**N1 - Interview Conservation Organization NNF, Windhoek - 24-1-2023**

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**Could you please start with a short introduction of yourself and of the organization?**

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My name is [name]. I'm a senior project coordinator at the Namibia Nature Foundation. I'm mainly responsible for technical services, which is sort of where the bush work originated. We were contracted to write a strategy and do a feasibility study for having either policy or national strategy around bush resources and then. Through that we started doing quite a bit of the bush work. Especially around aftercare and doing environmental assessments, cost benefit analysis and these kind of things. The NNF in general is a sustainable development and conservation organization. We work around larger programmatic areas. So we have forestry woodland where the bush stuff now falls. We have climate change, which is also my under my supervision. Agriculture, combating wildlife, crime, community based natural resource management. So we work with conservancies as well. We have agriculture, freshwater ecosystems, and marine ecosystems. Most of that is still very much from a conservation side so bird by catching fisheries and those kind of things or livelihoods. Perspectives, but getting increasingly also into blue economy aspects. That's pretty much the NNF. We have our headquarters here in Windhoek and then we have regional offices in Swakopmund, Mingudu, Katima Mulilo, Tivundo vundo. So quite spread evenly across the whole country. On the bush side coming from more of a policy, economic perspective or aftercare perspective. Ecological side, but we're also for example, working. With our national power utility on. Their biomass power plant. So we've been. Pushed a little bit more into other value chains over the years and also currently looking into a funding proposal with carbon capital and probably Nbib to look at gasification, but that's still at very early stages, so that's sort of something that happened over the past few years and weirdly came from more of a climate finance perspective and securing climate finance for the power plant. It's become a good combination. The bush background and the climate change background and climate finance background.

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**And is this power plant that's with Nampower? That's a big projects?**

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Yes, exactly, that's the well big, I think what did what they say they need? 240,000 to 250,000 tons a year. So in terms of total volume that they harvest. At the end of the project it's not much.  Given the regrowth fact with that.

I1

**And you mainly work at the forest group and the climate change?**

P1

I'm mainly responsible for, well, technical services is a weird construct, so I do mostly. Consultancy work. I do almost entirely technical work. I don't do that much project management. So technical services is normally six months to one year contracts. Writing feasibility studies, writing management plans, policies. That kind of work very technical things, and then climate change is something that we only recently got ourselves into, and it's always been a personal interest of mine, so I'm sort of developing that as well and the bush works emerged from technical services. So a lot of what we did used to be more research, more feasibility studies or policy work. Saying that the work we're doing for Nanpower is also more advisory. Work on for helping them to design their project in a sustainable way and accessing climate finance. So that's how we started. But it grew very big very quickly so the if this biomass power plant for example materializes and they get the funding, will be the project operator for the technical component, which will then be quite a quite a Big project. Focusing more on research and monitoring and evaluation and making sure that we collect the data to make. The right decisions because we haven't had a I mean apart from the charcoal value chain, there's no value chain that has harvested bush at that volume. And since will have climate finance for it. We really need to make sure that. Firstly, we do have the emissions reductions that we're promising and that there's no negative impact on the land.

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**Yeah, and how do you do that? Do you have certain systems or tools to monitor that?**

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We still have to. Establish the whole monitoring framework. So what we have until now is we have certain monitoring metrics but they are not final yet, so I think we will need have a few that will be added also as a as part of. We're trying to develop a national monitoring framework because what we currently have is we've got a lot of scattered efforts, so all of those that are, for example FSC certified, have the monitoring they have to do under the certification. Then in the case of Nampower, they've also got the environmental management. And that they have to report on and do monitoring for. And then there's still. Quite a few others that are often not considered, especially social impacts. Gender impacts soil is weirdly not considered much. Impacts on the soil and soil organic carbon. And these kind of things. So we really have developed certain indicators that we want to look at and then part of those will be done in regular monitoring and others will be tendered out as part of long term research projects. For example on solar organic carbon. And then sort of have biannual presentations on those so they can adapt their harvesting. If something is not going so well there.

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**And we understood also the difference with land ownership efforts here that there is commercial farms communal and resettled farms. So do you work with all? Types of lands? Or do you mainly work with commercial or?**

P1

Difficult to take apart so NNF generally works more in the communal areas. On the biomass side. It's a lot more difficult. Because you've got, well, a common pool resource, and our government hasn't quite found the right way to manage it because it tends to become elite capture. You've got a few people who. Start doing large scale harvesting and then you don't have enough for the subsistence needs. Because firewood is sort sort of the main. Resource used for for heating and cooking. So that's why it's a bit difficult. In communal areas. And I know Nbib did a few charcoal pilots in communal areas, which I don't think they went that well, I think they're a few lessons learned of what they will try to do differently the next time for the Nampower work. We also have a Community component so Nampower is distinguishing between long term fuel suppliers, which are your large scale commercial suppliers and they will be covering about 80% of the power plant needs and then they will have 20% which will be the ad hoc fuel suppliers and the idea there is to empower sort of local communities and have these small community owned small to medium enterprises that supply certain amount of biomass to the power plant which have not been developed yet. Because for most of these things. A lot of the work is around governance and financial management. And that's something that we've traditionally done as part of our community based natural resource management work. So that will be part of the sort of technical assistance. If the Nampower project takes off when the funding comes through. But apart from that we've got experience with other value chains. Mainly non timber forest products. But no big encroach bush biomass efforts in sort of communal areas.

**And do you also advise the Ministry of Environment and Forestry and try and work together with them to make policies or?**

P1

Yes, we have very close ties to them so we also wrote the national strategy for them and we have regular meetings and we're also helping them with the research strategy, so we have very good ties. It's also good to know where to push and where not to push and this is still a little bit of. A sensitive topic. We're sort of harvesting. You probably need a really, really good pilot to convince. Them that harvesting and communal areas is a good idea. In sort of isolation. Combine it with. I don't know improved cook stoves so that you have a reduced fire would need and I don't know, currently that's a little bit of a conundrum we're facing and also often leads to a lot of international pressure because they would of course like to benefit the most vulnerable, it's a difficult, difficult thing to navigate creating you know create new opportunities for them without eroding their sustenance.

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**And we heard also about this concept of community forests. Do you also work with that concept or?**

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So we're probably the only Namibian NGO that extensively works with community forests. We do a lot of community forest support. They're quite interesting and probably also in the biomass sector. The only option you have I mean, a lot of conservancies are also community forests, right? The rights community forests have are more elaborate than what conservancies have so conservancy mostly have rights over wildlife where community forests can use all or almost all resources so conservancies, themselves, theoretically do not have the rights to use biomass, for example. So, we're probably currently the only NGO working extensively with the Department of Forestry and Community Forests.

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**And also on the topic of encroach revolution by mass harvesting or is that different?**

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Now the Nampower thing would really be us venturing into bush biomass the first time. We have one project. It's called nila. Like it's Jeff funded focuses on sort of land degradation and we do have a small component under that project. That does some bush thinning mainly sort of a pilot project. That looks at restoring grazing in communal areas and mainly along riverbeds, so that's the only one we have currently, which is a very small scale project and focuses entirely on restoration and not at all on commercial use or value chains.

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**What was this called?**

Nila leg. At some point I should learn what the abbreviation stands for, but if you look for Nila leg you will definitely find it. It is administered by the IMF and we've got sort of they've separated it into different landscapes and we're doing one of those landscapes

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**Do you know, like it's not quite clear to me yet how these community forests? How do they become certified? Or how do they become a community forest?**

P1

I'm not 100% sure, but in. General, the principle around conservancies is they have to organize themselves, they have to clearly delineate the boundaries they have to set up a constitution. They have to set up a committee and then they can go to our government and then sort of under the forest act I think community forests are established. I think so. Then they can register to become a community forest and then theoretically I think there needs to be an inventory that is done of the resources. I don't know to what extent that is done. To be very honest, we've been very bad with our forest inventories and the main thing is they have to delineate their boundaries. They have to sort of set up their membership, the Constitution and their governance systems and then they can register to become a community.

I1

**OK, and that's on your website that. You color of projects on the community or community building based. Natural resource management. What are those projects?**

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So those are mainly conservancy support a lot of the work we're doing at the whole thing has changed a little bit because it's been around for a very long time, and it's often one of the major conservation success stories that we have in Namibia has to give the rights of resources to communities and then manage them and in the beginning a lot of that was actually establishing income sources, so getting hunting concessions, getting tourism concessions and those kind of things to help them secure a livelihood. I'm not an expert on this because my colleague is responsible for this, a lot of the support has changed very much into governance and financial management support. Also dealing with unallocated funds and these kind of things so as the income sources started materializing. You of course started realizing oh, but do they really have the capacities to actually manage the funding? How do you make sure that some of the funding actually goes down to the members of the conservancies and gets stuck in sort of the operational cycle, because that's what happened most of the time that it's entirely used to run the office and the cars for the committee and you don't really have any benefits going down to sort of the membership of that of those conservancies, so. That's a lot of the work that we've been doing.

I2

Did you give them training or how did you like? For hard, if you like, they'll be capacities.

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it's a lot of trainings, what I always feel is the most fascinating is. It's a very continuous. So normally when you have project support, you've got your project. For five years and then it dies down and I think this has been a really great example of having really this continuous support and going to them regularly and discussing their challenges and trying to and new ways to support them and then what has also happened a lot is that they are starting to use CBNRM as a vehicle. So if you implement a project in agriculture, you go to where you really have governance structures, it's the easy way to go, they they're really organized. You know exactly who to tell that they've got a list of sort of their members and what they're doing, so it has become a vehicle for a lot of other stuff. And then you would start having. Yeah, there's for example the ERF projects GCF, funded projects that use these conservancies where they could themselves pitch project ideas. So there you've got quite a few projects that are doing push feed. They do have some biomass value chains, but mainly focusing on push feed. Then you've got all different kinds of irrigated agriculture and some chose solar panels wanting to export the electricity to surrounding lodges and those kind of things. So that's a lot where we help them with the support of how to make it work and how to administer that. Those kind of things and those kind. Of funding streams.

I2

**Would you say most of the communal farmers have organized them into such factors? Or is it that lot of them are not organized yet?**

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That's one of the biggest conundrums we are currently facing, because CBNRM has become so strong and such a well organized system.  We don't put enough effort on reaching the people that are not organized and conservancies and something that we for example, see very little in Namibia is we have very little cooperatives for example, agricultural cooperatives and you do still see that a lot more. In sort of the commercial areas where you do have, a lot of farmers here German by the way, got their farmer for ein or farmers associations, but you don't have a lot of that in communal areas and there's they're trying to strengthen their presence again. We have farmers unions that deal with the different land tenure type, so we've got one Farmers Union that deals with communal areas. We've got one that deals with commercial areas and then sort of for the emerging commercial farmers, which is often resettlement farmers of the like and unfortunately, the one for the communal areas is quite weak. So especially farmers, if they are not part of conservancies, where you do have to subscribe yourself to conservation a little bit, or at least have all conservatives, for example also normally have zonation plans, so they've got their core conservation areas and then they've got their multiple use areas where they would be allowed to do agriculture, but they have to restrict themselves quite a bit. And that's a problem that I'm not working in CBNRM, but we're supposed to do our national adaptation plan, for example, and we're struggling. How do we reach the people that are not in conservancies and unfortunately, that's a lot of farmers.

I1

Aren't there sort of local organizations, systems, or management systems different from like cooperatives or like associations that are that are. Sort of natural to the way we can use the sort of way that they organize.

P1

I'm not, I'm not entirely sure. I think you've got sort of some traditional norms and customs where households help each other and families help each other and you also have men responsible for herding moved to the floodplains. During that season and those kind of things, but I'm not sure if there's something. That's comes close to cooperative herding beyond sort of the household level because I know there were a lot of discussions at some point because especially in the communal areas you have a lot of issues with elephants. And sort of elephants, crop production and elephants, everything and then of course, we've got your. Large predators, so they've tried to get them together somehow because joint herding is easier, joint crawling is easier to protect them against lions for example, if you have larger fields or combined fields. It is easier to keep elephants away and those kind of things and all of these approaches failed. But I'm also not an expert on communal agriculture but it seems that they work very much on a household level and I think there might. Have been some projects that started to work more in cooperatives also if you want to access sort of markets you often need larger volumes. But I don't think that this is something that has been done in a traditional way, but I can definitely find out about that. Because I know there's. Other African, especially Latin American countries where cooperatives have been a very traditional thing to do. I mean also around irrigation schemes. I think in Israel and something that has always been around. And has a very long history. But I think here that is not the case. Everyone has always had their. You know we've got a big thing around traditional land rights and ancestral land, and everything is very very small scale and household based. That's what it seems to me, but I'll google it. Well, I ask my colleague and my agricultural colleagues.

I1

It would be interesting to find out because I mean they're in sort of communal areas, so there must also be some sort of local structures.

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But again, there's. Also, very little commercial value chains right in communal areas and I think. Most of it is really is subsistence agriculture

I2

**Maybe a bit of a sensitive topic, but do you think the most communal farmers are sort of happy where they are in terms of like land rights. They don't feel like they've lost land to basically the white farmers? Or that's not?**

P1

It's very difficult to tell? I'm also probably not the right person to ask on this because I'm more like a colonial remnant myself. There is still a lot. Of discussions around this, of course, and it comes up in every also in every discussion that you have. Around the value chains, how do you make sure that you benefit the people in the communal areas. I think on the practical side. You also have to think about a lot of people do subsistence crop productions actually a lot of the land which is currently commercial is not suitable for rain fed crop production so the areas in the north where you have communal areas and you've got sort of, your perennial river systems like the Okavango and Tazanizi. They really are the best place for rain fed crop production.

I2

**So the basically the land up north is quite fertile?**

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It is probably the most fertile app we have but of course I mean nowadays, when you have your irrigated crop production, you've got a lot more production now, and I think there might always be some sort of entrepreneurs that could do with a lot more land and not having this common pool resource problem. But it's very difficult to tell. It would actually be really interesting during, like a survey or a study around it, on like a very personal level. I'm always amazed at how happy the people are if you travel to the north.

I2

Yeah it would make sense if they're a bit happier if they've got the Kavango and the Zambezi.

P1

Yeah, so it's I'm sure there's always entrepreneurs that want to you know that would want to. But at the same time, I think there's also a lot of people that are happy with their traditions as they are and I also know about quite a few people who've always worked in town and then once they retire, all they want to do is go to their homestead. In the north. And do their little subsistence crop production and so on so. I guess you'll have to ask the people. But I think it's just like probably. In other areas, not everybody has the ambition to do huge production or make a lot of money.

I2

**The thing you still have a big problem of unemployment? Yeah, does the NRF try and do anything with that or?**

P1

A lot of the focus that we're doing of the work we're doing is around livelihoods and enhancing livelihoods. A lot of that is run subsistence. We probably should be doing more at establishing, you know markets and value chain so you just have a more permanent income, but it often becomes difficult, so we've got a few projects that are going more into that direction and looking at commercial harvesting of Devil's Claw or munketti and establishing value chains and exporting those and trying to find offtake markets for those kind of products. We're starting with some kind of honey production just to have more income streams for communal areas? I wouldn't say we necessarily focus on employment itself. We have been trying to get more into urban areas because traditionally we've always we've worked more in rural areas, but even here I don't think our focus would be on reducing unemployment itself. We've always been more of an environmental organization, so then it would be more about housing conditions, perhaps sanitation water access will be around greening of urban spaces. Backyard gardening but not around I don't know trying to get people to work. At a bank or similar so. It's a lot always been a lot more lively. To focus, which is of course always sustenance, often sustenance based. But we are trying to work on establishing markets and working on marketers.

I2

**And with those strengthening livelihoods. Do you also do you strengthening health of the community or?**

P1

Do you generally mean in terms of cohesion and those kind of things?

I2

No more like general physical health while improving sanitation will obviously also help with that. I heard of HIV/Aids is a bit of a problem in the communal areas.

P1

To be honest, we never really had a focus on that, I think as part of COVID. We did a little bit. Which was just you know general hygiene and somewhat came. With a lot of the COVID relief funds that came into the country to also explain, you know. What is COVID? What should you be doing against it? Why are you not currently allowed to travel and these kind of things, but it's not like we ever had a had a big focus on that. We do however have an NGO which is called development work. Who focus entirely on sanitation and health related issues. So, weirdly enough, Namibia is. We've got very little civil society organizations that do everything. We're very specialized. There are a lot of gentlemen's agreement. The NMF probably still has amongst the biggest scope. But I mean you can tell it's all pretty much in the environmental space and related to it so even if we do energy, it has a focus on climate change and emissions reduction and the like. But you've got organizations such as Development Workshop or you for example, also have the Shack Dwellers Association, which focuses very much on urban areas and produce improving living standards and these kind of things. Yes, we have ventured a little bit into pollution aspects which also has to do with health and particulate matter concentrations and the respiratory diseases that come with it. And we're probably also going to start working on improved cook stoves, but also mainly because it reduces the need for firewood and it reduces emissions and then a good side benefit is that you've got reduced particulate matter concentrations, which of course has benefits to human health. But it's never something that we focused on.

I2

**And going back to, you said you had indicators for the Nampower bup project you were trying to develop a structure that look at social indicators and stuff like that what? What are you looking at or what or what are the indicators?**

P1

I'm happy for any suggestion, so we still have to do the whole emini plan which I'm currently really ignoring because other stuff. So a lot of that is probably going to be, so we've got this whole gender component, which will be around employment will be around the gender based violence and all of those. I think that's something also for us the first time to be honest, we've never really had a project before where we had a gender action plan and we had to do gender specific monitoring. So that's quite a bit of a learning curve for us as well, and it's getting more and more important. But a lot of it will be around income. It will be around, sort of different kind of income sources they have, have they managed to diversify income? How has have their livelihoods improved? And how perhaps also has, that's something we still have to discuss how has their life improved so can they for example, now send their kids to school and these these kind of things. And we're still trying to wrap our head around how far we go with it, I mean a lot of it will also be. Workplace accidents these kind of things. Yeah, but I don't have all of them in my head now. We've defined quite a few, but I can send that to you, but we still.

I2

That'd be great, because that's what my thesis is on.

P1

Yeah, because but we still have to do quite a bit of work so if you have suggestions please let us know.

I2

Maybe I'll send my thesis.

P1

Yeah, no that would be great because that's what we are also struggling with how do we quantify the social benefits and that's something that I sometimes struggle with because if you look at donor funding, it's how many people joined the training. But just because you've received training, it doesn't change your life. So you probably have the perform you need to have some kind of performance mechanisms that are the project specific ones where you sort of look at how many people are trained gender disaggregated. How many people are employed. And how has the income changed and those kind things and then what we are still struggling with is how do we come up with impact metrics. So how do we really measure if their life has improved beyond sort of just receiving some training and there we still struggle to quantify that properly, because do you then hand that down to some generations and look at can they now send their kids to school and these kind of things? Alright, I haven't quite wrapped my head.

I2

Well, you could look into the social life cycle assessment. That's what I'm doing now and they. It's still also a developing method, but they do have guidelines and indicators that they suggest. Which is basically what I'm doing.

P1

Yeah, and also for us it's it's, it's quite a quite new thing because. You can also see if you look at the indicators we have so far through environmental focus, so it's a lot of sea isotopes, so we know how the grass cover changes and these kind of things. We definitely have to strengthen the social component and it's a problem across the whole country. Unfortunately, I mean our last demographic survey is from 2013. That's the data we rely on we don't even know how many people we have in this country at the moment. Yes it's bad.

I3

**And you said you had indicators for environmental assessments, right? For environmental aspects?**

P1

Yes, so we sort of have. Goodness, it's a very long list of indicators so we have sort of the ones that certain biodiversity indicates a lot of it looks like species succession, species regrowth. What is your species composition after harvesting? How does species richness and other diversity and abundance change? So a lot of those things you've got sort of your soil indicators, which is your soil organic carbon. It's the soil texture really making sure that you don't just look at the top part but how it changes further down so carbon capture, how the grass composition changes, nutrient status, soil microbial activity, and soil moisture content. So those are things that you have. As you can tell, we have a lot more expertise on and a lot more indicators for and then of course, you've got all the emissions indicators, so we need to measure how much CO2 emissions, carbon monoxide, methane, nitrous oxide. These kind of things.

I2

**Have you done that on a Bush encroached land that has had bush control?**

P1

Currently it's all modelled. I think the emissions. So we are currently busy doing a carbon. We're hoping for this year to do a carbon balance assessment. Which just looks at what are the above ground carbon stocks and the below ground carbon stocks in a bush encroached landscape. What does it look like after you've harvested with this and this methods after five years, 10 years. But since it's not a long term study, all we can do is rely on farmers records of what they've done on certain pieces of land and reconstruct it and then work with scenarios. For example, mechanical harvesting with chemical after. Mechanical harvesting with controlled fires or browsers or whatever, so it will really be based on that. We actually haven't yet thought about doing the land based emissions and measuring the land based emissions. I mean, probably wouldn't be that difficult to do, you just need to find out species of that size has gotten that much carbon stored in the biomass itself. You take the biomass out, it's gone so that they're the more those you can probably extrapolate. But the one of our specific concerns is the impacts on this soil. Because with all the biomass you take out, you take out a lot of nutrients and a lot of minerals, and that's something that we've always been cautious about. And we're also always worried when you have export because you pretty much mine the soil, which is very good. It's a very food nutrient cyclist, so it takes up a lot. Of the minerals in the soil. If you take the bush out and you export it, it's gone from the land. So then you have to start thinking about how do you give back to the soil. So you don't end up with more degraded land and more Bush in the end. And that's things we need to monitor quite diligently, and what Nampower also wants to for example, look at is the bottom ash from the power plant. Can the bottom ash be used as a soil amender because a lot of. The minerals tend to stay in the ash when you burn it, so that will be one way of giving that back. The same goes for charcoal production that are now doing biochar. It would be a way, if you took the Bush out and put the biochar back in so you don't have these nutrient losses through the biomass harvesting.

I2

**Do you see that the level water levels will be improved? If you have bush control?**

P1

We do want to. It has been a study it's quite an old one I think from 2015 or so data they did a study on the impacts on groundwater recharge, which are quite worrying, and I think that's also where this national priority of reducing the bush apart from it just reducing the productivity of the land for agricultural use but there is considerable impact on groundwater. We hope that we can also measure this with for the Nampower project, you would just need to have sort of your meters on the boreholes of the different farms because most of them rely on boreholes so you just have to install meters to look at how groundwater changes across different areas.

I2

**And do you want the farmers to be FSC certified from an NMF like viewpoint or is fine if they are not?**

P1

I think we will probably go for certification, simply because if you drive through the country you can very clearly see which one was certified land and which was not. So I think if you for example drive to Swakopmund, you could pass a lot of the farms and you see how many farms are clear cut. I'm pretty sure you can go to the farmer and ask him. I mean not all of them use the bushel value chains right, which has been considered a pest for a very long time. So a lot of farmers just destroy it without even using the biomass but yeah, we are very cautious about the over harvesting and we're probably more on the conservative end, in terms of how much you're allowed to take out because we just realized that. You can look at a lot, I don't know if Nvig is going to visit that with you. But there's a lot of the Orongosemen sites that have had very well invasive techniques to harvest the bush and you ended up with sort of monoculture sickle bush, which is a very aggressive pioneer species, which also has very low biomass potential if you want to use it for further value chains, and very difficult to get rid of. So that's something we want to avoid and sort of with the FSC certification is at least a higher chance that it will be done in a sustainable way. But we're also aware that there are issues with FSC certification, so that's why we're also trying to come up with this national monitoring framework and national standards of how to measure indicators? Because we heard from quite a few FSC auditors that everyone, for example, has a very different understanding of how to quantify the density of bush so you can have different auditors going to the same piece of land. Some saying this is bush encroached or bush encroached. Or this is over harvested or not over harvested so. There's a very big, there's not a real common standard and we like to use these three equivalents, but not everybody is applying it in the same way, so there's definitely a need on sort of harmonizing practices a little bit, because you can have considerably different impact and I mean, at this point we're also has been quite a bit of research for example, that looked at the benefits of selective harvesting versus sort of clear cutting and it shows very clear that if you for example leave the big tees in the area and you only harvest the smaller. bush that you've got a lot less regrowth. And a lot of, I mean most of the value chains we are doing here is to have the restoration. That's the thing we really we really have a lot of experiences, but there's still a lot of things that would need to be done and that we simply don't know.

I1

So we would like to show you this concept. That we're working. On it's called biohub and the idea is that here in this area there are multiple communities of farmers that are supplying biomass, and so in this case it will be the encroachers bush to biorefinery and we are investigating an technology that can produce different products. So first is a biooil that in the end can be used for shipping biofuels which is what we are focused on, but it can also be used for other products. Biochar that in the end can be used again in farms and also a wastewater stream and the gas stream that can be used in the facility. We're here to investigate. How would this concept work in context of Namibia, and what benefits should it generate? How would it look like? What are the challenges, those kind of things? So looking at this this image, what do you think the benefits could be for Namibia? Or like should be?

P1

I think the benefits could be considerable, have you estimated how much biomass you would need?

I1

No, not yet.

P1

Because that's always what I find interesting. Nampower for example, requires a 100 kilometer radius? If you consider sort of the extent of the bush encroachment problem. That is quite a bit but I think what will be very important for this is site selection, so ideally you would want to find a site where you can maximize your employment benefits where you've got enough bush and you're not too far away from the harbour, and I think that will be something that will be quite tricky to balance. I do like the combination, however it does seem like a very closed loop system where you try to minimize. Sink effects and have a very. Self-driven system that doesn't require too much external inputs. I'm just wondering if you'll have enough but I don't understand the technology so you said you want to do both bio gas and bio oil. That cannot be done in the same process, right so? You would have sort of your fuel requirements. For the gasification part and then your fuel requirements for the oil.

I1

And you can maybe explain the technology, yeah?

I3

The technology is very simple. We don't produce any gas right? So we do, but it's a byproduct, so it's called hydrothermal liquefaction. It's like pressure cooking. Put biomass, put water, high pressure, high temperature, boom, you get 4 products. One is the bio oil. Which is of our primary interest. The second is the solid phase biochar, which predominantly should have all the inorganic minerals. An aqua stream. Because the process uses water, so water and oil fraction will separate. So of course we'll still contain some organic compounds. The next one is the off-gas that's predominantly contains methane and hydrogen, right? So these are the four products which we get. Primary of importance is the bio oil and the biochar, because the water stream can be recycled, but we have to still understand that, or it can be still valorized. Waste off-gas will definitely be recycled because it's energy. So the process consumes a lot of energy, so we will recycle it back, right? And then this bio chart, based on its properties. We don't know yet because we have a colleague who is working on experimental works of it actually. So based on its properties it can be used for either as a soil amendment based on food as a fertilizer. Or it can still be used as energy. You can still burn the coke and produce electricity out of it or it can be used as an activated carbon as a water treatment purpose, right? And then this bio oil which we get will be further upgraded in a refinery and then used for shipping industry so. That's our idea, so yes, we do produce gas, but it's not of a major fraction, maybe 20%.

P1

**So you will probably have to still complement, because it wouldn't. Be enough to power the plant.**

I3

Yes, because also one of the biggest challenges which we foresee is electricity. These kind of plants loops consumes a lot of electricity. And right now maybe imports lot of electricity from USA, so that's not a good match and if you are producing electricity, yeah, consuming a lot of imported electricity to produce something that's not really good. So first, maybe yeah, that's something because this value chain in futuristic right? So maybe if Nampower has those kind of things and all other grid becomes more renewable. Mix from green hydrogen, solar, wind, blah blah blah. Then yeah, then this becomes a feasible project and the impact will be far less right. And in terms of quantity you ask. Yeah, we will consume a lot more than yeah if it if it realizes this value chain will consume a lot because shipping industry consumes a lot of fuels, we are speaking a minimum of a million ton. So let's assume to produce a million tonnes. Yeah, we can produce like 30K tons of final fuel or something, so that's still less. That's like 1 ship. It consumes one ship per year.

P1

You should meet with Nampower on the electricity part because I agree we currently have an energy deficit in the generally in the Southern African powerpool. Well, you can see what South Africa's load shedding. Namibia, the thing is how does Tangeni from Nampower he likes to say we are oversubscribed on renewable energy, so we rely very heavily on heavily on renewable. Our biggest production hub is our hydropower plant and the problem we had over many years is that it didn't rain in Angola and we rely on the reign of Angola to power our hydropower plant. So we went from almost, I think don't quote me on the numbers Tangeni will know better. So we'll we went from almost being self-sufficient I think we were able to produce about 60 70 80% ourselves to importing 90% of our energy and that's also partly the biomass power plant now comes in, it would directly substitute coal-fired energy because it's a stable technology. So you need more energy. You burn more wood, you don't need to rely on the sun shining or raining in Angola or the wind blowing off the coast of Luderitz, but you would have something that you can pretty much ramp up production or go lower depending on how much renewables are able to put into the system. But it would be interesting to chat to Nampower if they would have enough surplus to power the system. You can also always fit it with some solar tube.

I3

That's that's the idea.

P1

One thing that I'm concerned so it would be very interesting to see the estimates of how much biomass you would need, and I mean the first so Nampower is now the first large value chain because the charcoal production they require a lot of biomass, but it's very decentralized and for these kind of things you of course want to reduce your travel routes because otherwise it just ramps up the price of the fuel. So it would be interesting to see how much you need and how quickly you would have to go for larger and larger radiuses around your area and if it's enough across the life cycle of the plant, because then of course it gets more and more expensive the further away you have to harvest, so that would be quite interesting. I just learned last week that for biochar, you need a certain temperature. That's the newest thing I've learned and sort of at a certain temperature and H C to O C ratio you have the best biochar, the problem that we're currently having, which would be quite interesting to see. We pretty much had this company. They've got their biochar now, and they're looking for off takers. So currently the price of the biochar is driven up quite considerably simply because a lot of the mines are interested in using it to flush out toxins and heavy metals from their water. So that's quite interesting, but they are also interested in having. Like more. Impact so they pretty much approached us to see if we could use it on some of the agricultural land. We're using, but the thing they are facing. Is they're producing the biochar, but they're not processing it, so theoretically you have sort of your still pretty racketed biochar. And they would need us to do the processing before we apply it to agricultural land for example, so it would be interesting just to like how far down on the processing you would go because I mean it's not your primary main product.

I1

**Because currently there is no plans or there's no processing company that can do that?**

P1

I don’t know if Indexen has some other biochar producers that have a processing plant. We also thought you know with. We're trying to find solutions for that, and we thought you know it would be a nice community based small to medium enterprise project to have a small scale processing plant that collects all the biochar. Gets a certain fee premium pricing to then sell it on. Yeah, that's that was just something that we are considering but for that you also need certain quantities to keep them busy, so that would be quite interesting.

I1

And from your experience also with working with communities.

P1

I see you can also use other waste products.

I1

Yeah, so we've also done case studies in different locations where we look at agricultural residues, so that's also possible with this technology.

P1

Because we also have quite a few invasive species, especially eucalyptus and prosopis. So that might be interesting.

P1

And urban waste. We have a lot of urban waste.

I3

Ideally we can use all the types, but we prefer one species at a time because that pretty much yeah. You know it's easy for the downstream processing in terms of all other you know, chemical composition, everything. If you mix everything together. And you bring in heterogeneity. That's more complex system, and the product you are getting is will be so complex that you have no idea what you're going to do with. So it becomes really expensive downstream processing. So it's more the idea of the project is also we are aiming for very low hanging fruit. We are not producing high value added chemicals. We are not producing pharmaceutical chemicals. We're producing shipping biofuels we are not even producing aviation fuel. So because this can pretty much be run with anything, so usually ships are known for running in pretty much anything though. The range for impurities is quite large that it can accommodate everything, so that's why we are trying to, you know, go for feedstocks, which are not really very clean per say. And then we use that and then produce this low hanging stuff. And because one of the major concerns which I also hear from other people is charcoal is good. It's been there for the value chain, but then there are two things in future. Probably it may not exist. Yeah, and two, the uptake is not enough. The regrowth is much higher than whatever they're consuming. So you need something of a value chain which can absorb more stuff. So that's what we think this could be of something quite valuable here.

P1

I think that that that's. Definitely going to be valuable, I just wonder what the best, how you would get the economics right? Because you've got that, that's the thing with biomass. You've got very long regrowth cycles. So you cannot assume to harvest the same area even within six years. You're looking at much longer timeframes, which means you need a fairly large area to source from, and the longer the operations, depending on the volume that is needed so as Nampower suggested or estimated that for the biomass plant. For the 25 year. Lifetime of the plant, sort of this this 100 kilometre radius is enough but they only need around. 250,000 tons so it would be interesting to if you start looking at the economics behind it, because I think the idea is great and I'm also wondering sort of where in the process you are how much funding you've secured to do what? But it would be interesting to see sort of the economics if you have sort of your electricity price. As you really said that might be a little bit of a bottleneck. With what we've got in the pipeline, we should probably be Nanpower is doing doing pretty great, but if you need a contact point there, let me know I can give you Tangeni email address.

I1

Yeah, but maybe on the status of the project just to be very clear, it's just the research project. There's very brief feasibility study. It's very early stages. We just want to first understand the context, how would it work? Is it possible. So it is not a project.

P1

OK, because we had a chat with Steinbuch University last week. They're trying to go through a big for EU horizon 20 funding and they would have funding to do a pilot. So I'm not sure if a pilot for this kind of technology is actually viable. Or I mean it, it might be viable if you want to look at what is the final composition of the fuel perhaps so that might be something that we could use because it's a project that focus on renewable energies. We're speaking to Colin on a gasification project for a different funding goal, which would be international climate initiative so that might be something interesting. Potentially if they put Namibia in that call, which looks quite good. There might be some funding to do a pilot. It's a very experimental call. So that might be something interesting given that you have sort of a pre feasibility study stage. If you want to take it a step further looking at sort of small scale piloting. I don't know if it makes sense because we did. But that's what you will have to tell me, because Nampower did taste sort of small scale biomass plants and realized that doesn't work we need to go big or don't do it at all.

I3

Can I ask one thing? So you said this pilot project is from Stellenbosch University at South Africa and for renewable energies in South Africa.

P1

The use of invasive species. For renewable energies.

I3

**Yeah, how come Emem have become a partner of that project?**

P1

I don't know. We somehow become whenever there's. bush or anything involved. We end up being part of the project. I don't know it has. It has sort of become a thing over recent years. It's very much via carbon capital and Colin and progress simply because we help Nampower secure the funding for their plant. So a lot of them put a lot of hopes into climate finance and sort of built quite a good portfolio on the climate finance side and a good understanding of climate finance, which is very difficult to just writing a technical or engineering proposal for something because we've got a lot of different things to think about with emissions and not just for the plant, but the land based emissions and co-benefits. And how does it fit in with sustainability, sustainable development goals? And that's also why Nampower pretty much recruited us because they are all engineers and they needed someone to make sure that they've got a strong basis. That shows that this can have positive climate and biodiversity benefits and I think that's how we got into this whole thing, because you are using a natural resource and you need to make sure that you're not creating further destruction because there's just too much.

I3

**Yeah I have a couple of follow up questions, but I will reserve that for later so I think the next question will be in this kind of bio hub for realizing what do you see as a challenge or a threat?**

P1

As already said, so I think you will really have to look at the fuel supply. You'll really have to see if it is economical. So what what are the impacts on the price? Because that's from the Nampower experience that is why they need climate finance because the electricity tariff came out too high because you've got this whole fuel supply thing that you have to sort out and there's not much. You're very much a pioneer, right? Not much has been done, so you might be able to learn a little bit from Nampower, so you might not start as at the zero point that Nampower is starting at. So I think that's one that I think might be difficult. Then the other one as I said it will be finding the right location to make sure that you've got enough biomass, but you're not too far away from the harbour and you've got fairly good. Transportation all roads. Because let's be honest, most of our transportation is going via Road. They're trying to expand the railway line which would be great because you would take a lot of the tracks of the streets. Most of our currently current transportation is via roads. So I think that's I guess fuel is pretty stable at least to transport, it's not like hydrogen, but that's another one that I would see. I would previously say probably off takers, but I know that there has been, for example, a big Belgian shipping company that has been in discussions here around buying hydrogen as fuel for their ships. So there seems to be some demand actually refuelling here. You will obviously then need the infrastructure for that, so you might have to expand the harbour. Yes, I think there will be a lot of opportunities to use the biochar, there's a lot of interest in using biochar. The processing. Let's see, maybe until then we have a biochar processing plant that actually that you could sell it as an agricultural soil amendment or fertilizer or high end product. What else? You'll have to deal with a whole lot of environmental standards mainly our question. A lot of environmental standards on the way you harvest so sort of selective harvesting and making sure that you do some kind of post harvest treatments to avoid excessive regrowth, and especially of sort of pioneer species and these kind of things. And then I mean I really don't know enough about it, but if you, I think harvesters will always find it's a great industry. You don't need to have a great education. You don't even need to be literate to do harvesting, but I don't know what kind of people you would need for the plant itself, what kind of engineers? That might be sometimes an issue. We've got a lot of brain drain in the statue. Yeah, those will be the main ones I can think about at the moment.

I3

**And do you also foresee for such a value chain there will be difference between commercial and communal farmers, how they are being harvested, if this let's say there are 10 communities. Do you think it will be fully commercial or? Or like there will be terminal pumps will still be engaged in that a thread or like.**

P1

Very difficult to tell, I mean, it would probably depend on as I said, we're piloting it the first time with Nampower now to have communal fuel supply. At the moment you will probably face a lot of resistance from our government or our Ministry of Environment. Doing something like this in communal area so you will have to rely on commercial land where they've got ownership over the resource anyway. Because you've got this sort of common pool problem in communal areas and the ministry is very worried about having large scale harvesting of biomass in communal areas at this stage. Simply because they don't know if they can, then still they still have enough biomass resources for their day-to-day living. So that would probably depend if non column manages to do a good pilot or a bad pilot. Because there's a lot of buy in from the ministry for that project. Although they're very cautious so it will be very very small scale pilots, but it will probably depend on whether that goes well or not well, whether they decide to do permit or allow harvesting in communal areas. But at the same time, it could have a lot of employment potential if you are close to communal areas, just in terms of sort of harvesting, even if they're then harvest on the commercial land. But at least it would create sort of some rural employment, but then again, you're far away from the harbour so a very difficult trade off.

I3

**So the first thing is, if I understood correctly the so first you told about the project from Germany which was yeah swept under the carpet and also for Nampower so you predominantly support them in terms of performing environmental impact assessment of such kind of projects by evaluating the projects in terms of indicators and those kind of things right? Just to understand correctly because yeah, sorry I missed. First party.**

P1

I think it's just the terminology, so environmental impact assessment is something different. So we as NNF if don't do environmental impact assessments as we have it in Namibian law. So for every big project. You need to do an environmental impact assessment and an environmental management plan to get your environmental clearance certificate. Without it, you cannot start any construction of this scale so this is normally done by specialized firms that specialize in environmental impact assessments. What we are more going to support nampower with, so there will be multiple components. The first one is a lot more of bringing the monitoring together and more of a research focus so while the current problem we have especially, which also blew up in our face in the handbook discussions. We've got a lot of biomass resources and we really want to thin it out a little bit but we don't know what that does to our land so that of course makes it very unattractive for investors because it's the same for Nanpower. Nanpower cannot have some kind of public outcry that puts them in a bad position let's say it that way, especially given sort of the focus of the Namibian government on sustainable development. So we are very much focused on what are the impacts. How can we minimize them? So what we are pretty much going to do, because manpower is. Well a whole lot of engineers. What we're responsible for is what's happening on the land? Aggregating that information reporting it the back saying this doesn't work. We need to do something else. Then you have to go back and see what can we do. What different kind of harvesting? What are the impacts going to be on the fuel price and those kind of things? So a lot what we're going to do is to ensure that we stay within the biodiversity benefit claims and climate change adaptation claims and climate change mitigation claims that we're promising. Because this is not something that Nampower has within the core competencies, they do have an environmental and social health compartment, but given the international and national interest around this whole bush issue, you really need to make sure that whatever you do is based on the best evidence and scientific information you can have. So the the nampower, the grant component or the technical assistance component is firstly you've got this M&E? There will be certain indicators that will be easy to monitor, so there will be regular surveys, there will also be regular gender surveys. It has quite a strong gender component to it because we want to see how do we create opportunities for woman in the harvesting sector, there's also a women's empowerment group. I'm not sure if you're gonna chat to them but they pretty much trained to. They're really smart people. It's called the Achivarongo Women's empowerment group, and I can give you contact details if you want to chat to them.

I1

Yeah, that would be great.

P1

Them so they basically train woman to be part of the harvesting and quite interesting because they're getting them out of very very dire situations of gender based violence and poverty so that will be one component, the other component. As mentioned, the regular M&E and that's simply because there will be a lot of M&E and you somehow need to channel and analyze the information you'll have M&E that's done by the FSC. You'll have M&E that's done by under the environmental management plan by Nampower shoe department, because that's the mandate. But it has a lot of gaps, so for example, it doesn't look at issues of species succession or regrowth and these kind of things which are something we really need to clarify also to estimate future biomass quantities and also to see when can you re harvest an area or similar. And also to see do we have a case of restoration success, or is the stuff just coming back as densely as it was before? So there will be a lot of thus and then of course, we've got this whole climate change component, so soil health, soil organic carbon, and these kind of things biodiversity benefits. That need to be monitored, which are not regularly monitored at the moment. Then yeah, a lot of this will be done through sort of long term research projects with institutions. That will probably be then your research has resolved. A lot more narrow, so something that specifically looks at or experiments with soil organic carbon in different harvesting methods or aftercare methods. It could be having a specific focus on sort of grass regrowth and do you mainly have annual grasses, or do you only have perennial grasses? And how does that change with sea isotopes or the like. So there we want to have a few and some of them might also be sort of the social component looking at how, for example, on the gender component have their livelihoods changed? And these kind of things. Then there will be the community component as part of the technical assistance as well, so we'll be responsible for the ad hoc fuel suppliers, the governance system and how they organize their harvesting to supply the plant that will be part of the technical assistance. As well and then the whole Nbig capacity building component. Will also be under the technical ground. Which is just to make sure that the harvesters know what the best practices are that they harvest sustainably. And have regular update trainings to make sure that whatever comes out of the monitoring data, they are familiar with and they can apply. So that's pretty much what our job would be, but still a lot is to be defined.

I3

**And apart from these kind of value chains do you happen to know any kind of projects or upcoming projects or investigations around the bush because one was based on Byron … ?**

P1

So that was just they they're looking for off takers for the biochar. I'm chatting to Colin Dannecker. There's an international climate initiative call out that was have thematic priorities. One of the thematic priorities is net zero and the role of car gasification. So we'd like you to look at gasification project which Colin wanted to do for a while now. We still have to sit together there and see what it looks like. Because we would think like a sort of more decentralized energy production would be more valuable, especially since we have a lot of issues with solar in communal areas. Because they just get stolen and bio gas bio gas would be a bit more permanent structures which hopefully not get stolen. And then, as mentioned, there's this Stellenbosch thing. We were also thought. Yeah, either really pyrolisis or also gasification and then there's of course the bio steam project it's currently going on. You've probably heard about that one. And I don't know what happened to all the projects they were also considering biomass hubs for a while and I think it was scrapped, it was by the GIZ. They tried to do it and then somehow UNIDO all of a sudden also had a biomass hub. Which was apparently they at least had like a groundbreaking event, I don't know what happened. After that which you need, a United Nations Industrial development organization.

I3

That will GIZ enough ethos. That's biomass industry park that's near what you want to know.

P1

Yes, example the BIPS, but. I don't know if those were ever established. It was a big discussion and I think the biggest issue there was it was tied to the handbook discussions and so these biomass industry have parts in whatever they sort of died with the idea of export to Hamburg.

I2

I think they lost their funding is something.

P1

I think it really was something like that. I don't know what else there is? I mean, there's others that are not working on energy. There's this, really. It's the university of Massachusetts no. MIT Massachusetts Institute of Technology. I knew it was something famous. We also have a pilot project here. They are working with. They use fungi, certain type of fungi. Something with M. But I can't pronounce it, so I'm not going to try, but they also have a website. Myconam I think something like that it's called.

P1

Myconam with with a Y. And they use fungi and the biomass to create like construction materials. It's like concrete blocks because the fungi somehow makes for very sturdy concrete and at the same time they can sell the fungi they grow out of it. You know enhancing food, food security, and those kind of things. So they also have a pilot project and. They're currently building their own headquarters with their own concrete blocks. Whole idea of that is just. Well, it has a reduced carbon footprint compared to normal cement and then. You've got sort of the. Then apparently it also cools better let's. I'm not so Sure about and then. Sort of the the food security aspect. Which is quite interesting. And then there's a lot of stuff. Around Acacia Fibre board, which some institute in Germany is doing.

I1

Yeah, he's saw that.

P1

That's the ones I can think of at the moment. But there's a. Lot of interest at the moment around renewable energies and mainly gas, not that much around wood chips, actually. Like a lot of gas and. Fuel now OK. Which is quite interesting, but nothing, nothing really concrete. At this point.

I3

**One of the challenges we commonly came to know when he was addressed is that after if the project life ends after three years or five years, the funding stops. But you have done some successful projects and prolonged their continuity. What do you think is the major reason for that?**

P1

I would probably say with the like bio steam and those kind of things, it is the private sector involvement because I mean the way, for example, carbon capital works that that are collaborating on the they really focus on commercial viability, and I think that's normally something that a lot of development projects don't focus on. But I think the way we Namibia. I mean we also do that at NNF, you just need to be very on top of the funding calls that are coming out and that's how we somehow managed to secure funding for the same kind of thing, so for. Example, it's the same as here. You're you've got funding for the pre feasibility study. Then you apply for EU funding to do the pilot plant and if the pilot works out you can try to get private private sector investors or whatever other investors hydrogenous mostly government support or government investors. To do the actual power plant. And then it should sb self sort of pushing, say, in terms of the income it makes, but at that point you might actually have to go for a loan, right? For the actual construction of the power plant or whatever, you will have to go for loan funding. You might be able to, like Nampower get a mix of grant and loan, because that's something that's so interesting about this because you've got the whole biodiversity benefits that are associated with the land part. There is quite a high chance that for whatever sort of capacity building land based kind of things you can get grant funding. But I mean Nampower main funding sources are loan from the French Development Agency.

I3

**French Government?**

Speaker

Yes, AFD.

P1

And they are doing a lot around biomass. That's quite interesting. That's how Stellenbosch University reached out to me because AFD went to the University of Stellenbosch and told them to contact me. So they are quite interestingly they they've never been a very strong investor in Namibia. Let's say it that way. But in recent years it increased quite a bit and very focused, seemingly on water and energy.

I3

**Yes, maybe last few things. Can you send us the list of indicators which you said you? Have lot for enrollment.**

P1

It's still very rough, indicated we still have to, so what we're trying to do from that list of indicators is to pretty much narrow it down into the unit measuring method and those kind of things, and that's what we haven't done yet. So this has been a very initial list of indicators that we've done. For sort of the first call just as an example, but I can send that to you, that's. That's not an issue.

I3

And also you mentioned about a study in 2015 about water recharge impact.

P1

That's the tredish study.

I2

Maybe the contact detail for the woman’s group.

I1

For the women's group. Oh yes. Yeah, because next week we're going to Orchivaruna for a week, so they're. They are probably based there. Yeah, so that would be great if. You could, yeah.

P1

And apparently they have got a very long list of women that want to be involved in housing.

I1

It would be great if. You could also speak to some woman.

I2

Yeah, that would be very good, yeah.

P1

Currently mainly in the charcoal industry and they say they've got a lot lower fire hazard. If you have women for women apparently lower fire hazard and less environmental damage in the harvesting. Apparently they're more careful.

I3

**I do have, yeah. Two quick questions. You see, there are a lot of interest in small projects are interested. Ideas around push right, but not many jump to the next one or the next phase of the project. Just trying to understand like is it because they are recent, that's why they are still taking time to go to the next project? Or is it like? Is there any other challenge present for going to the next level? Because you said Nampower is the first one to go in a big. Into this big level stuff.**

P1

Yeah, so I mean the the main way this was driven right? Or how this whole biomass interest and value chain started it's with the GIZ project, so the GIZ project has been around for about 10 years and they have done a lot of the groundwork, I think where a lot of these things are dying off is probably the lack of investors. The fact that the harvesting industry is not as well matured, so it's quite well matured for the charcoal industry, but it's a very decentralised setting and what you would want for most other bio, or biomass value chains is to have more centralized. And that's I think we're also this whole idea of biomass industry park came up is. How do you create an integrated system where you can also use the waste products you have from the biomass you're using for different value chains I mean, charcoal is for example always a good example. They pretty much only need the stem, but you still have, for example, the leaves and the smaller stuff that you could use for feed, which you could use for other value chains so. That's I think where a lot of that that thinking came from and then. I think also huge issues. We don't have a very strong offtake market in Namibia. So charcoal, the reason. Why charcoal is huge is because all of it is exported to Europe. And it's considered green. Charcoal also it's a huge buzz thing, but we don't have a very strong local market, so unless you've got offtakes on the case with Nampower where, well, it's clear you we have. We involve most of our energy there's huge demand from more electricity or more energy. And if you can do that based on local resources that's even better. But for many products we don't have the local offtake market, and I mean that's going to be the same for your shipping fuels. We don't have a ship industry. You might have the ministry that has some research boats and then you've got a few large scale commercial fisheries in Namibia. But is that enough to take or to pretty much buy all the biofuel that you're planning to produce? Or are you going to rely on large scale cargo ship lines that travel past. So I think that's often where it died. We have a lot of ideas, but we don't have the market to support the development and that's why we're starting. We then started to approach Hamburg. Don't you want to import our pallets or whatever who then pretty much said yeah, but isn't that like? Well that's what the NGO's isn't exploitation. Because you're pretty much it's a Hardy process processed product and you've got no value addition in country. But we don't have the capacities for the value addition at the moment. So I think. That's it the conundrum where we are a little bit stuck. We've got all the great idea. Yes, but we need to have the markets to make it commercially viable. We don't have them in Namibia. We're simply not enough people. We don't have the industry to support it. I think that's where a lot of it dies.

I3

Based on things yeah, I also saw that if we finish this yeah project successfully. Let's say assume then writing new projects or something and yeah the NNF can also be one of it I guess.

P1

Or we can link you up with some people you might be interested. Like Steinbuch University? So that's normally where we find us. We just try to link people up because everyone that wants to do something with bush currently reaches out to us. It's also with Nanpower. They always ask, yeah, but can't you give an overview of the industry you know like we are an environmental organization. We just somehow found a way into it and now we sort of know what's going on, but it's not our core business. I it's not like I know all the industry players. And then and those kind of thing. So they mainly approach us to make sure that the environmental component is covered since need you need a natural resource.

I1

Yeah, thank you so much for for all your explanation.