a poll, it is dry season availability. That seems to improve because even though there is more evapotranspiration, there was more infiltration and that is what it leads to over time. So a greater proportion of what fell comes into place. But this gets much more complicated and you have counteracting effects. So it is one where we are less confident about the impact because you've got the negative of evapotranspiration. You have the positive of reduced runoff.*

CAMERON: Okay.

PAGIOLA: *How that nets out depends on soils and slopes and all kinds of things. So it's probably case-specific rather than something that you can say fairly clearly as you can quality, more forests mean high quality, for crises in water flow it is less—you are more uncertain over whether you'll actually get that.*

CAMERON: Okay.

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PAGIOLA: *On total water it is fairly clear you'll get a reduction even though that is not what most people think.*

CAMERON: Considering that information, what do you think made PSA-H the sort of driver that couldn't create a PES program in Mexico?

PAGIOLA: *Well, you know, you have to separate out a bit sort of the technical views of the people in INEA and CONAFOR who are designing this and the politicians who were signing off. If you read Munoz's paper in Ecological Economics 2008 he says, well you know, the INEA people had a fairly sophisticated understanding—I'm paraphrasing. But basically what comes through is that INEA people had a fairly sophisticated understanding of these links along the lines that we just discussed. Politicians tended to think oh forest equals more trees so fairly readily agreed to the program because of that notion that they had. So Carlos basically says as long as they were willing to, even though we knew that strictly speaking they were wrong, the fact that they had that belief ended up helping create the program that hopefully was designed in ways of avoidance, avoided that particular mistake but benefited from it in terms of the political support it got.*

CAMERON: So—.

PAGIOLA: *And we had that problem all the time right? We have people having the wrong, incorrect beliefs. A lot of times the problem is that they don't understand that various kinds of natural resources bring benefits. So we have to fight—there is sort of an uphill fight all the time saying no. Look at all these benefits that you should be protecting.*

*But this is a particular case where you actually have a belief that helps you even though it is wrong. So yes, when it comes down to the retail design we do try to select—if you want to make sure you have an effective program then you need to target it in certain ways and not rely on this myth that you have. When it comes to political acceptance sometimes that helps you. They may not push back as hard.*

CAMERON: Working with the team that was designing the policy, can you describe sort of your capacity there? Were you there on a World Bank capacity or—?

PAGIOLA: *My formal capacity there was as manager of this research. On the margins of that, I was there, and they were interested, we were already starting to learn, things from Costa Rica and other places where we were working at the time although they never started off we were working on the project in El Salvador, we were working on a project in Ecuador. We were thinking a lot about this, working on this in a number of different contexts. So we were—we shared the lessons we had learned at that point; it was fairly informal.*

CAMERON: Before the program is initiated in Mexico, I understand that you were there at some of the initial meetings going on.

PAGIOLA: *I was providing some informal—we formally provided help through the workshop that we got the financing for. I provided some informal advice but it was not a formal role.*

CAMERON: Can you talk about some of the issues that came up early, any roadblocks to getting into this practice?

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- PAGIOLA:** *I was not involved at all in the process of getting it approved or selling it to anybody. The discussions I was involved in were more at the level of detail design.*
- CAMERON:** What were some of the big debates you had on that?
- PAGIOLA:** *Well things like the need for targeting which I did take onboard. We were urging them—well I was urging them not to go to a flat payment which they didn't take onboard, they did go to a flat payment.*
- CAMERON:** Why did you advise them not to do that?
- PAGIOLA:** *Because there is a whole lot of diversity in conditions. You've got a lot of diversity on the benefits side. You've got watersheds where protection would be incredibly valuable because of high value uses downstream. You've got others where it would be much less valuable because there would be less users or the use is less threatened. You have some watersheds with more resilience because of the particular nature of the environment so they're not as threatened.*
- Also on the cost side you have a huge amount of variety between essentially no cost to conservation and very high costs. So having a flat payment really was not going to—one size fits all—and didn't really fit any.*
- CAMERON:** Do you think there is a tradeoff there though as far as simplicity is more politically acceptable, easier to implement versus—?
- PAGIOLA:** *To some extent yes but I think it is overstated. I mean it is not that difficult to have a more sophisticated view. We've implemented programs with fairly complicated payment systems that haven't had problems. I mean Costa Rica for example. We had—in addition to supporting the national program, it was one of the study sites for the Regional Integrated Silvopastoral project. I don't know if you've heard of that project. That project was aimed not at conserving existing forests but introducing trees in pastures basically.*
- It had a very, a fairly complicated payment system, like where we had—we recognized twenty different land uses, each land use was given a certain number of points depending on how beneficial it was for biodiversity, conservation and carbon sequestration, which were the two objectives in that particular project.*
- Then participants were paid according to the increment in points that they had when they moved from one land use to the other. So not very simple and yet we had no problems implementing it. In fact when we would go to visit farmers and say, well here is how many points we have calculated that you have gained, they already had figured it out. They already knew how many extra points they had.*
- So we had really no problems on implementing this fairly complicated system and yet at the same time whenever we suggested to FONAFIFO you really should move to a more [Indecipherable00:29:09] system they said absolutely no, it is impossible to implement, farmers would never understand it. And they were the ones implementing it on the ground. We contracted FONAFIFO to actually implement it on the ground.*
- So I think that this is obviously a more complicated system. It takes a bit longer to explain, may take a bit longer to monitor, but it is not—it is perfectly doable. We know it is doable because we've done it.*

*Is it simpler? Yes, but is it sufficient? Is that benefit so overwhelming that it justifies the loss of efficiency? I would say no. Part of it is really cultural. I mean if you look at Brazil. Brazil, just about every single PES program in Brazil doesn't use flat payments; instead they use a formula. They have a formula that you plug in various numbers, for example, if you're interested in reducing erosion the formula might have a factor for slope and distance from the river and percent [Indecipherable00:30:24]. So you plug in the values for your particular piece of land and that's what you get paid. They do that because that's how they were running other programs.*

*So when they started doing PES it was perfectly natural to use the same kind of thing and everyone does it. That's just the way you do things. It is much more complicated than the flat payment that says everyone gets \$50 a hectare but everyone does it. So there was never any question that they wouldn't do it. It was really a cultural thing more than an actual factual thing. Organizations like FONAFIFO and CONAFOR are simply not used to thinking this way. They think it is the only way of doing things, the way they've always done things.*

*One of the things we try to bring to the table is look it is working here, this is how you do it; this is how they're doing it over there, this is—I mean that is one of the major roles we've been playing in this whole effort of PES is sharing lessons. A lot of it is really showing that it is doable. Just like Costa Rica, one of the big things at Costa Rica, as we said earlier, one of the big contributions that Costa Rica made is simply showing that it is doable. Once people realized that, a lot of people started doing it. So one of the big roles we played is yes, you're not locked into this one size fits all. You can do this and it is feasible. It is not going to bring the world crashing down on you.*

CAMERON: When did you do the project in Costa Rica?

PAGIOLA: *I was involved in the early preparation.*

CAMERON: What year was that?

PAGIOLA: *Well '98-ish is when I started working. John probably started a bit earlier.*

CAMERON: Sorry, I was talking about the specific—

PAGIOLA: *Oh, the silvopastoral project?*

CAMERON: Yes, the silvopastoral project.

PAGIOLA: *Oh, that began implementation in 2003 and went to 2008. It was a regional project that also had sites in Nicaragua and Colombia.*

CAMERON: So after '08?

PAGIOLA: *It ended but now we have more projects that basically follow similar approaches. In Colombia there is a large-scale cattle-ranching project that started in 2010, 2011. Then there is a Nicaragua project that started in late 2012 I think, 2013.*

CAMERON: So the one in Costa Rica, did they get any funding from the national program as well, through agro-pastoral payments or anything?

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- PAGIOLA: *The silvopastoral project was fully funded by GEF (World Bank Global Environment Facility).*
- CAMERON: Okay.
- PAGIOLA: *So we paid FONAFIFO to implement it in the past.*
- CAMERON: Okay.
- PAGIOLA: *Using their arrangements, so we paid them. It is also—one of the impacts of that project in Costa Rica is one of the motivations for their introducing their agroforestry contacts.*
- CAMERON: Okay.
- PAGIOLA: *Although that is quite different, that is still a flat payment so they didn't—they adopted the land use but not the way of implementing it. It was one of the—the success we were having was one of their motivations for introducing it, not the only one.*
- CAMERON: Comparing Mexico and Costa Rica, what are the biggest differences as far as challenges to implementing PES?
- PAGIOLA: *Well Mexico is obviously much bigger and much more diverse. Costa Rica has quite a bit of diversity itself, but nothing compared to what you have in Mexico - deserts to tropical forests and everything in between. There are quite a bit of temperate spots. Costa Rica is all—still find lots of variety but you can probably find similar levels of variety in Costa Rica in one or two Mexican states.*
- CAMERON: Right.
- PAGIOLA: *So that is obviously a big difference. The other big difference in Mexico compared to Costa Rica is that most of the forest is community owned. So we had that issue in Costa Rica in the indigenous areas, but ultimately they represent a fairly small portion of the program there whereas in Mexico they are the dominant form of forest ownership so about 85% of the land in the PSA program is community owned, either ejidos or comunidades. So that is a huge difference.*
- Then the size issue then trickles down and other things. In Costa Rica, you have fairly small areas of forest being conserved in any one contract. So you pretty much have to go do field monitoring. In Mexico you've got, in several cases, up to a couple of thousand hectares at a time. So you can monitor that with remote sensing and that affects your costs quite a bit. Not always, there are some individual farmers as well in Mexico. Those you pretty much have to visit but you can do a lot of the monitoring with remote sensing which you can't in Costa Rica realistically. So there are a variety of differences like that.*
- CAMERON: What were your—?
- PAGIOLA: *Also the other thing that affects Mexico quite a bit is it a federal government with a lot of state, strong, fairly strong states. So that affected the targeting quite a bit for example.*
- CAMERON: Can you talk to me about that?

PAGIOLA: *Well, quite simply, the very first targeting design that INE (Instituto Nacional de Ecología/Mexico National Institute of Ecology) came up with which was very much focused on areas that had water scarcity issues, It was politically unacceptable because they concentrated their entire program in a very small number of states.*

CAMERON: What was that target like?

PAGIOLA: *It was basically—they had drawn eligible areas based on maps that the water company, CONAQUA I guess had prepared of watersheds where there was a water deficit. Mexico uses groundwater a whole lot more so aquifers were over depleted I think it was the criteria so that you'd get more infiltration here. So they said okay, this is what we're trying to solve, overdepleted aquifers and trying to get them to recharge better. Take the maps that we have of overdepleted aquifers and that is where we want to implement the program.*

*The political authorities looked at that and said no, because then all the money goes to a handful of states. So they had to redraw the eligible areas so basically every single state got some of it. You don't have a similar sort of political pressure in Costa Rica.*

CAMERON: When the program first started, when it was about—?

PAGIOLA: *Mexico?*

CAMERON: Yes, Mexico. Yes, focusing on Mexico. In 2003 when the program started, what were your impressions? How optimistic were you for the success?

PAGIOLA: *Sort of broadly optimistic in the sense that it was clearly a step forward. It was bringing on line an important tool that addressed an important problem. Even though a lot of the details of how they were implementing it were probably not the best, for example flat payments, so the wider targeting that might have been used, you have—it is a big step forward. As long as you're moving in the right direction you can work on the details and get them right over time.*

*I mean we're not so smart that we would have gotten it right the first place anyway. It would have been a process of improvement anyway. So it was great to see that at least they were moving in the right direction. That has helped them make it better. Going nowhere there is nothing to improve.*

CAMERON: Is there any time—?

PAGIOLA: *Sometimes the perfect is the enemy of the good. So something that is actually going out there and starting to do things is better than the program that you're still designing, still doing studies on.*

CAMERON: Is there any time that you felt that things weren't moving forward, that they were taking a step backwards? Or was there sustained improvement?

PAGIOLA: *I mean there were times when I was frustrated that we weren't improving as fast as I thought we could, but as long as we were moving in the right direction.*

CAMERON: What were some of the issues that came up?

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PAGIOLA: *First of all remember that we didn't start—they started implementing in 2003. I had been sort of informally involved in some of the discussions early on but it was a very small role. Then we didn't really get involved again until about 2005, 2004, 2005, I forget when we started—we had already been supporting CONAFOR for a variety of other programs. For example, there was a series of projects that supported their community forestry programs and other programs that we'd done work with CONAFOR and with the previous projects.*

*So CONAFOR then approached us and said can you help us also with the PSA program. So we started developing a program there which 2004-2005, that sort of time scale. It must have been 2004, at one point I remember we were watching the World Cup so that would have been 2004.*

CAMERON: Right.

PAGIOLA: *I remember—.*

CAMERON: 2006 would have been the World Cup.

PAGIOLA: *Yes, 2006, you're right. So I guess—anyway, we did start earlier but we were there during the World Cup. I remember we had to take breaks during the discussions for particularly important matches. But we did start earlier. Certainly by 2006 it was pretty much ready to go. If I'm not mistaken it became effective right at the end of 2006. I'd have to look it up.*

CAMERON: Could you talk about—?

PAGIOLA: *We had no role until we started to—the project really had no role. They started implementing. Then we started preparing and it gave us also a platform to start suggesting improvements some of which they had already considered and we were just one more voice and some of which were new. But it was really very much a discussion.*

CAMERON: Can you talk about which ones were they considering already and which ones were new?

PAGIOLA: *For example prioritization. It really wasn't an issue in the very first year because they had to scramble to actually get participants. They got them—the very first year of implementation—they got the money fairly late in the year so they really had to scramble to get enough participants to spend the money. They really didn't want to—after having lobbied very hard to get the funding, they didn't want to not spend it, so they really had to scramble. Munoz I think—to pay for their role, has those details. So that sort of got settled in. Initially, the very first couple of years was essentially untargeted, first come, first served. Then they introduced prioritization criteria which we encouraged them to do but they were considering them anyway. So it wasn't an issue where we had a lot of discussion.*

*We ended up having loads of discussions over which criteria and how much weight and so forth. One of the things we encouraged them to do was also to unify their programs they had at that point. They had actually implemented two separate PES programs, the [Indecipherable 00:44:58] and CAPSA (Learning Community of Payment for Environmental Services) which was focusing on biodiversity and carbon and were sort of separate and distinct things.*

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*Then they had all these other programs. So we encouraged them to unify them and they again, this was something they'd been implementing anyway I guess. I don't know to what extent our encouragement helped a lot but ultimately they did adopt a unified program called [Indecipherable00:45:25] of which the PSA became a particular chapter, a particular section of [Indecipherable].*

*At that point you had one single regle d'opération with different sections involved; a panoply of things. The big ticket item was—well two big ticket items. One was differentiation and eventually in 2010 they adopted a much more differentiated payment scheme.*

CAMERON: What do you differentiate the payments by?

PAGIOLA: *Initially it was \$30 for everybody—well 300 pesos. That came to about \$30. The only differentiation they had was that plowed forests got an extra \$10 and that extra \$10 was really the result of the workshop we had done where the basic result was there was a huge amount of uncertainty. The one thing we know is that plowed forests are really important. That is the only part of the forest where conserving the forest actually does deliver more water than the alternative. So that extra \$10 basically came out of that. So it was \$30 and \$40 and it remained that way until 2010 when they adopted—they divided forests into six different groups, each having its own price level. In some cases some were further subdivided in terms of risks of deforestation with high risk forests getting a higher payment although I think only one of the forest categories had that differentiation. So sort of pushing them to do more. This year they've added a bit more along that way, in 2014. They've now split the second forest category. So again, separate at the time.*

*The other thing we tried to do in the project is develop additional income sources over and above the money they were getting from the government. Here it is important to keep in mind that there are two sets of money that they get from the government, the original funding and the funding that you see discussed in the Munoz/Pina paper. It is the initial amount which is basically an earmark from what is called the Ley Federal de Derechos which is the law that sets charges for various things including water. So everybody who has a water-use concession pays for the right to use that water. So in 2006 I guess, no 2004, they got an allocation of 20 million of that revenue.*

*Initially they had wanted a percent allocation but eventually settled for an actual fixed amount. Again Carlos' paper has all those details. So they got 20 and the next year it was improved to 30. So basically 30 million dollars, 300 million pesos. That is the budget that they had at the beginning and that is the budget that we prepared the projects—when we were preparing our project, that was the budget we were thinking about because that is the money they had.*

*Then beginning with the new administration that came into office just after the start of our project in fact—I forget who it was, which President, I guess (Felipe) Calderón, I'd have to check. Then started actually allocating regular budgets in addition to the money from the Ley Federal de Derechos. That ballooned the PSA budget to eventually over 100 million dollars a year. But initially when we were beginning the project, that didn't exist, you only had the 30 million. So one of the big things that we had in our project was developing new income sources to complement the Ley Federal de Derechos funding. So we were working on carbon biodiversity and water as potential funding sources. For carbon we were thinking what was then brand new Kyoto Protocol forestation projects. That is*

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*when they had either just been approved or they were just going to be approved in the near future.*

CAMERON: CDM (Clean Development Mechanism)?

PAGIOLA: *CDM yes. CDM was created. It took them a while before they got to forestry, approving specific rules of forestry. It was in that time period. Again, you'd have to check on the sequence. We supported developing various proposals for CDM, a project that would be CDM eligible. If you follow the CDM forestation, deforestation debate at all, you know that that didn't work very well anywhere no more than in Mexico. It proved very hard to actually get viable CDM projects.*

*On biodiversity there was really very few potential sources of funding so our main contribution there was getting a fairly large GEF grant—I want to say 10 million but I'd have to check the documentation because I've worked on so many programs so it may not have been. In fact I think it was one number and then we added to that.*

CAMERON: Yes.

PAGIOLA: *But we knew if we just used it directly for payments as we had done in the first ecomarkets that would not be sustainable. So we said we'd put it in a trust fund; put it in an endowment fund so that the interest revenue from that would be used. That would allow for a long-term funding stream.*

CAMERON: I had a question about this because Costa Rica is trying to—is starting to implement a similar sort of thing now.

PAGIOLA: *Not accidentally because we were developing the second Costa Rica program at the same time we were developing Mexico. I was involved in both and I pushed for the endowment fund in both. So it is not a coincidence.*

CAMERON: Yes, they were developed at the same time.

PAGIOLA: *With the same reasoning, right? It really doesn't make sense to spend the grants directly on things that are as great. It gives you a lot of money, but it ends. Then you fall off a cliff when you have all these areas in conservation that you can't keep conserving. So it really doesn't—it makes no sense to conserve something for five years that you know is going to be—that you are then going to lose. You're better off conserving a smaller area but doing it long-term.*

CAMERON: Yes.

PAGIOLA: *That was the reasoning. So we applied it in both projects and developed endowment funds in both cases. By the time we had agreed in both cases that we would not start using those funds during the lifetime of the projects, basically to let the capital just accumulate, reinvest the capital—reinvest the revenues into the endowment and bring up the amount of capital. Unfortunately that meant that in both cases by the time we were ready to start spending interest, we were in economic crisis and interest rates had gone down through the floor. So timing was not with us.*

*So biodiversity, our main tool there was setting up these endowment funds. We had an initial allocation in Mexico which was the bulk of the GEF grant and then when we restructured the program at midterm review, we actually moved a lot of*

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*money that was going to go into other things from the GEF grant into the endowment fund as well.*

CAMERON: Okay.

PAGIOLA: *That always needs a one-to-one match, at least one-to-one match with other funding. Whenever, if GEF contributes ten million then somebody else will have to contribute at least 10 million.*

CAMERON: Is that most of it coming from the NGOs (nongovernment organizations)?

PAGIOLA: *That mostly came from—in Mexico it came from CONAFOR itself. The government put the money in. In Costa Rica they used a variety of funding sources; I'd have to check but most of it came from other donations. I think the Germans put in some money if I remember right. I'd have to check. But some of it was Costa Rican money but most of it was other donations. GEF doesn't care as long as they're matched.*

*In Mexico though the CONAFOR within the counterpart gave block funds. We also had one area—we looked at tourism as potential payers but that never really went anywhere.*

*Then, so the other thirds—a subset of this was looking at generating money from water users. Since this is a hydrological program, it benefits water users, let's get the water users to pay. Then CONAFOR identified eight areas that they considered promising. That's where we got the really ugly acronym ABRUMSA. I tried to change an acronym throughout the [Indecipherable], never won that. Ugly acronym.*

*We worked on these [abrumasas.] We scoped them out finding, identifying potential users and the problems that they were having. That effort didn't work out very well for a variety of reasons. We had designed it as a cumulative sort of endeavor. You first of all do the scoping exercise that I mentioned. Then having done that you say okay, here is the – we thought it promising, here are the really promising things but to develop them further then we need this additional study or that additional study. So the notion was, okay, then we would contract those additional studies. Then we'd build up.*

*That turned out to be completely out of phase with the CONAFOR funding cycle. They couldn't finance a study unless it was in their program which was approved so much earlier that by the time we knew that we needed study X for example, a study of critical areas for erosion, a particular watershed, we couldn't actually do it that year. We had to wait until the entire following cycle because they had to put it in their program. That program had to go through all the steps, get approved, start becoming effective. Only then could we then contract. So it just—we figured we've got the money and the project but that's not how it works. Even though the money was there, it has to be in there at the right time. So that was one of the big reasons why it didn't work.*

*The other problem that we started facing was that in a number of cases it was going to be clear that it was going to be very hard to motivate the water users to pay for something that the federal government was already paying for, quite understandably. I mean one of our big promising cases for example was the city of Colima, not very far from Guadalajara, the next state over. Colima is in many ways very similar to New York City from this perspective. It gets crystal clear*

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*water out of its catchment. They don't treat it, like New York City. Are you familiar with the New York City case?*

CAMERON: I'm not. I mean I've read about it—.

PAGIOLA: *New York City gets most of its water from the Catskill/Delaware catchment, 150 km up the Hudson Valley. It is of such high quality they don't treat it; they don't have to put it through a treatment plant. They put in some chlorine for bacteria and then it goes straight to consumers, a million gallons a day of water and it is untreated. So New York City has found it to be in its interest to spend quite a lot of money conserving that watershed. They're spending on average about 100 million dollars a year in that watershed. That's cheap compared to the alternative of treating the water if it ever declines.*

*Colima is in the same sort of happy situation; they get very high quality water. It is a completely forested mountain area and it is basically limestone, infiltrates. There is no surface water. It all goes down in groundwater, it gets filtered and it comes out beautiful. The only difference here is that New York City gets to distribute it by gravity feed all the way from the Catskills; Colima has to pump it up a little bit. Okay, you can't have everything. Basically they have this great water source, really cheap. The only thing is the pumping cost.*

*It is well conserved like now. It would certainly be—it would not cost them that much, you could conserve that because it is not a very highly threatened area. But this is an area that given the particular prioritization criteria that the federal program has, almost inevitably enters the program. It is an indigenous area, it is a protected area, it has high levels of forest cover. You go through a bunch of the criteria and they have very high points on enough criteria that almost inevitably they will always be accepted no matter who else is competing. So Colima who looks at this; they never said this, but it is fairly obvious that Colima looks at this and says, well, what's in it—why should we pay for something that is already happening.*

*So they always nodded very politely when we were there convincing—trying to convince them to pay. For whatever reason it never, ever happened. That was the thought we had in several cases, that the developed local programs.*

*So eventually, what we ended up is slightly different type of local system. The initial idea was that we would support these local programs with an initial support, right? The program would pay for all the technical studies. Then we would pay for half the costs of the payments declining to zero over a number of years. That was sort of the approach we had in mind and then the system would be self-standing.*

*Eventually we ended up with a fairly different model where basically CONAFOR and the local users shared the cost of payments 50/50, roughly 50/50 where the local counterpart had to pay at least 50, in some cases they paid a bit more. That is what they called the fondos concurrentes program which was again slightly different model from what we had envisaged. Again, it is learn as you go. The other one wasn't working and this was starting to work. There was a fair amount of interest in doing things that way. So Paola Baoche was in charge of that program. She can tell you all about it. That is another thing that we helped put in place. Again not in the form that we had originally envisaged—.*

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CAMERON: All right, overall could you describe for me how successful the Mexico programs are?

PAGIOLA: *Well there too—these days we know that we need to do a lot of impact evaluation. When we started all of these programs we didn't. So we didn't do it. Still the pastoral project that I mentioned, the first one where we actually did impact evaluation with a control group. So with that one we have a very strong results, we can tell you statistically. Here is statistical significance. We can show you how much more adoption of these values as we had compared to if we hadn't done anything. So there we have good results.*

*Mexico and Costa Rica in part because they were ongoing programs before we even started, in part because this is not something that was of foremost concern at that time. We didn't. So in both cases there have been efforts to retrofit impact evaluations. But it is always difficult if you don't have a control group from the start to do that. You have to use various kinds of matching methods. What should I do? Construct a control group? Even for those you don't necessarily have the data that you'd like. You'd like to have data from the start. You don't always have that. So all kinds of problems.*

*That's why for example in Costa Rica we do not have a very good notion of just how effective it has been because the various efforts of those that try to do this come up with very different numbers. You're left sort of scratching your head. Are those different numbers because one of them got it wrong or is it because they are looking at slightly different periods or slightly different areas and in fact it was more effective in one period or in one area and not in the others. It is hard to come to any strong conclusions. In Mexico we have the same problem. There have been fewer analyses, so maybe that is why we have less divergent results because we simply have fewer analyses.*

*But those results that we have have been generally more positive than the Costa Rica ones. The latest study that just is, the final draft is finished by Alex Garcia and Kate Sims and Liz Shapiro. They found that—actually they emailed these results so I can tell you exactly what they were. The participants—deforestation among participants went down by 40-50%.*

CAMERON: Wow.

PAGIOLA: *Among participants.*

CAMERON: Right.

PAGIOLA: *One of the issues there is that the highest deforestation areas are not participating.*

CAMERON: Right.

PAGIOLA: *So you've got a big effect on the treated. Treatment effect on the treated is quite—you know impact evaluation lingo at all?*

CAMERON: Not so much.

PAGIOLA: *You can either look at the impact on those who are participating, that is treatment effect on the treated. That's big. Or you can look at the treatment effect on all of*

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*those you would like to participate. That's lower because some of the highest deforesters are simply not participating, in this case.*

CAMERON: Do you think there has been leakage?

PAGIOLA: *Garcia et al. finds some hints that there was leakage. They did an early analysis of the first years of the project and they have found some suggestions that there has been leakage in some areas. Their most recent analysis they didn't look at leakage so I don't know.*

*At least in the initial years they did find some evidence that there was—at least in some areas, not everywhere. So that is one of the possible problems, again, one where we don't have very good data.*

CAMERON: Right.

PAGIOLA: *Even if you had—these would have been hard programs to do an effective evaluation of anyway even if we had a control group from the start because deforestation is a very slow signal, like 1-2% deforestation, 2% deforestation would be a high deforestation rate. Think about it. If you're observing a thousand hectares you'd see 20 deforested on average in any given year. So if you think of sampling that area, it is easy to miss it entirely. Add in year-to-year variation and—some years it's ten, some years it is 30, it is hard to extract to see whether that signal is in fact changing. So it is a tough problem.*

CAMERON: What is your feeling though as far as Mexico?

PAGIOLA: *I think the results are pretty much right. Among participants we are having an impact, but we're not reaching the most high deforestation cases. I think part of that is targeting issues. If you look at the prioritization criteria for example in Mexico, deforestation risk is one of them. But there are so many other criteria that are used to give points for priority that the weight of risk is really low, it is less than 10% of total weight. So many other things affect that prioritization that it is really not that big a deal.*

*Part of it is that we're not prioritizing. Part of it is also that those who deforest have higher opportunity costs. That is why they're deforesting because the land is worth more to them under an alternative use. That means that they are going to generally want the higher payment to participate than those who have lower opportunity costs. That is an example of where the flat payment hurts you. If you increase the payment to the point where you're attracting the people who have high deforestation risks they you're also way overpaying all of those who have low deforestation risks. You really can tell the difference.*

*So all of those who have very low deforestation rates will be really, really keen to come in and swamp all of those who have high deforestation risks who are less keen because the net payment for them is less. For them the net payment is the payment minus the opportunity costs. So the higher the opportunity cost the less the net. Those who have low opportunity costs have a high net so they're really keen on this. So a flat payment tends to encourage the wrong sort of participants.*

*So between the fact that you're not targeting them and the fact that you're not attracting them, they may not even be applying and if they're not applying it doesn't matter what weight you put on them because they're not going to be in the pool. So we're simply not getting the high participants.*

CAMERON: So where do you think the level of payments – is it generally too high, generally too low, is it too high for some things?

PAGIOLA: *It is probably too high in many areas and it is probably too low in areas where it needs to be higher and where it would justifiably be higher because you'd get the benefits. You don't want to drive this all off of costs because in some areas it is a high cost and low value. So you don't want to make the mistake of saying well we'll pay you whatever your costs are plus 10% because then you're going to get a whole lot of things that may not be very useful to you. But there are some high value areas that are also high cost and then if you want those in you have to pay for that. A flat payment really doesn't get you very far.*

CAMERON: Some people have said to me that no matter what you do it is impossible to get the balance of payments right so with a flat payment at least it averages out.

PAGIOLA: *But it doesn't, it really doesn't. I mean a flat payment means that low opportunity cost people want to participate and unless you're really lucky and low opportunity cost is correlated with high benefits, and there is no reason to think that it would be, then—. For carbon that's fine right? For carbon a flat payment is reasonable because it doesn't matter where you sequest the carbon. As long as you're taking a ton out of the atmosphere that is as good as any other ton that you take out any other way. So fine, by all means, let's go for the lowest opportunity costs wherever they may be. But for hydrological and biodiversity it does matter where you are. So if you're not getting those areas in that generate, potentially generate the services then you're not going to have an impact.*

*You think of what is it that you need to get a service. You have to at a minimum be in the right area, particularly for watersheds. If you're in the wrong watershed to begin with you're not going to have any impact whatsoever on what you care about. It may on something else but not on this particular—if you're not in the Catskills/Delaware watershed, you're not going to have an impact on New York City's water supply, that's where the water comes from. Conserving some other area in Rhode Island simply won't help.*

*Then you have to be doing the right thing and that's where the technical aspect we were discussing earlier, that understanding of the hydrology and the impact on various kinds of services, and then you actually have to change values. So you need all these things to be there right? If you multiply through and anything is a zero in that multiplication you're going to get a zero at the end.*

*So additionality is important because if you don't have additionality, if you don't actually have a land use change compared to what would have happened, it doesn't matter if you're in the right area. It doesn't matter if you're doing the right things, if you're not resulting in any change. That is one thing but then you also have to do the right thing. Inducing the wrong land use change won't help and inducing it in the wrong place also won't help. So you need to have all three of these things. And a flat payment is just very unlikely to get you there.*

CAMERON: So do you think CONAFOR needs to do more work on that?

PAGIOLA: *Sure, everyone does. There is also a degree of detail which again matters – in hydrology ends up mattering a lot. If you look at it too, your typical watersheds, it is not all created equal. You have, you often have very small portions of that watershed that contribute disproportionately to the problems. There is one chart*

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*they often show when I do a presentation, it shows this watershed in Peru and there is something like an area that accounts—there is only about 1% of the total area of the watershed is producing something like 17% of total sediment in that watershed. If you go a bit higher than that, 3% of the watershed is contributing 26% of the total sediment.*

*So if you want to reduce sediment in a reservoir or turbidity in the river, getting that 3% is very important. You might even, in most cases, find that doing that 3% is all you need to do.*

*Now CONAFOR—it is a national program. It simply does not have the resources, the time, the ability to go to that level of detail. So when they're targeting a watershed they target the watershed. So even if it is the right watershed, they're still at a level of precision that is much, much less than what they could have. Again for carbon it doesn't matter. Carbon pretty much—but that was one of our reasons for encouraging things like fondos concurrentes.*

CAMERON: Right.

PAGIOLA: *Because the local water users are much more likely to have both the ability and the incentive to go to that level of detail. So if you tie the funding, CONAFOR's funding to the local knowledge of the local water users you end up ideally with much greater level of efficiency. In fact that was one of my recommendations way at the beginning when they were just figuring out what this program was going to do. One of my suggestions was don't do a national program that simply offers a payment, rather do something like fondos concurrentes, offer to go halves with any water user and then share the payments with them. That way you'll leverage their much better knowledge and incentives and function. You don't have the ability, don't have the capacity to go to that level of detail. You'll also easily—you get easily diverted by other priorities, every state gets a share, and so it is much more likely that you'll be inefficient, not through bad intentions, just by the nature of things. And if you can tie your funding to somebody who doesn't have these problems, then—. That didn't work out. They were very afraid that they wouldn't have enough demand from local water users and they'd not be using their money. So they went directly to contracts with individuals, offered direct payment to the ejidos rather than partnering with local water users.*

*But then we saw that, we brought that idea back in through these various efforts to do fondos concurrentes and they do now have a fairly successful fondos concurrentes program.*

CAMERON: This is something that has come up a lot; people have said the success of the program has been very questionable on a grand level but where it has been really successful is where it has had these intermediaries like NGOs, or where local municipalities have been doing this work.

PAGIOLA: *Well, you know if you want to be strict about it, we really don't know that this has been more successful in those areas because of the same impact evaluation questions that we have been talking about. We didn't do any greater impact evaluation in these areas than we did for the national program. In fact, we didn't do any in the local cases. We did only the impact evaluation so far in the cases of the national program. So strictly speaking we really know nothing about whether the local cases have been more effective or not.*

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*We have good reasons to think that they might be more effective but that's not the same as saying we have evidence that it is so.*

CAMERON: Right.

PAGIOLA: *So we have to be careful about what we can really claim and what we think is a strong hypothesis.*

CAMERON: Right.

PAGIOLA: *At this point it is a hypothesis. I mean I think there are good reasons for that hypothesis. The incentives are very different. The capacity to assess local conditions and identify critical areas is different. So there are good reasons to think they would be more efficient in those areas but we really don't have the evidence to show it is or isn't. So anyone who tells you the opposite is fooling themselves; we don't have the data. We have not done that work; we should have done that work.*

CAMERON: Is anyone pushing for that work now? What is your role right now, what is the World Bank's role?

PAGIOLA: *We have a new project which has been running since 2011, 2012 I guess. I sort of lose track. Rather than continue to do all these separate projects with CONAFOR we have one big project. Instead of having a PSA program and a community forest program and whatever, we have one big forest program called Forest and Climate Change. It supports a range of CONAFOR programs including PSA but not limited to PSA.*

*So I am one of the team there and providing technical support, particularly on the PSA side. Again we continue talking to them about making improvements and moving in the right direction.*

CAMERON: How does REDD Plus play into this?

PAGIOLA: *One particular focus on this new project is reducing deforestation precisely because Mexico wants to use PES as a big part of their REDD (Reducing Emissions from Reforestation and Forest Degradation) strategy. They've also been accepted by the Carbon Fund. Are you familiar with the Carbon Fund?*

CAMERON: No.

PAGIOLA: *Are you familiar with the Forest Carbon Partnership Facility, FCPF?*

CAMERON: Yes, I've come across that.

PAGIOLA: *FCPF is a partnership, we helped start it. It is housed here but it is not a Bank thing, it is a partnership. That is helping countries prepare for REDD. So it does two things, one is readiness and it provides grants to countries to help themselves get ready for REDD, planning REDD strategy, setting up monitoring systems. It includes consultations, various things. That has been underway for a number of years. Mexico has been one of the countries that got a grant for that.*

*Then there is a second aspect which is called the Carbon Fund which will actually be buying emission reductions from avoided deforestation. So trying to pilot a REDD market before there is a REDD market in the same way that the*

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*prototype Carbon Fund a decade ago started buying carbon credits before there was a CDF or the Biocarbon Fund that we have started again, started buying carbon credits from reforestation before there was CDF rules for deforestation. Get that jumpstarted, trying to work out how it could work.*

*So there is the Carbon Fund and they basically have money for about four or five countries to buy emission reduction support. The readiness phase had about thirty participants. The actual Carbon Fund will only be buying carbon emission reductions from four or five countries, Costa Rica is one. They were the first one signed up. Mexico is another and so just like the REDD program the Carbon Fund will buy emission reductions against a reference scenario of what would have happened in the absence, a business as usual scenario.*

*They now—if Mexico wants to actually get any money from the Carbon Fund, they have to demonstrate that they've reduced deforestation compared to their reference scenario. So they are very keen on figuring out how they will actually do things that actually reduce deforestation in ways that are observable. So that is one of the focuses of this project, trying to help improve the deforestation impact. Among other things we are doing an updated impact evaluation of the national program.*

*I was just working this morning on the revised proposal for that. We're looking for some money to help us do that. One of the things that we're helping Mexico develop specific programs to address areas in high deforestation areas, they've identified the high deforestation areas in those countries and they've developed what I call programmas especiales, special programs for these areas which are a combination of different tools. So we're helping them on both these counts, both improving the overall efficiency and additionality of the basic national program and also improving the special targeted programs.*

CAMERON: What particular region are you working on?

PAGIOLA: *The three that they've identified are the Yucatan Peninsula, the coastal zone of Jalisco and the Sierra Lacandona. The Bank project is actually supporting only Yucatan and Jalisco, not Lacandona.*

CAMERON: Can you talk to me at all about the Lacandona, about the work going on there?

PAGIOLA: *No, because that is not an area we're supporting. That is the one of the three that we're not supporting. I can talk to you about the other two.*

CAMERON: Who is supporting Lacandona?

PAGIOLA: *CONAFOR is doing it itself. I mean it is doing all three and we're just supporting the other two.*

CAMERON: Is there any reason you're doing those two and not Lacandona?

PAGIOLA: *Well, it is an area of very high social conflict so it is very hard to do the kind of safeguard work, consultative work, prior informed consent work that we need as part of anything we support, just because of the security situation. So we're unable to support it because we can't get our processes, our safeguards working.*

CAMERON: So can you talk to me a little bit about the other two?

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**PAGIOLA:** *All I can say is that there are things going on there but I don't know what is going on. The Yucatan, these are the areas where they have—overall deforestation has been falling in Mexico as far as available data tells us. Available data is not all that good. The problem seems to be morphing into more one of degradation than outright deforestation. That is much harder to monitor. There are trees and tomorrow there are no trees, that's easy to monitor. If there is 100% cover and tomorrow there is 80% cover, that is much harder to monitor so we have much less of a handle on degradation.*

*Anyway, so these are areas that they've identified as being particularly important where there is still amount of outright deforestation. So we're trying to adjust that. Some of that is PES or actual conservation of areas, but some of it is also trying to make forests more profitable by supporting sustainable forestry activities of various kinds. So we do a combination of things which is why we have one big program doing all these things rather than separate programs doing forestry activities and conservation activities. Just as we push them to integrate their program, we've integrated our own project.*

**CAMERON:** How confident are you that this new phase of global projects is going to be different than the CDM or previous rounds?

**PAGIOLA:** *Well until we have an agreement it is hard to say. To really have a meaningful REDD program we would need to have a meaningful global agreement with meaningful targets for emission reductions with agreement that REDD is going to be part of it. We basically have that. Everyone seems to be on board with the idea that REDD will be an important part of whatever is done, if we do something.*

*The other thing we're going to need is feasible rules. I mean the CDM rules that eventually emerged ended up being so strict that they were very hard to actually implement them. A good example of the perfect being the enemy of the good. It was so perfect, they were so strict on ensuring additionality and things like that it became almost impossible to actually do anything. Not completely impossible but hard, especially in these areas where we'd most like to do things, small holders. They were perfectly feasible on plantations but in terms of doing them in small holder environments, they were very difficult.*

*So until we have an agreement and we know what the rules are actually going to be it is hard to say. I think we'll get there. I think the big question is how fast are we going to get there. I don't think we have any choice but to get there. It is all a matter—is the global community finally going to realize—this year in Paris or is it going to take another couple of years? Half a decade? I don't know. Lots of other people better qualified than me are working on that. And will they come up with something that is usable. It is anyone's guess; it is a bit of a sausage machine.*

*It is remarkable in a way that we actually have something like the CDM considering the complexity of the issues. On the other hand it is clearly insufficient, it is inadequate. You can be an optimist and say at least we have it, you know, half full or half empty. Could be both. I don't know. At least in the short term we do have the Carbon Fund. We do have individual countries like Indonesia and others paying to avoid any deforestation. So there is some scope.*

*We have emerging things like the California market so things are moving in the right direction, not as fast as they should be but better than not moving at all. Hopefully Mexico and other countries will be in a position to take advantage of that as soon as possible. That is the idea anyway. One of the big objectives.*

CAMERON: I don't have any more questions. Do you have anything else you'd like to say?

PAGIOLA: *I could probably keep talking for days.*

CAMERON: You're so knowledgeable, I just want to get as much information as possible.

PAGIOLA: *You're welcome to call me or e-mail me if you have additional questions and I'll do my best.*

CAMERON: Thank you. Do you have any other suggestions for people I should talk to?

PAGIOLA: *I mentioned Paula, Carlos Nunez, certainly the big four or five. Who else? We've got others who may be a bit more removed, people like Sergio Graffe who was the equivalent of Arturo Tenolio until recently. I'm not sure where he is now, I think he is in Colima. Somebody in CONAFOR will have his contacts. He can give you—he started out in fact as one of the consultants working on the aprumsas. He was working with an NGO and we hired him as working on the Colima aprumsa. So that is where I first met him. Then eventually he became the director of the—I think whatever, the [Indecipherable]. So he is a good guy to talk to if you can find him.*

CAMERON: Okay, thank you.

PAGIOLA: *I mean unless you're planning to write a multi-volume book.*

CAMERON: No, we write nice short digestible case studies.

PAGIOLA: *Then that should give you more than enough.*