Stakeholder Platform meeting 2024

Informing the members of the Stakeholder Platform within the EMSAGS Project

EMSAGS PMU

October, 2024

Foreword

In a world where collaboration is essential for addressing complex challenges, the recent stakeholder platform meeting stands as a significant milestone in our collective efforts. This report captures the discussions, insights, and outcomes from that gathering, highlighting the importance of diverse perspectives in shaping sustainable practices in responsible gold mining and protecting our environment.

As we continue our work together, it is vital to engage all partners and relevant actors to drive meaningful change and ensure a sustainable future.

Contents

1. Stakeholder platform background

During the Inception workshop on May 14, 2019, the Stakeholders Platform (SP) was officially introduced, and the first SP meeting took place on July 16, 2019. However, due to various circumstances, no follow-up meetings were held thereafter. The reactivation of the SP took place in 2022, and since then, it has convened quarterly or once a year.

The Stakeholder Platform (SP) is a platform that will support the PB and the PMU on specific technical issues at the national level in the implementation of all Outcomes of the project. The key roles of the Stakeholder Platform

- Review progress and recommend adaptive actions, if any, to the PMU;
- Recommend specific actions related to social-economic, environmental and gender related project activities;
- Provide technical guidance for engaging with communities, with emphasis on communities surrounding the mining areas and miner's associations, as well as other key stakeholders;
- Pro-actively consider issues arising under safeguards policies (Free Prior Informed Consent, public disclosure, national or international agreements) and recommend preventive or mitigation actions;
- Provide a forum for stakeholder's consultation and information sharing;
- Review and comment on policy and guideline documents and other documentary outputs of the project;
- Promote the upscaling of project result through dissemination to relevant persons and/or organizations;
- Provide suggestions for messages in public communications and awareness activities;
- Promote partnerships with relevant institutions/organizations for information sharing and increased project impact;
- Participate in knowledge- and information sharing events.

2. Stakeholder meeting October 2024

'Improving Environmental Management in the Mining Sector of Suriname with Emphasis on Artisanal and Small- Scale Goldmining' (EMSAGS) – Project

Date: Thursday 24 October 2024
Time: 8:00 a.m. – 13:00 p.m.
Location: Jacana Amazon Wellness Resort, Commewijnestr. 35, Paramaribo

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2.1. Participants

The SP meeting was attended by representatives of:

- Relevant Ministries and institutes,
- Private sector,
- Small and large-scale mining companies,
- NGOs,
- Indigenous and Tribal people platforms and
- The Anton de Kom University.

3. Agenda

AGENDA	
8:00 – 9:00 a.m.	Inloop en registratie
9:00 – 9:05 a.m.	Welkom - MC
9:05 – 10.00 a.m.	Presentatie Status update EMSAGS Project Door: Mw. Sandra Bihari, Project Coordinator EMSAGS Project Mw. Carmen Elliott- Banai, Engagement Specialist
10:00 a.m. – 10:45 a.m.	Presentatie Forest and Forest carbon mapping Compagniekreek Door: Mw. Ilgia Hoepel, Stichting Bosbeheer en Bostoezicht (SBB)
10:45 – 11:00 a.m.	**Koffiebreak**
11:00 a.m. – 11:45 a.m.	Presentatie: Agroforestry project Compagniekreek en Brownsweg, Brokopondo Door: Dhr. Anwar Helstone, Centrum voor Landbouwkundig Onderzoek, (CELOS)
11:45 a.m. – 12:30 p.m.	Presentatie: Project Restauratie bodemfuncties ASGM-locaties" Door: Dhr. Boudewijn Fokke
12:30 – 13:15	Presentatie: Project "Sustainable Food security and awareness on gold mining effects" Door: Tropenbos Suriname
13:15	Afsluiting / Lunch

4. Welcome and opening

The MC, Mrs. Annete Tjon Sie Fat, opened the meeting and warmly welcomed everyone. She reviewed the agenda with the attendees. Additionally, she noted that there would be a question-and-answer session following each presentation.

5. Presentation on Status update EMSAGS Project

The first presentation provided a status update on the EMSAGS project, presented by Ms. Bihari, the Project Coordinator, and Carmen Elliott, the Engagement Specialist. They outlined the project's progress by outcome, highlighting key developments and milestones achieved thus far.

During the presentation Mrs. S. Bihari, gives an overview of:

- The composition of the Stakeholder Platform and it's key role.
- Project Objectives and Focus Areas
- Overview of Implemented and Planned Actions to Promote Environmentally Responsible Mining Technology:

- Mining Training and Extension Centers (MTECs)
- Environmentally responsible mining (ERM) Demonstration Sites

- Overview of Project Activities in Institutional Capacity Building for Organizations Responsible for (Environmental) Monitoring of the ASGM Sector.

Mrs. C. Elliott, gave an overview of the:

- Knowledge availability and sharing increased at the national and regional scale on environmentally responsible ASGM.
  - Communication and knowledge management activities implemented, raising awareness of decision-makers, the general population and key stakeholders of the negative impacts of business as usual compared to more environmentally responsible ASGM
  - Alternative livelihoods projects in communities surrounding the MTECs at Brokopondo and pilot site Compagniekreek to increase the understanding of the costs and benefits of different livelihoods options.[1]
  - Data of engagement, awareness and communication activities
  - Communication materials in production

5.1. Questions/ comments and answers

No.	Questions / Comments	Answers
1.	**Sarah Crabbe – SBB**: a. There has been significant investment. What is the capacity of the equipment? How many miners or pits can such a system support? Is large-scale intervention necessary for its setup, or can the equipment's be purchased for a small group? Are there suggestions for obtaining the financial resources for these investments, such as through banks? b. Eight tons is quite a significant amount. Can we still consider this small-scale mining? Approximately how much is processed per hour? Could you provide an estimate of the volume of processing material? This would help us understand the scale better.	**Sandra Bihari – EMSAGS Project**: a. The equipment that has been purchased are intended for a demonstration site, not a pilot site. The H8 has a processing capacity of 8 tons per hour, while the shaker table and Icon concentrator can also handle large quantities. However, this equipment is not mobile; it cannot be moved from one location to another. For instance, the shaker table must be installed on a concrete floor to function properly. That's why we set up the system on a concession of a small-scale miner. Other miners cannot bring their ore there, but we will explore the possibility of allowing this at another demonstration site. This option needs to be available. The site has not been in continuous operation due to organizational reasons; since the setup, there have been three test runs, and sampling has been conducted. We aim to ensure that the

[1] More details about these project are given during the presentation of Centre for Agricultural Research in Suriname (CELOS) and Tropenbos Suriname (TBS)

		equipment can operate continuously in the future. b. The processing capacity of 8 tons per hour is suitable for small-scale miners, but it can also be reduced to 6 tons/hr. The equipment from Snesi Kondre is slightly smaller and can process 6 tons/hr. This has been determined based on experience. We are not talking about a pilot site, but rather a processing unit that is located directly on the miner's concession for the processing of the material/ore.
2.	**I. Hoepel – SBB**: a. Is there already an overview of the number of miners engaged in the Environmental Responsible Mining (ERM) practices? Specifically, those who have shown interest in the new equipment used at the demonstration site? b. Based on the interest shown, can we determine whether it is a large or small group of miners?	**Sandra Bihari – EMSAGS Project**: a. The technical report does not specify how many miners are interested, as the work has primarily focused on one concession of a small-scale miner. The individuals working there have shown interest in the ERM practices and wish to receive training. When the awareness strategy was developed in 2022, we conducted consultation sessions with the miners. During these sessions, they expressed a desire for more information about the equipment and technology. They require additional details, and based on that information, they will consider applying the technology in their practices. It must be profitable for them, as they noted. This also depends on gold recovery and the investments they make. They want to see the benefits and be convinced that the technology will be profitable for them before deciding to implement it. b. With regard to the demo-site at Compagniekreek, we cannot determine whether the interested group is large or small, as the operation has not been running long enough and we have not visited other locations. Therefore, we cannot conclude that it involves a large group. In the short time the operation was running, we were unable to facilitate an exchange between different locations, for example, between Snesi Kondre and

		Compagniekreek. That aspect has not yet occurred, but the intention is for this to happen at the next demonstration site.
3.	**I. Karnadi – Tropenbos Suriname:** a. Are the three machines you showed motor-driven or electric? b. You mentioned the cost aspect of the machines. Have there been studies on the use of electricity and gasoline, and how efficient these options are for the miners? You noted the cost of the machines, and one of them must be placed on a concrete floor. Miners would need to transport their ore there, which would incur additional transportation costs. How cost-efficient is this entire system for the miners, considering the total investment is approximately USD 151,000?	**Sandra Bihari – EMSAGS Project**: a. At Compagniekreek, we used a generator for the equipment. b. The generator was larger than the calculated capacity. A calculation was made to determine the electricity required to operate the Icon concentrator and the shaking table, along with an estimate of the time needed to recover the investment costs. These calculations are included in the technical report. The costs are indeed high, such as the imported shaking table, which costs around $50,000. However, when considering the supply chain, these machines could be purchased at a much lower cost. The Icon concentrator and the shaking table have proven to be effective in processing fine materials at Compagniekreek. These two machines are well suited for the conditions at Compagniekreek, although each area presents its own unique conditions. Furthermore, these machines have shown to be much more effective for the Compagniekreek area with occurrences of fine sand particles than the sluice boxes that miners are currently using, with a significantly higher recovery rate. While the initial investment costs are high, setting up a local supply chain could lead to substantial cost reductions. The technical report prepared by WWF/ ARM offers several proposals and recommendations on how to lower these costs, such as purchasing machines through a cooperative model.

		
4.	**Yoannae Najoe – Zijin Rosebel Gold Mines:** I am pleased to see that more demo sites are being established, providing us with valuable opportunities to learn and improve. Each intervention brings us one step closer to achieving mercury-free mining. I believe that valuable insights and lessons have been gained through these demo sites, particularly regarding the capacity of the machines, as discussed earlier. a. It would be beneficial to explore whether the process can be set up as a continuous, integrated system. Small-scale miners are highly conscious of time, as for them, time is money. For example, is there a need to incorporate a rest period of 30 to 60 minutes to allow the machines to cool down before they can be restarted? b. The EMSAGS Project is now in the process of setting up a second demo site in Snesi Kondre. Is the intention to move the entire system to this new location and continue relocating it in the future? Also, is there a plan to set up additional demo sites over time? c. Once enough demo sites have been established, what will happen to the equipment? What strategy do you have in place for managing the equipment after the demonstrations? d. This comment is not intended as a question, but rather as an additional thought. Once the third demo site is established, an important target group needs to be reached: the small-scale	**Sandra Bihari – EMSAGS Project**: a. The technical report states that when comparing the rest periods or breaks of the Icon concentrator and the shaking table to the conventional method, the current method proves to be somewhat more time efficient in downtime. Additionally, it requires fewer workers. b. After collecting the samples and obtaining the results, we will assess whether the same equipment will be used and, if necessary, make adjustments to the system. Each area is unique, especially when it comes to soil conditions. c. As for the equipment, all project resources belong to the government. It is up to the government to determine how to ensure the sustainability of the demo-sites after project end. They must decide whether to establish a permanent site or negotiate agreements with concession holder/ small-scale mining operations. The relevant government agencies will need to assess how to proceed. d. In terms of engaging the right group, - in case the demo-site will be on the concession of Rosebel Gold Mines (RGM) we will continue discussions with RGM to explore the best way to reach small-scale miners. In the Paamaka area, we are also talking with Newmont. We aim to collaborate with the large-scale mining companies to identify the locations of active small-scale gold miners within their concessions.

	miners, particularly the more active groups. These groups are located near the exploration and exploitation areas of Rosebel Gold Mines, such as Makamboa, Camp Mining, and areas like Villa Brasil. In these areas, the focus will shift towards both small-scale and medium-scale mining, which requires a different approach for integrating mercury-free methods. It is crucial to recognize that the approach in these areas will likely need to be tailored, as the scale of mining operations and the specific conditions on the ground differ from those of smaller operations.	
5.	**Winston Wilson – Newmont Suriname:** I have a few recommendations that I would like to share: 1. **Collaboration with Large Gold Companies:** I recommend considering collaboration with the larger gold companies already operating in the areas of interest. In particular, these companies often have well-established stakeholder engagement strategies. It would be valuable to look at the dynamics of the area and leverage the experiences these companies have gained. 2. **Utilizing Existing Knowledge:** The EMSAGS project could benefit from the knowledge that these larger companies have accumulated, both regarding the area and the communities. This could enhance the effectiveness of the project, as these companies typically have a solid understanding of the local context and established relationships in the areas. 3. **Involvement of Small-Scale Gold Miners:** I see that a significant amount of awareness and communication material has been developed, and various sessions have been held with children, youth, women, and the general public. However, what seems to be missing from the presentation is the involvement of small-scale gold miners. Have they also	**Carmen Elliott – EMSAGS Project:** Regarding the engagement of the miners at the demo-site Compagniekreek. , this was carried out by ARM, who was responsible for managing the demonstration site and providing training. As for the EMSAGS Project, we provide general information about the project and the government's objectives. Regarding the awareness and communication materials, yes, this will vary by area. For example, in Brownsweg, they have a WhatsApp group called "Bronsi Tori," where various types of information are shared and announced, and it works very well. I wasn't aware that it is also so effective in the Paamaka area. Thank you for this insight; we will definitely incorporate it into our engagement and communication plan for 2025, especially in relation to our approach toward Snesi Kondere, Paamaka. Radio programs continue to be effective, particularly in Brokopondo and Boven-Suriname. However, I believe Paamaka will require a different approach when it comes to engagement and communication. We will certainly take this into account in our planning. **Sandra Bihari – EMSAGS Project**: This project has a start and end date. Projects like EMSAGS and Planet Gold+ are primarily focused on supporting government capacities, such as institutional strengthening and capacity building of

	been actively involved and informed? It's important to understand the strategy you are using to reach this group. Identifying key individuals within these communities could be useful in making your outreach efforts more effective and ensuring that small-scale miners are engaged in the project. This group often plays a crucial role in the dynamics of local gold mining, and their involvement is critical. Understanding the dynamics of the people in the area is also crucial. More and more people are using mobile phones. What we do is send messages via WhatsApp, and these are gladly shared. In the past, we have tried using posters, flyers, books, etc., but the miners do not read them. Other large organizations in Paramaribo have made similar attempts, but we've noticed that this approach is not very effective. **Note:** Regarding the scale of the equipment processing capacity, it must align with the practices of small-scale gold miners. They need to see the efficiency of the new methods. With the current method, they only recover 35% of the gold, while with alluvial gold mining, that recovery rate is 95%. However, when they go deeper into the ground, the recovery rate drops to 35%. We are currently running a pilot, and the method we are testing has shown that miners can retain over 70% of the gold. These kinds of results should be demonstrated with the new methods. It is also important that the miners are organized into clusters, especially in the context of such a pilot. Furthermore, there needs to be government enforcement regarding the use of mercury in small-scale mining. Much more awareness needs to be raised on this issue. This is closely tied to sustainability: the project should continue until the Minamata Convention is fully implemented. Sanctions on mercury use need to be enforced. If the project stops after a year, all progress will stop as well.	government agencies.. The government needs to continue the work initiated during the project implementation phase and ensure the process is sustainable. This means that in due time the government should be able to carry out its main activities independently by trained the staff. For example, GMD, through institutional strengthening and capacity building by the EMSAGS Project, now has its own drone department and the necessary equipment. It is now time for further growth and expansion. The government needs to sustain and expand this further. After the project concludes, the government needs to take responsibility for ongoing work. Projects are meant to assist the government in achieve its objectives. **Donovon Bogor – National Environment Authority (NMA):** *Responding to what Mr. Wilson said about mercury sanctions*: We must not lose sight of the fact that mercury is already listed as a hazardous substance on the import list. Under the Environmental Framework Act, its use is considered an environmental offence. We know that it will not be easy to enforce this, but several measures have already been taken, including the inclusion of mercury in the Environmental Framework Act. The sanctions are twofold: there is an administrative sanction, which we have yet to implement, and there is a criminal sanction, which will be prosecuted.

6.	**Clyde Griffith – PIU SCSD:** This is a point to consider; There are different viewpoints, but it remains the responsibility of the government to set the policy. The projects assist the government in carrying out activities that it cannot execute on its own. A multi-year plan is needed, one that can be adjusted each year due to political influences. I believe there is a role for the business community, especially large multinational companies, which tend to be better organized. We need to help the government think through this plan. We can collaborate to develop a multi-year plan and work towards ensuring that the government accepts and implements it.	

Mrs. Tjon Sie Fat made a remark regarding the small-scale gold miners: she stated that, in fact, we aim to turn these small-scale miners into entrepreneurs. This is much more complex than simply ensuring that they mine without mercury. This aspect also needs to be included in the government's plans and incorporated into the projects.

6. Status update of SBB activities within the EMSAGS project

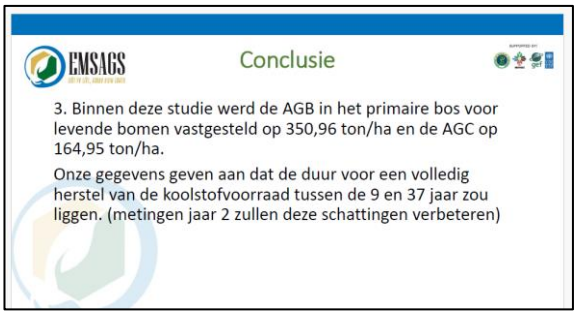
The second presentation focused on the role of the Foundation for Forest Management and Production Control (SBB) within the EMSAGS project, specifically the implementation of the forest and forest carbon assessment in the Compagniekreek area was presented by Ilgia Hoepel.

She explained the systems they use to conduct the assessments. The systems they use is the National Forest Monitoring System (NFMS), which includes MRV (Measurement, Reporting, and Verification) and the Forest Reference Emission Level (FRL). The activities they carry out in Compagniekreek are as follows:

- Forest and forest carbon Assessment in abandoned mined areas, (this is ongoing) Mapping of land use and land cover for the pilot area

Furthermore, they were responsible for training specific institutions in Near Real-Time Monitoring (NRTM) and in the use of drones. She provided a detailed explanation of the various activities they are conducting on the plots selected for the assessments. The preliminary data has already shown how much carbon the area retains. She also outlined the planned activities throughout December 2024.

6.1. Questions/ comments and answers

No.	Questions / Comments	Answers
1.	**Clyde Griffith – PIU SCSD:** What are the immediate actions that can be taken based on the results achieved so far from this study?	**Iligia Hoepel – SBB:** in 2023, we established a baseline by assessing the current situation. Now that we have the baseline, the plan is to review after one year to see what has grown and how much growth has occurred since the area was left undisturbed. Once we have this information, we can take further actions, such as making policy adjustments. Mrs. Crabbe will provide additional details.  **Sarah Crabbe – SBB**: I would like to add a small point regarding the slide. Nine years may seem short and 37 years long, but when you look at how the forest is regenerating, it's important to note that you can't definitively claim that the same composition of trees, shrubs, etc., will return to the area. The species from the primary forest will not immediately reappear. The measurement taken in the second year is very important. In the first year, we had the baseline, but we had to rely on estimates and approximations. Now, after one year, we are in a better position to assess what we actually have, after the area has been left to rest. We can then assess how quickly the trees grow and what types of species are involved. Based on the results from year two, this data can be used to support carbon projects, such as land-based initiatives, to help rehabilitate the forest. This will allow us to demonstrate how much carbon the forest can hold as it regenerates after mining activities. Additionally, we've observed that areas where conventional methods have been used recover more quickly than those where heavy machinery was deployed, and large areas were

		leveled. It is crucial that mining activities aim to minimize the damage caused to nature and the environment, which means working with fewer machines. Finally, this data can help determine which rehabilitation methods can be used to restore mined areas.
2.	**Sandra Bihari – EMSAGS Project:** SBB conducted the first round of research or measurements in 2023, and now SBB is working on the measurements for this year (2024). As 2024 is coming to an end, will it be relevant to repeat this study again in 2025 in case of project extension until the end of 2026? What kind of data could we expect to gather from these measurements?	**Sarah Crabbe – SBB**: It would be very beneficial, because when measuring trees, you gather more data, which allows you to detect any deviations. The longer the measurement series, the better the data you can collect, and your estimates will become more accurate. Since you already have measurement data from year 1, year 2, year 3, etc., adding more plots will further improve the data quality. If there are other mining projects, we would also like to carry out these studies there, as this approach allows us to scale up the research. So, a third round of measurements would definitely be relevant.
3.	**Winston Wilson – Newmont Suriname:** a. You mentioned the monitoring system and how you use it to monitor the forest. Do you use satellite images from a few years ago to detect changes in the area? b. Additionally, we as a company would like to know if we could hire your expertise to monitor a specific area, particularly in relation to the use of drones for repeated flights over that area. If I send the coordinates will that be workable? At Newmont, we conduct continuous reclamation because we aim to restore the areas we've disturbed as much as possible. However, we do not have a permit to fly drones ourselves. It would be ideal if we could make use of your expertise. In that case, it could be a valuable addition to our reclamation program, and potentially even integrated into the project you are currently working on. We work closely with the local community to promote the restoration of the area. We reached out to local experts and forest experts to provide us with seeds (we buy the seeds from them), and	**I. Hoepel – SBB:** a. Yes, we use satellite imagery and conduct near real-time monitoring. We also rely on historical data to track changes in the forest over the years. Additionally, we use drones to obtain more detailed images and gain a better understanding of what is happening in certain areas, especially those that are difficult to access. b. Satellite imagery is one of our key tools for creating annual deforestation maps, which are also available on our GONINI platform (**www.gonini.org**). Every five years, we create a National Land Use Land Cover (LULC) map, and every two years, a post-LULC map. There is an important distinction between the deforestation map and the LULC map: the deforestation map shows where deforestation has occurred, while the LULC map reveals the reason for the forest removal—specifically, which activity contributed to the deforestation. Yes, we use satellite imagery and conduct near real-time monitoring. We also rely on historical data to track changes in the forest over the years. Additionally, we use drones

	we also asked them to plant and care for the trees until a certain height until they are ready to be transplanted. Once the trees are mature enough, we take them over and transport them to our nursery. We have already begun the replanting process and are working on restoring a large area. Additionally, at Newmont Suriname, we have actively involved small-scale gold miners in this restoration effort. Together with them, we restored an area where they had operated. They planted trees and restored creeks, and over time, they noticed that fish were returning to the creeks. This not only raises awareness but also actively engages the local community in the restoration of their environment.	to obtain more detailed images and gain a better understanding of what is happening in certain areas, especially those that are difficult to access. Satellite imagery is one of our key tools for creating annual deforestation maps, which are also available on our GONINI platform (www.gonini.org). Every five years, we create a National Land Use Land Cover (LULC) map, and every two years, a post-LULC map. There is an important distinction between the deforestation map and the LULC map: the deforestation map shows where deforestation has occurred, while the LULC map reveals the reason for the forest removal—specifically, which activity contributed to the deforestation. First, you can upload your polygon in KML format[2] to GONINI, where you will be able to access a lot of information. If you need further assistance or require more detailed information, feel free to contact us.
4.	**Renate Simson – KAMPOS:** You indicated that the areas selected for the plots are no longer primary forest, meaning that activities have taken place there. To what extent have you and the community agreed that these areas will remain undisturbed for a certain period of time? Did the community assist in selecting the locations for the plots? Was the exact placement of the plots decided together?"	**I. Hoepel – SBB:** Last year, we had a meeting with the captain and the district commissioner, where we indicated on a map where we wanted to place the plots. We then requested permission from the Ministry of Natural Resources to keep the plots undisturbed for one year. In October, we conducted a second survey and confirmed that the plots had indeed remained undisturbed. However, we did notice that a portion of the forest where one of the plots was located had been minimally disturbed. A drag road ran right next to that plot. This will not have significant effect on the measurements (since the plot is 20 by 100 meters, the disturbance has no effect on the measurement), we are making efforts to prevent such disturbances in the future. Our goal is to ensure that the surrounding primary forest remains undisturbed

[2] A file format used to display geographic data in an Earth browser such as Google Earth

7. Presentation on Agroforestry project by CELOS in Compagniekreek and Brownsweg

The third presentation discussed the Agroforestry project in Compagniekreek and Brownsweg, which is being conducted by the Centre for Agricultural Research in Suriname (CELOS). This project is an alternative livelihood project as defined by the EMSAGS Project document and as such funded by the EMSAGS project.

7.1. Questions/ comments and answers

No.	Questions / Comments	Answers
1.	**I. Hoepel – SBB:** Are the farmland plots located within the village? Can the tree species planted by SBB also be planted in these plots?	**A. Helstone – CELOS:** Compagniekreek is not yet very familiar with CELOS. Both plots of farmland are located along the Afobaka Road in Brokopondo. CELOS has used the assessment conducted by the National Herbarium Of Suriname (BBS) on the species that occur in that area, but no suitable trees for agroforestry have been identified. For agroforestry, fast-growing trees that are economically viable are crucial. The regeneration on the farmland plots is focused on production for agricultural purposes.
2.	**Yoanne Najoe – Zijin Rosebel Gold Mines (RGM):** Marshall Creek started in 2014. What stage of development is the area in now, 10 years later?	**A. Helstone – CELOS:** The background of Marshall Creek is unique. There, we applied agroforestry based on the rehabilitation of degraded forest. The Forestry Department of CELOS conducted research between 2005 and 2009 on the value of the Marshall Creek forest. They concluded that there were no valuable tree species left, which created the challenge of using agroforestry to replant interesting tree species in that area. What we are doing at Compagniekreek and Brownsweg differs from the main goal of Marshall Creek. The reason we want to promote knowledge exchange to Marshall Creek is to raise awareness that it is possible to plant trees and also grow other crops between the trees. This is the goal of the exchange.

3.	**Winston Wilson – Newmont Suriname:** The focus is strongly on women I notice, and men are rarely involved. When I look at the photo, I only see women. Given the Marron culture, projects often fail because men are not involved. In many cases, it is the man who makes the decisions in the family, not the woman. This is an important point to consider.  If we look at the fact that the crops CELOS is introducing will only become economically viable after 1 to 3 years, this means that their economic dependence will continue to rely on the crops introduce by CELOS. In the meantime, they still need food, goods, etc. Has a middle way been found that allows the current crops they are cultivating, to be integrated with the crops proposed by CELOS? And how will you involve the men and young people in the project?	**A. Tjon Sie Fat – MC:** If I may point something out: it's not the case that projects often focus solely on women. In many cases, men come into the picture when money starts coming in. When they see crops being sold and generating income, they often get involved. This is my personal experience as a gender specialist. As advice, I would recommend always conduct a gender assessment before starting projects in the interior, and also conduct an assessment during the project. **S. Bihari – EMSAGS Project:** It is indeed important to conduct a gender assessment. We have noticed this in our project as well. In 2022, the gender assessment was conducted in the district of Brokopondo, and the women clearly expressed their needs and desires. The analysis highlighted some key issues, such as the need for more awareness around sexual and reproductive health, and the desire for alternative livelihood opportunities such as training in Angisa tying (headscarves), among other things. We also organized an agricultural training in collaboration with the Ministry of Regional Development and Sport (ROS), and both men and women participated in the training. The training focused on ginger cultivation according to the Good Agricultural Practices (GAP) method. **A. Helstone – CELOS:** If I may add something: large companies like RGM and Newmont Suriname could play a role in this. These companies have the potential to help us move forward. We have conducted the analysis and raised awareness, and if such companies provide us with the push we need, we will be on the path to success. The crops we introduce in the first year will grow steadily until the fourth year. Meanwhile, their traditional crops, such as cassava, taro, bananas, etc., will continue to grow as usual. The approach is to simulate a 20-meter strip into an agroforestry ecosystem. In the middle, a 30-meter strip will be kept clear, where the people can continue to plant

		their traditional crops like cassava, napi, bananas, and taro. The key additions are the trees we will introduce, as well as the non-traditional crops. We will monitor the situation and see how the men behave by year 4. I think the men will come on board once they see that the women will be able to harvest fruits that are commercially viable. What we have observed is that men are the most active in agriculture, particularly when it comes to planting fruit trees.

8. Presentation on Project Restoration of soil functions ASGM locations

During the fourth presentation, Mr. Boudewijn Fokké from TAUW bv Foundation presented the project " Soil function restoration at abandoned artisanal and small-scale gold mining sites in Compagniekreek," which is being implemented in collaboration with the EMSAGS project and some other partners.

During the presentation, he explained the results from the field research, where the presence of mercury and other minerals in the soil was examined. Understanding the composition of the soil is crucial when carrying out soil restoration, as it helps determine the necessary steps for effective soil restoration.

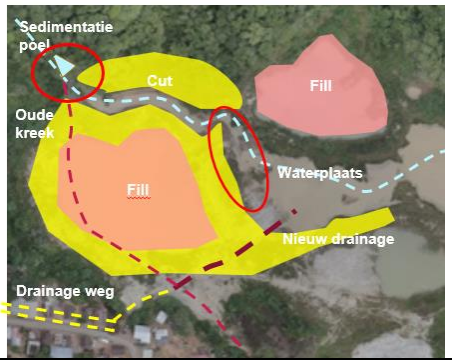
He also spoke about:

- The desired soil functions in the ASGM area at Compagnie Kreek and the vision for restoring all soil functions.
- The design of the field trial aimed at improving soil fertility.
- The design of the individual field trials.
- The setting up of the field trials and how the monitoring will take place when the fields are set up.

He stated that as soon as the funding becomes available, based on the results of the field trial that identify the best methods for soil restoration at Compagnie Kreek, the abandoned mine site, they will begin the restoration process.

8.1.Questions/ comments and answers

No.	Questions / Comments	Answers
1.	**Winston Wilson – Newmont Suriname:** I was in the Compagniekreek area this year to take some samples. One of the comments made by the residents was that the village floods very badly during the rainy season. Has this been taken into account in the restoration plan? I	**B. Fokké – TAUW bv:** That is correct. The community has communicated this to us, and we have discussed it extensively. In our proposal, we have outlined conditions for restoring the soil for other functions. There has also been discussion about drainage. We are aware that

	understand that the community is also planning to expand the village. When we were there, we noticed that there is not enough tailing waste to fill up the pits. Additionally, there are plans to do agriculture in the area. How will this be addressed? Because if it rains, everything that has been restored could be lost, and all the hard work would be in vain. The community also mentioned that the current in the creek is strong, and they are afraid to go there to bathe or for other activities. We expect you, as an expert, to clearly specify what is and isn't possible. For instance, if the area is intended for agricultural use but this is not feasible, this should be clearly communicated.	the soil needs to be filled up to a certain level before it can be used. What should be clear is that our primary focus is on the fertility of the soil and how to restore it. If it turns out that additional measures are required, we will take them. Another important point is that if damming the creek becomes necessary, that will also be addressed. Every area is unique, and each has its own specific approach to soil restoration, just as each community has its own particular needs. Together with the community, we will decide on the best method to use, and their input will be crucial. We will develop a guideline that specifically outlines which recovery methods are appropriate for various functions or purposes within a specific area.
2.	**Annette Tjon Sie Fat – MC :** Are you referring to the two large pits behind the village?	**B. Fokké – TAUW bv:** It concerns the two pits that are filled with tailing waste (baka santi). 

9. Presentation of the Sustainable Food security and awareness on Goldmining effects project

Lastly, Tropenbos Suriname presented the project "Sustainable Food Security and Awareness on Gold Mining Effects," which is being executed in Brownsweg and is also financed as the CELOS agroforestry project by the EMSAGS project.

Mrs. S. Vishnudatt discussed the reason behind the implementation of this project by Tropenbos Suriname in Brownsweg. She outlined the project's objectives, the intended outcomes, and the milestones achieved so far.

9.1. Questions/ comments and answers

No.	Questions / Comments	Answers
1.	**B. Fokke – TAUW bv:** Where will the water samples be tested, and on what factors will they be tested?	**S. Vishnudatt – TBS:** The collected samples will be tested for mercury content and cyanide. We have asked an external

		laboratory to conduct the tests and perform the analyses.
2.	**Winsto Wilson – Newmont Suriname:** What correlation are you investigating between small-scale mining and agriculture?	**S. Vishnudatt – TBS:** We are working with farmers in this project and have noticed that small-scale miners often conduct their activities near the farmland of these farmers. We want to investigate whether the minerals they use, including mercury, are being absorbed by the crops. In other words, we are looking at the impact of small-scale gold mining activities on agricultural crops.
3.	**Winsto Wilson – Newmont Suriname:** a. As you know, the miners often do not consider the impact of their activities on crops and the environment; their focus is primarily on making a profit. What are your plans once the results of the study are available? b. As advice, I would like to share the following: before starting such projects, it is important to engage with the people and collaborate with them. If you don't do this, there is a high chance that you will miss the project's goals.	**S. Vishnudatt – TBS:** a. We want to raise awareness among the farmers. We aim to make them aware of the risks associated with clearing land for agricultural purposes, particularly near small-scale mining areas, as this could negatively impact the crops.
4.	**I. Hoepel – SBB:** You mentioned that miners should not operate too close to agricultural land. Based on research, has a specific distance been determined beyond which the soil is likely to become contaminated with mercury or other minerals that could negatively affect the crops? In other words, how quickly can soil conditions change, leading to faster absorption of toxic substances by the crops?	**S. Vishnudatt – TBS:** This research does not focus on distance, but is limited to investigating the uptake of minerals and toxic substances by agricultural crops grown on farmland near mining activities. We are specifically looking at the effects of mining activities occurring close to these agricultural lands. **I. Karnadi – TBS:** TBS started agroforestry in this area in 2019. We have been working with the local communities for some time and are well aware of the issues they face. What we have observed is that people are no longer planting around the village, as small-scale gold mining has spread to the surrounding areas. They have now moved their activities along the road to Atjoni, and it appears that small-scale mining is now shifting in that direction as well. What we want is for the government to become aware of this issue and develop policies or take measures so that people do not have to travel far

		from their homes to clear land for agricultural purposes. This cost the people more time and money. ***Response from Mr. Fokké to Ilgiai's question:*** This is a complex issue, particularly when it comes to investigating how quickly minerals like mercury are absorbed by crops. I have conducted research on mercury in crops in various countries, including Indonesia, and it can be quite challenging to trace the uptake of mercury in crops. It is crucial to identify where the source of contamination lies. The source is often related to the burning of amalgam (the combination of mercury and gold). The gases that are released often settle on the soil, and that is usually the source of contamination. Since we are at the end of the food chain, we are the ones who experience bioaccumulation of these substances in our bodies. The only viable solution is to remediate the soil, immobilize the mercury, and make the soil healthy. If you can identify hotspots in the soil, those need to be eliminated. This project is important because you don't want to plant crops in contaminated soil. It's essential that you keep the core concepts in mind. We at TAUW BV have some expertise in this area, and you can always contact us for further insights **I. Karnadi – TBS:** A farmer has a well that he uses to water his plants, but the water is contaminated because the well is located near mining activities. There is also another plot of land with a well that is farther away from the mining activities. We will investigate which of these two wells is the most contaminated.
	A. Helstone – CELOS: At the beginning of the presentation, it was mentioned that you applied an FPIC (Free, Prior, and Informed Consent) procedure. Did you involve only the agro-cooperative Everest U.A., and how long did this process take? Were the small-scale miners also involved in this process?	**S. Vishnudatt – TBS:** We involved the traditional authorities and the agro-cooperative Everest U.A., but not the miners. The FPIC process began prior to the start of the project. It took some time, as we had to coordinate extensively before a contract could be signed with the cooperative. The process also depends on how quickly agreements are made, such as arranging meetings, etc.
5.	**A. Druiventak**:	

	I have a comment. There is discussion about testing for the presence of mercury, cyanide, etc., in agricultural crops. However, cyanide is highly toxic, and you won't typically find cyanide on the surface of water. If you are measuring cyanide, it should be in relation to cyanide bound to mercury, which may occur through microorganisms in the soil. It's important to focus on the microorganisms that can absorb these substances. As for mercury, you need to focus on the vapor (mercury vapor) that rises, then settles and ends up in the water or soil, leading to the formation of methylmercury. This is what should be measured.	

10. Closing

Mrs. Tjon Sie Fat, the MC, mentioned that platforms like this are important, because they provide valuable insights and advice that can help you make adjustments or revisions, enabling you to successfully continue your project or work. She invited Mrs. S. Bihari, the project coordinator, to give the closing remarks.

Mrs. Bihari thanked all the presenters. The next meeting is scheduled for March 2025. You have the opportunity to indicate if your organization would like to give a presentation, or if you are interested in having another organization do a presentation on a specific topic or an external party present on a specific topic. You can also inform us via email. As a standard, we provide a project status update during the SP meetings, after which others are given the opportunity to present. The presentations will be sent out.

The meeting was concluded by Mrs. Tjon Sie Fat, who thanked everyone for their attendance and contributions. Everyone was then invited to lunch.

Annex. 1 Presentations

LOBI YU LIBI
WROKO KRIN GOWTU

SUPPORTED BY:

EMSAGS
LOBI YU LIBI, WROKO KRIN GOWTU

Improving Environmental Management in the Mining Sector of Suriname, with Emphasis on Artisanal and Small Scale Gold Mining - EMSAGS Project

Stakeholder Platform Meeting

Paramaribo, 24 oktober 2024

Sandra Bihari, Project Coordinator EMSAGS project

PROJECT STAKEHOLDERS

STAKEHOLDER PLATFORM - SAMENSTELLING

- Ministerie van Natuurlijke Hulpbronnen/ Geologische Mijnbouwkundige Dienst/ Commissie Ordening Goudsector
- Ministerie van Ruimtelijke Ordening & Milieu/ Nationale Milieu Autoriteit (NMA)
- Ministerie van Volksgezondheid
- Ministerie van Onderwijs, Wetenschap en Cultuur
- Ministerie van Regionale Ontwikkeling en Sport

- Stichting Bosbeheer en Bostoezicht (SBB)
- Anton de Kom Universiteit van Suriname
- Suriname Standaarden Bureau

- ZIJIN/ Rosebel Gold Mines N.V.
- Newmont

- Alliance for Responsible Mining (ARM)
- De Nationale Assemblee, vertegenwoordigd door de Milieucommissie

Thematische groepen:

- Milieu: WWF; CI
- Spatial Planning: SPASU
- ASGM: Associatie SSM Paamaka; Makamboa; Camp Mining
- Inheemse- en Tribale Volken: VIDS; KAMPOS; OIS
- Bedrijfsleven: VSB; SBF

ROL STAKEHOLDER PLATFORM

Algemeen: het SP ondersteunt het PB en de PMU bij specifiek technische zaken bij de uitvoering van de projectactiviteiten.

- een forum bieden voor stakeholderconsultatie en informatie-uitwisseling;
- mede-beoordelen van de voortgang van het EMSAGS Project & -indien relevant- adviseren over projectbijstelling;
- kan adviseren over specifieke acties m.b.t. sociaal- economische, milieu- en gender gerelateerde projectactiviteiten;
- geven van technisch advies voor engagement met gemeenschappen, in het bijzonder gemeenschappen rond mijngebieden en associaties van mijnbouwers en andere stakeholders;
- proactief zaken betrekking hebbende op safeguards (FPIC) in overweging nemen & adviseren over preventieve of mitigerende maatregelen;
- mede-beoordelen van documenten ontwikkeld binnen het project;
- ondersteunen met bevordering van de opschaling van de projectresultaten door verspreiding onder relevante personen en/of organisaties;
- kan adviseren over communicatie- en awareness activiteiten;
- ondersteuning geven aan het bevorderen van partnerschappen met relevante instellingen/ organisaties voor informatie-uitwisseling en grotere projectimpact; &
- participeren in activiteiten m.b.t. kennis- en informatie-uitwisseling.

PRESENTATIE INHOUD

- Projectdoelen en Focus areas
- Overzicht van uitgevoerde en geplande act. m.b.t. stimuleren van milieuverantwoorde mijnbouw technologie:
  - ✓MTECs
  - ✓ERM Demonstratie sites
- Overzicht van projectactiviteiten op het gebied van institutionele capaciteitsversterking van organisaties belast met (milieu) monitoring van de ASGM sector.

Projectdoelen & Focus Areas

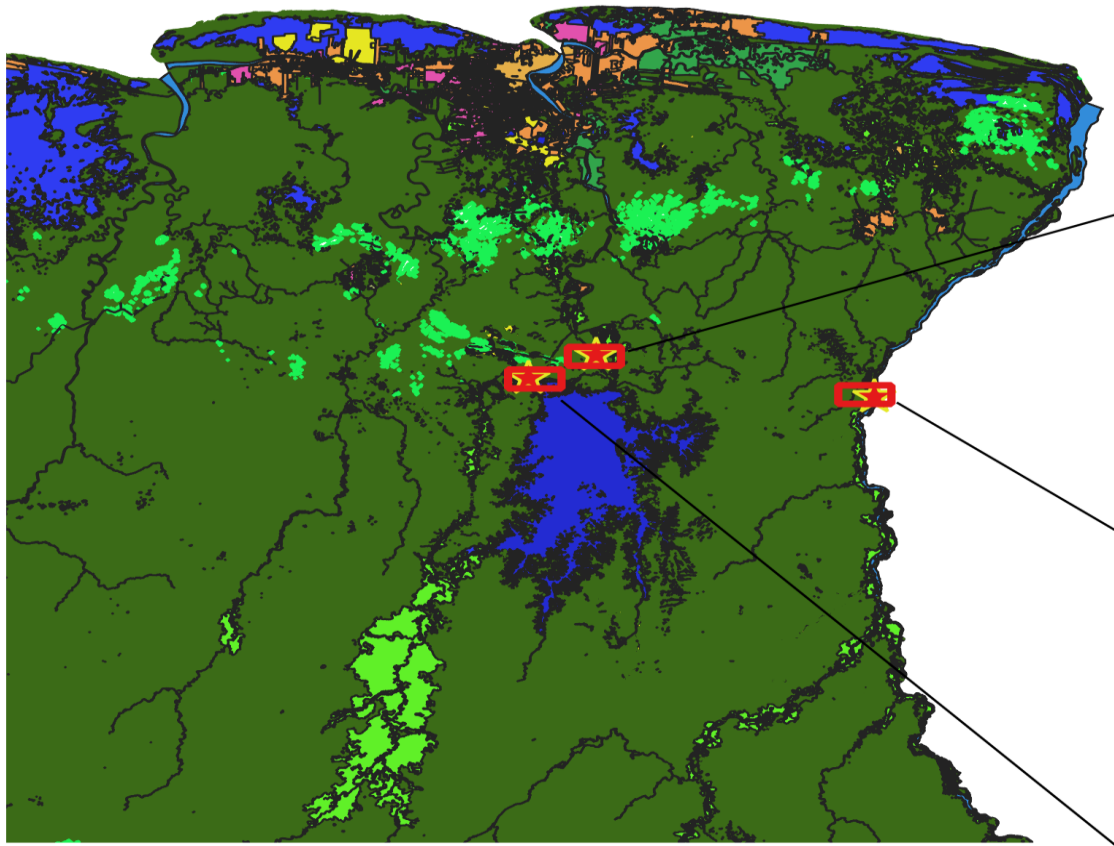
Projectdoelstelling:

- Verbetering van het milieumanagement van kleinschalige goudmijnbouw in Suriname.
- Stimuleren van milieuverantwoorde mijnbouwtechnologie.

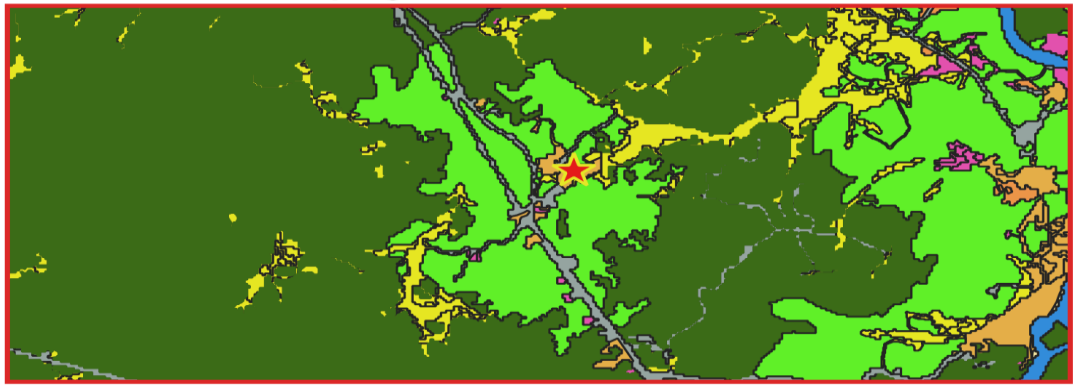
FOCUS AREAS:

1. Versterking van institutionele en technische capaciteit van stakeholders.
2. Versterking van overheidsbeleid en planning voor beheer van de milieu effecten van de kleinschalige goudwinning.
3. Introduceren en stimuleren van milieuverantwoorde mijnbouwtechnologie.
4. Kennisuitwisseling over milieuverantwoorde mijnbouwtechnologie op nationaal en regionaal niveau.

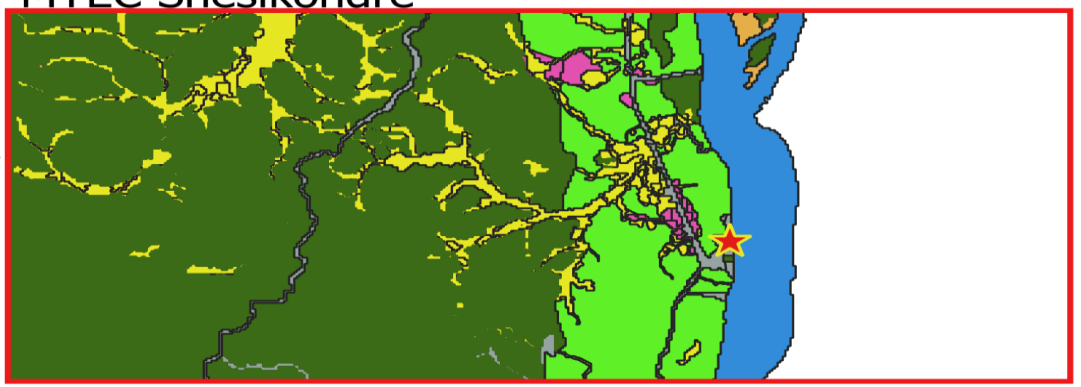
MTEC en Demo site binnen het EMSAGS project



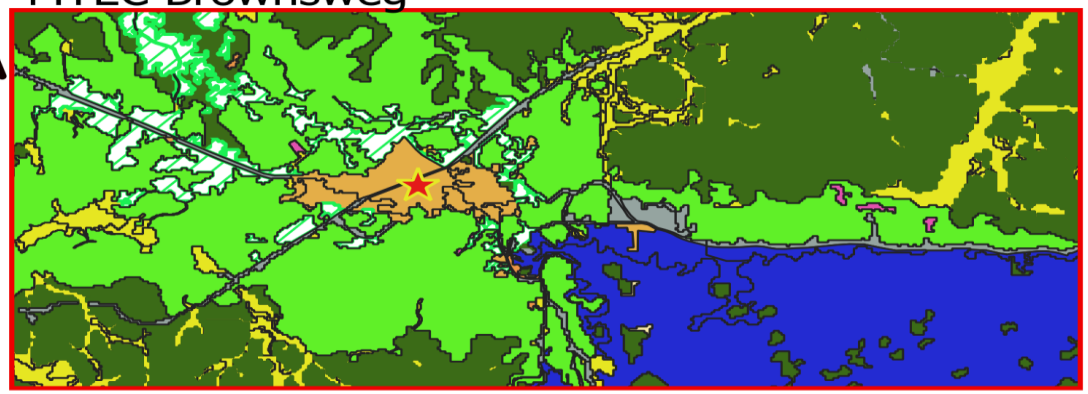
Demo site Compagniekreek



MTEC Snesikondre



MTEC Brownsweg



Legenda

- Dorpen

Land Use Land Cover 2020

- Abandoned areas
- Abandoned B_plantation
- Agriculture
- Bare soil
- Built area
- Infrastructure
- Lake
- Mining
- Open savanna
- Open swamp
- Planted forest
- River/creek
- Rock
- Shifting Cultivation
- Undisturbed forest

SUPPORTED BY:

- Operationeel vanaf 2023

- Training:

Training van miners in ERM. Training van lokale gemeenschappen: e.g. agroforestry trainingen aan lokale landbouwers door CELOS.

- Research:

Coördinatie van Training en onderzoek naar milieuverantwoorde technologieën over de hele LOM cycle: exploratie, mijn planning, verwerking, tailings management, rehabilitatie. VB: Pilot project Bodem rehabilitatie te CK.

- Extension services:

Overheidsdiensten: e.g. GMD en OGS kunnen gebruik maken van de MTEC faciliteiten, bijv. voorlichting aan SSM.

Sociale diensten: e.g. op het gebied van gezondheid en educatie aan miners en lokale gemeenschappen. In partnerschip met St. Lobi Health Centre: reproductive health care services aan lokale vrouwen (Q1- Q2 2024).

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MTEC SNESI KONDRE

- Gebouw Stichting School of Mining and Mineral Processing (SMMP): Ter beschikking stelling April 2024
- Ministerie GBB : ter beschikking stelling terrein
- Inspectierapport gebouw; gebouw behoeft renovatie
- Directievoerder aangetrokken
- SOW/ Bestek in voorbereiding
- Aantrekken aannemer
- Renovatie gebouw (Nov 2024 - Jan. 2025)

MTEC
Lokale Adviescommissie (LAC) – Doel en samenstelling

- De LAC zal adviseren over management en activiteiten van de MTEC.
- In voorbereiding LAC voor MTEC Brokopondo.

- De voorgestelde samenstelling van de LAC:

1. Ministerie van Natuurlijke Hulpbronnen
2. Ministerie van Ruimtelijke Ordening en Milieu
3. Nationale Milieu Autoriteit
4. Geologische Mijnbouwkundige Dienst (GMD)
5. Commissie Ordening Goudsector (OGS)
6. De MTEC-operator of PMU
7. Vertegenwoordiger van Inheemse en Tribale Volken
8. Districtscommissaris
9. Gezondheids- en milieufunctionaris van het districtscommissariaat
10. Traditioneel gezag
11. Community Based Organization (CBO)/Vrouwenorganisatie
12. Private sector uit het gebied

Environmentally responsible mining Demonstratie site Compagniekreek

- Partnerschip EMSAGS - Mercury Phase-out Project in the Guianas (WWF Guianas & ARM)

✓ Procurement equipment: EMSAGS

Logistiek (Storage, transport) deel operationele kosten; deel test running; commissioning/ decommissioning

✓ Site-assessment, design & set-up demo-site, training van miners in werking van de equipment: WWF/ARM

- Lokatie: binnen mijngebied van een ssm-er.

- Procurement equipment: Oct 2022 – Dec. 2023
- Site voorbereiding & Installatie: Jan. – Feb 2024
- In operatie/ Test running during 3 cycles: Feb- Apr. 2024
- Official Commissioning: April 2024
- Na einde van Mercury Phase-out Project in the Guianas, geen fysieke aanwezigheid van WWF/ARM in het gebied. Vanwege Security en overstromingsgevaar equipment: demobilisatie demo-site.

Demo-site Compagniekreek

SUPPORTED BY:

❖ Design pilot plant flowchart & installatie door technici ARM.

Configuratie:

- **H8 crusher** (Local)

Vergruist het erts tot een formaat dat geschikt is voor verwerking door de Icon.

- **Icon I350 concentrator** (imported)

Kan ongeveer 30 m³ vloeibaar materiaal per uur uit de crusher verwerken. De Icon wordt elke 30 - 60 minuten gereinigd, waarbij 5 – 6 kg concentraat wordt verzameld bij elke opruiming.

- **Gemini GT250 Shaking Table** (imported)

Verfijnt het concentraat uit de Icon. Verwerkingscap. van circa 75 kg concentraat p/u, maar kan worden verlaagd voor een meer precieze scheiding.

H8 Hammer mill (Crusher)

Icon I350 Concentrator

Gemini GT250 shaking table

Demo-site Compagniekreek

Bevindingen demo-site Compagniekreek

Technical report (WWF/ARM) Mercury Phase-out project in the Guianas

SUPPORTED BY:

Gold Recovery:

- Type erts te Compagniekreek: hoge percentage fijne goud- en zanddeeltjes. Klassieke methode die de sluice box en kwik combineren, blijken niet zo efficiënt te zijn als de geteste methode met de concentrator en de schudtafel.
- De afwezigheid van goud in de tailings van de concentrator laat zien dat de concentrator meer dan 90% van het goud kan opvangen (althans van het type erts te CK) en in staat is zelfs zeer kleine deeltjes op te vangen (tot wel 0.05 mm).
- Tests die zijn uitgevoerd op de tailings van de schudtafel laten ook zien dat er heel weinig goud overblijft (minder dan 6% van het gemiddelde gehalte van het erts).
- De technische resultaten zijn veelbelovend en laten zien dat hoge recovery rates behaald kunnen worden door de icon.

Operationele kosten:

- De operationele kosten zijn vergelijkbaar met de conventionele methode. Daarentegen is de kwikvrije methode iets sneller en zijn minder arbeiders nodig (2 ipv 4).

Investeringskosten:

- De investeringskosten zijn circa: USD 151,000; iets hoger dan de raming van USD 143,000.
- Lokale small-scale miners staan positief tegenover de kwikvrije methode. Ondanks de efficiëntie van de methode, blijft zorgpunt de hoge initiële investeringskosten, zoals van de Gemini Shaking Table GT250.
- Goedkopere (regionale) supply chain kunnen de kosten drastisch verminderen.

Follow-up Demonstratie sites

❖ **FOLLOW-UP ERM Demo-site Brokopondo**

In voorbereiding:

- Rapid baseline Assessment ihkv site selection
- Technical Partner: design / setting up demo-site
- Stakeholder engagement: traditioneel gezag; miners, lokale gemeenschappen

❖ **ERM Demo-site Snesi Kondre**

- Procurement van equipment
- Identificeren en aangaan van samenwerkingsverbanden/ partnerschappen met gelijksoortige initiatieven.

Institutionele capaciteitsversterking

- Training van overheid(instituten) belast met de monitoring van de ASGM sector.
- Training needs assessment (2022).
- 2023:

❖ **Basis mining training** (exploration, sampling, mining techniques, mineral processing, mine closure, operational health and safety)

❖ **NRTM training** voor monitoring van ASGM gerelateerde ontbossing: remote sensing; drone mapping en on-the job NRTM training.

❖ **Gender training**: Gender in besluitvorming en vaardigheden voor veldonderzoek t.b.v. gender in ASGM; Participatieve processen en klachtenregeling.

- 2024:

❖ Advanced mining training program (underground mining, the use of explosives in ASGM, gold characterization and recovery, EHS choices by small-scale miners)

❖ Drone- NRTM training door SBB

❖ Advanced drone training

Mei 2024: Capacity score card workshop: evaluatie van de bijdrage van de trainingen (2023) aan de capaciteitsversterking van de instituten.

Belangrijke verbeteringen genoemd: er is meer bewustzijn over bijv. ERM technologie en HSE aspecten. Alsook meer betrokkenheid van verschillende stakeholders en lokale gemeenschappen.

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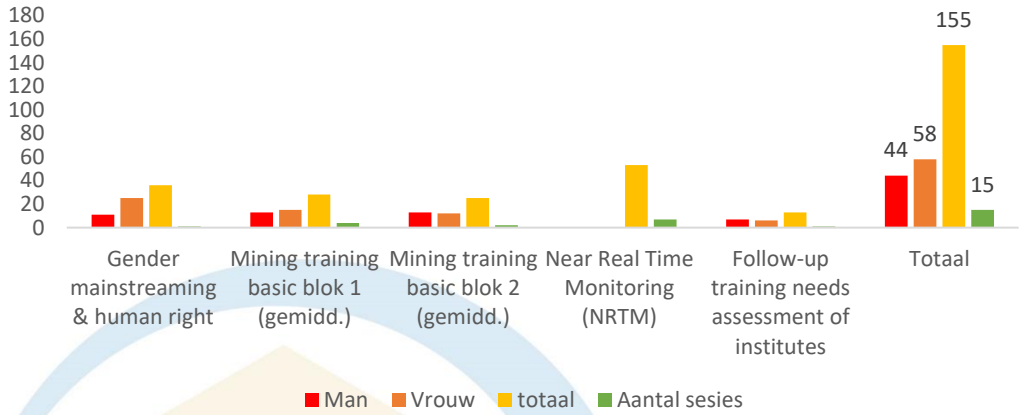
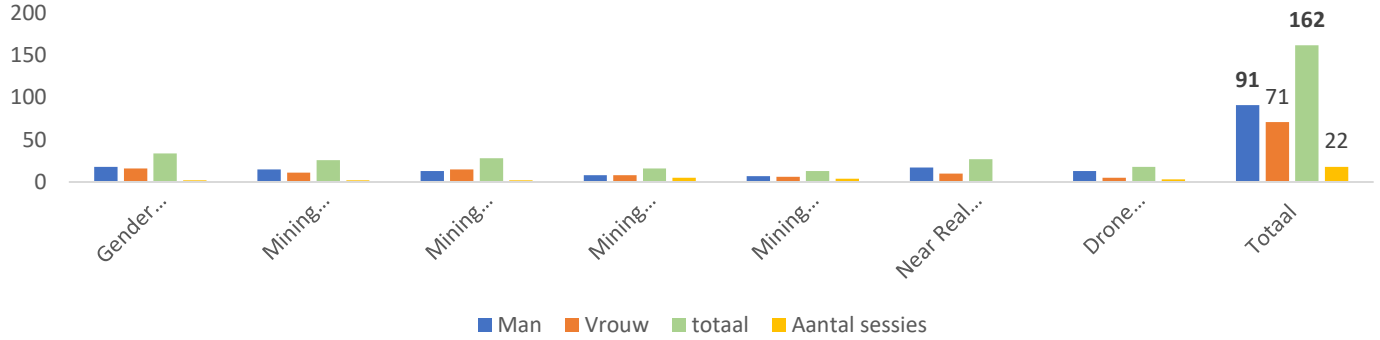
2023



Naam activiteit	Man	Vrouw	Totaal	Aantal sesies
Gender mainstreaming & human right	11	25	36	1
Mining training basic blok 1 (gemidd.)	13	15	28	4
Mining training basic blok 2 (gemidd.)	13	12	25	2
Near Real Time Monitoring (NRTM)			53	7
Follow-up training needs assessment of institutes	7	6	13	1
Totaal	**44**	**58**	**155**	**15**

2024



Naam activiteit	Man	Vrouw	totaal	Aantal sessies
Gender mainstreaming & human right advanced	18	16	34	2
Mining training advanced: underground mining	15	11	26	2
Mining training advanced:The use of explosives in ASGM	13	15	28	2
Mining training: Gold characterization and recovery	8	8	16	5
Mining training:HSE-choices ASGM	7	6	13	4
Near Real Time Monitoring (NRTM)	17	10	27	4
Drone training door TAUW	13	5	18	3
Totaal	**91**	**71**	**162**	**22**

Kennisuitwisseling over milieuverantwoorde mijnbouwtechnologie op nationaal en regionaal niveau

Stakeholder Engagement and Communicatie:

- Info sessies voor lokale gemeenschappen: Compagniekreek, Nieuw Jacobkondre, Brownsweg, Asigron, NKK, etc
- Info sessies voor Ministeries: ROM, MNR, GMD, OGS, etc
- High level: Kab. v.d President, RvM, NIMOS bestuur
- Info sessies voor lokale overheid: DC Brokopondo, Sipaliwini, DC Nickerie
- Info & awareness sessies voor kinderen/ jongeren
- Capaciteitsversterking aan ITP gemeenschappen: NKK, Compagniekreek, Brownsweg, etc

Thema gerelateerd stakeholder en gemeenschapsconsultatie:

- Herziening Mijnbouwwet, NAP, TSA

Public Outreach/ awareness activiteiten:

- Productie van awareness materiaal (kwikboekje, radioprogramma's, video's,etc.); project i.s.m RGM
- Website: www.emsags.org / Fb: NIMOS/ NMA
- Lokale radio station broadcasting van awareness radioprogramma's
- Publiceren van nieuwsartikelen

(Regional) knowledge sharing:

- Kennisuitwisseling Guyana – Suriname (2022 en 2024)
- EXPOSIBRAM – in Brazilië (2023 en 2024)






Alternative livelihood 1 (alternatieve middelen van bestaan)

- Traditioneel hoofddoek-binden door vrouwen van Compagniekreek, Nw. Koffiekamp en Brownsweg i.s.m RGM

- Gember training aan landbouwers te Victoria i.s.m. Min. van ROS

‘Ik ga voor landbouw, want dat is voor altijd’

et EMSAGS Project richt zich op verduurzamen van e kleinschalige goudsector door het stimuleren van en kwikvrije, milieuverantwoorde mijnbouwtechnolo- ie. Maar minstens zo belangrijk is dat duurzame al- rnatieve inkomstenbronnen worden gecreëerd, als ervanging voor kleinschalige goudwinning, de groot- te veroorzaker van ontbossing in Suriname. In dit ader is de ‘Gembertraining voor landbouwers in Bro- opondo’ gehouden. De belangstelling was groot. ‘Wij willen Brokopondo echt wel maken tot een land- ouwdistrict.”

ICTORIA — “Hoeveel gember haal je uit een plantje?” vraagt ainer Soemiran Sastrokromo bij aanvang aan de ongeveer vintig aanwezige landbouwers – vrouwen en mannen – in de pen vergaderzaal van het dorp Victoria te district Brokopondo. r worden schattingen gemaakt van tussen 500 en 700 gram ember per plantje. Als Sastrokromo onthult dat zelfs een kilo ruit gehaald kan worden, ”niets goed gesnoeid”, heeft hij de vol- dige aandacht bij het voordoen.

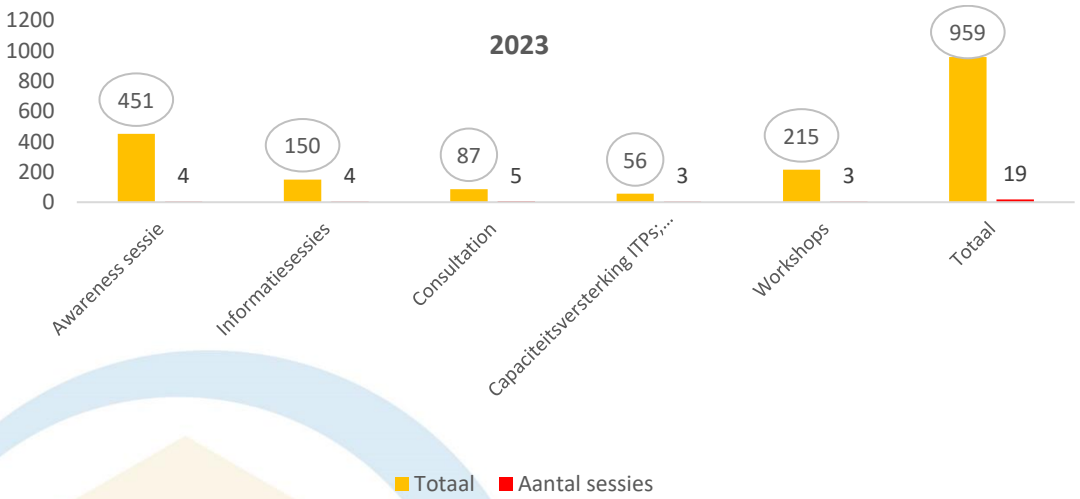
De meeste deelnemers hebben al ervaring met telen van gem- er, maar doen mee omdat zij met moderne verbouwtechnieken en veel hogere opbrengstproductie kunnen halen. Tot verrassing

Alternative livelihood 2 (alternatieve middelen van bestaan)

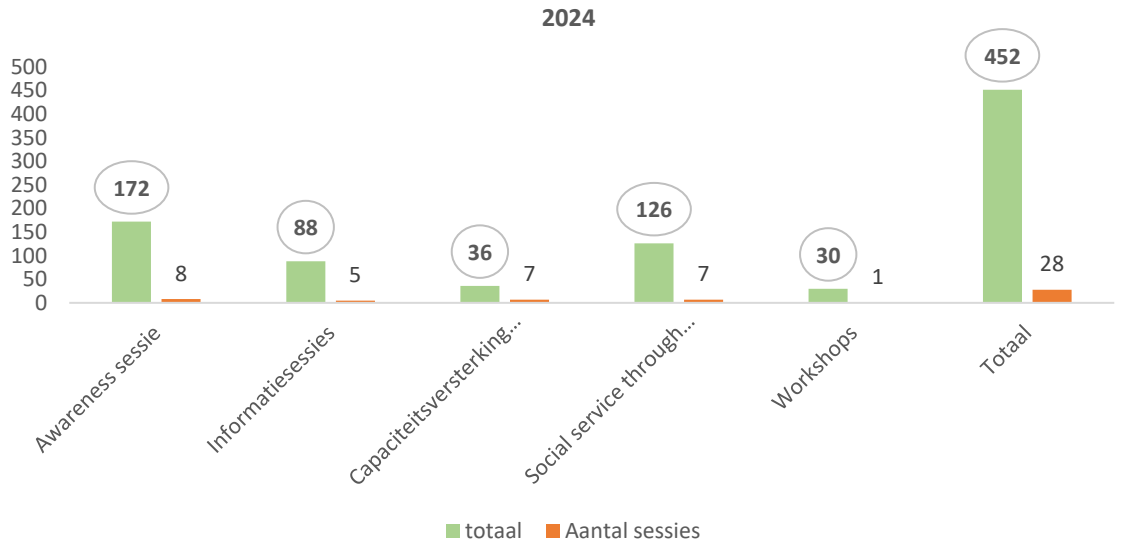
Alternative livelihood projecten:

- The introduction of the CELOS Agroforestry model in Brokopondo, grounded in the Enable Rural Innovation (ERI) concept and aimed at enhancing livelihood security and resilience through food security – door CELOS

- Sustainable Food security and awareness on Goldmining effects – door Tropenbos Suriname



Naam activiteit	Man	Vrouw	Totaal	Aantal sessies
Awareness sessie			451	4
Informatiesessies	67	83	150	4
Consultation			87	5
Capaciteitsversterking ITPs; trainingen ihkv alternative livelihood	18	38	56	3
Workshops	99	116	215	3
Totaal	**184**	**237**	**959**	**19**



Naam activiteit	Man	Vrouw	Totaal	Aantal sessies
Awareness sessie	70	102	172	8
Informatiesessies	47	41	88	5
Capaciteitsversterking ITPs; trainingen ihkv alternative livelihood	5	31	36	7
Social service through MTEC			126	7
Workshops	13	17	30	1
Totaal	**135**	**191**	**452**	**28**

Communicatie materiaal

SUPPORTED BY:

Kwikboekje

Video productie

EMSAGS
LOBI YU LIBI, WROKO KRIN GOWTU

SUPPORTED BY:

Project Management Unit
EMSAGS Project

Zinniastraat 33bv

LOBI YU LIBI
WROKO KRIN GOWTU

SUPPORTED BY:

Status werkzaamheden SBB binnen het EMSAGS project

Paramaribo, 24th October 2024
Hoepel Ilgia
Foundation for Forest Management and Production Control (SBB)
Research and Development department
Forest Cover Monitoring Unit

Content

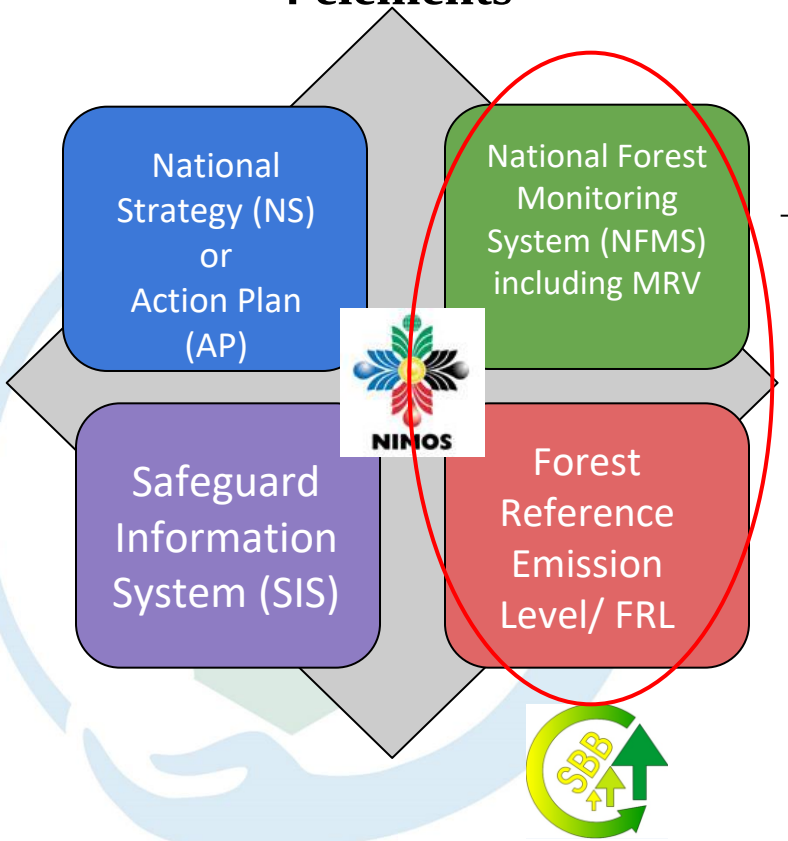
- Rol van de SBB binnen het EMSAGS project
- Forest Carbon Assement activiteiten
- Opkomende activiteiten

National Forest Monitoring System (NFMS)

SUPPORTED BY:

REDD+ SURINAME

4 elements



- Transparent and actual data
- Tools to support sustainable forest management and effective control
- Input for the REDD+ financing mechanism

SFISS : Sustainable Forestry Information System Suriname

NFI : National Forest Inventory

SLMS : Satellite Land Monitoring System

NRTM: Near Real Time Monitoring

CBM : Community Based Monitoring

Reporting: (Inter)national reporting commitments such as: FRA, Environmental statistics (ABS), BUR, GHG

Rol van de SBB binnen het EMSAGS project

NRTM

- Collaboration/training in the use of the drone and NRTM for mining institutes and forest rangers
- Near Real-Time Monitoring (NRTM) in the pilot area

NFI

- **Forest Carbon Assessment in abandoned mined areas (ongoing)**
- **Mapping of land use and land cover for the pilot area**

EMSAGS
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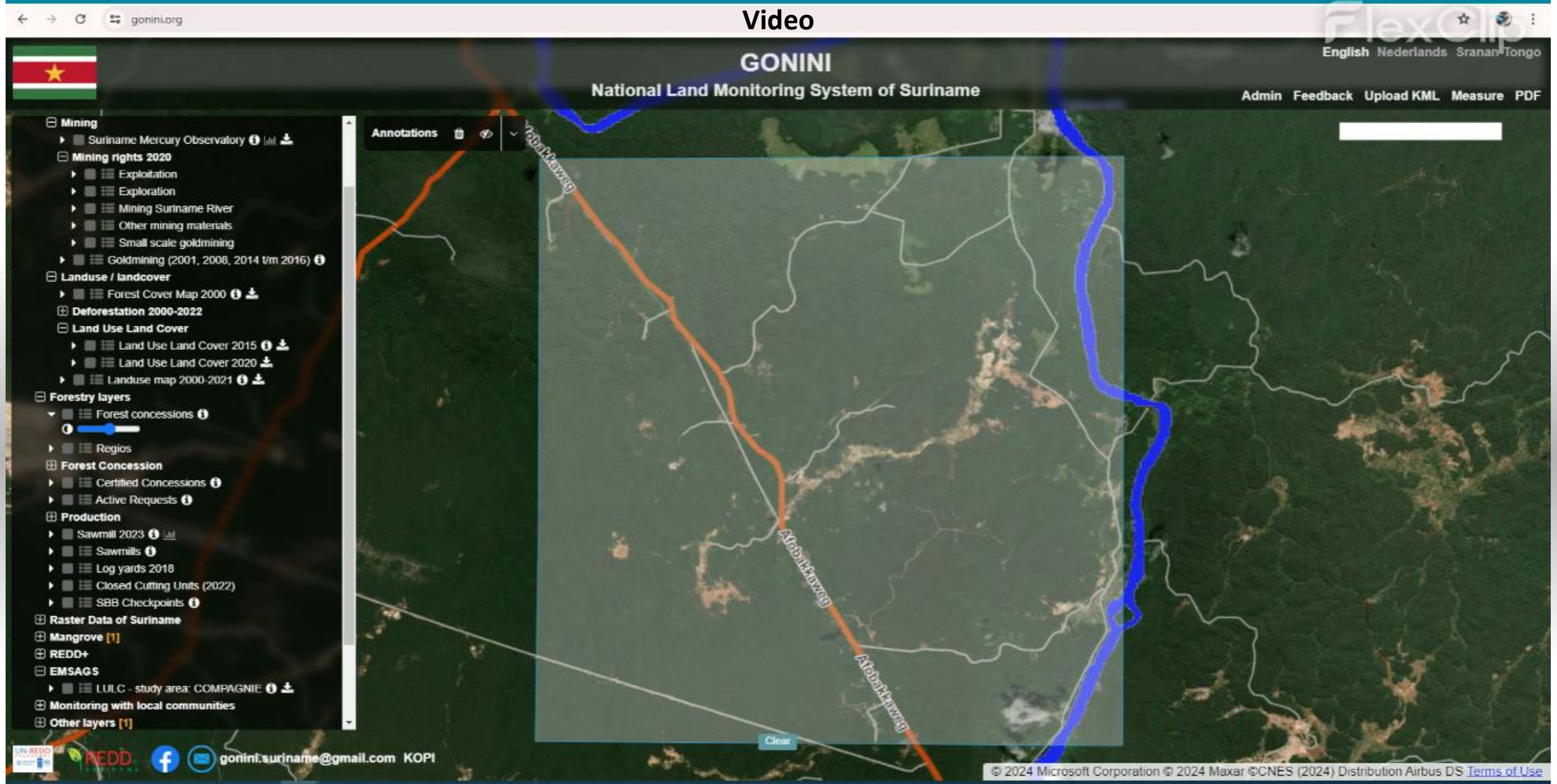
Overzicht van het pilot gebied: Compagniekreek

www.gonini.org

Video


gonini.org
GONINI
National Land Monitoring System of Suriname
English Nederlands Sranan Tongo
Admin Feedback Upload KML Measure PDF
Annotations
Mining
Suriname Mercury Observatory
Mining rights 2020
Exploitation
Exploration
Mining Suriname River
Other mining materials
Small scale goldmining
Goldmining (2001, 2008, 2014 t/m 2016)
Landuse / landcover
Forest Cover Map 2000
Deforestation 2000-2022
Land Use Land Cover
Land Use Land Cover 2015
Land Use Land Cover 2020
Landuse map 2000-2021
Forestry layers
Forest concessions
Regios
Forest Concession
Certified Concessions
Active Requests
Production
Sawmill 2023
Sawmills
Log yards 2018
Closed Cutting Units (2022)
SBB Checkpoints
Raster Data of Suriname
Mangrove [1]
REDD+
EMSAGS
LULC - study area: COMPAGNIE
Monitoring with local communities
Other layers [1]
Atobatkaweg
Clear
goninl.suriname@gmail.com KOPI
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EMSAGS
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NRTM

for Mining

SUPPORTED BY:
NIMOS
gef UNDP

Pilot gebied Compagniekreek

- Mining activiteiten;
- Verstoring van de kreek;
- Gebruik van Kwik;
- Overlaping van ASGM met Gemeenschapsbos
- Kostgronden

Forest Carbon Assessment

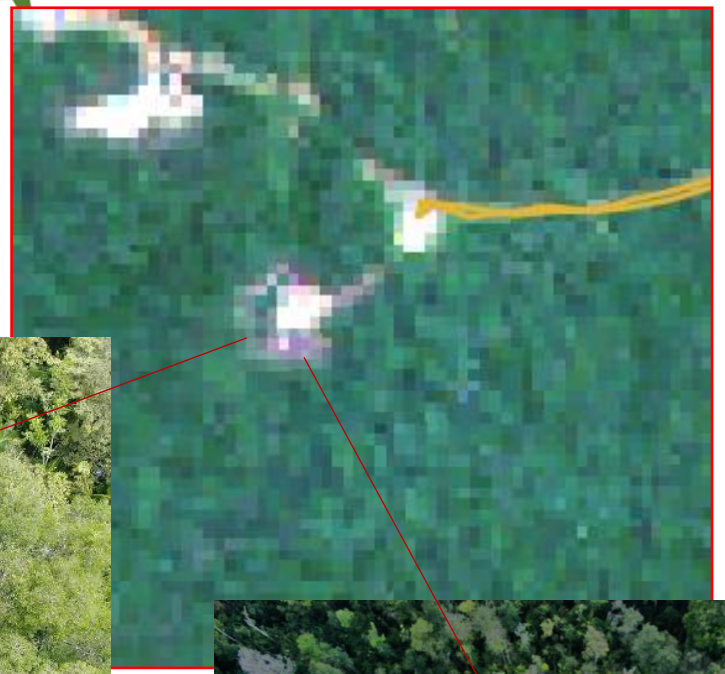
SUPPORTED BY:

Mining gebieden:
+- 5 jaren niet actief

Forest Carbon Assessment

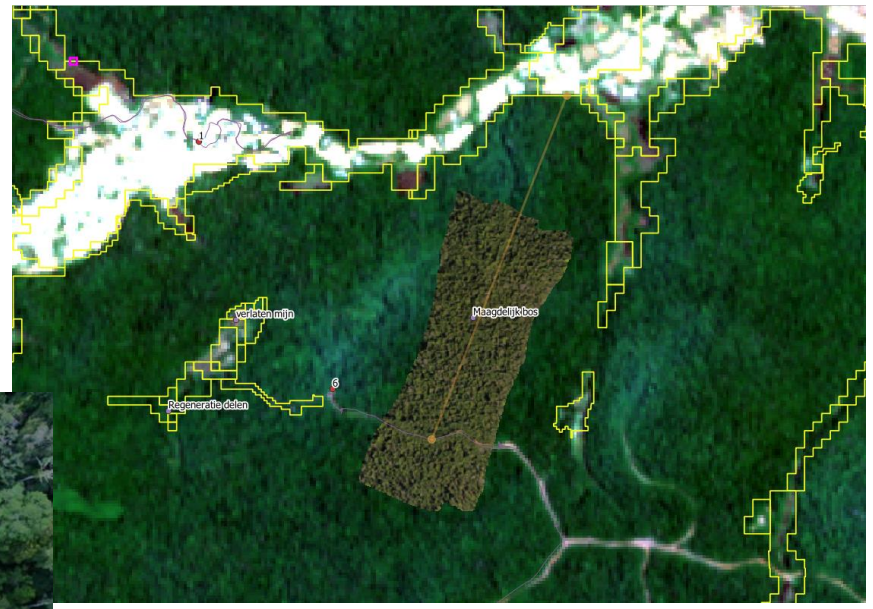
SUPPORTED BY:

2023



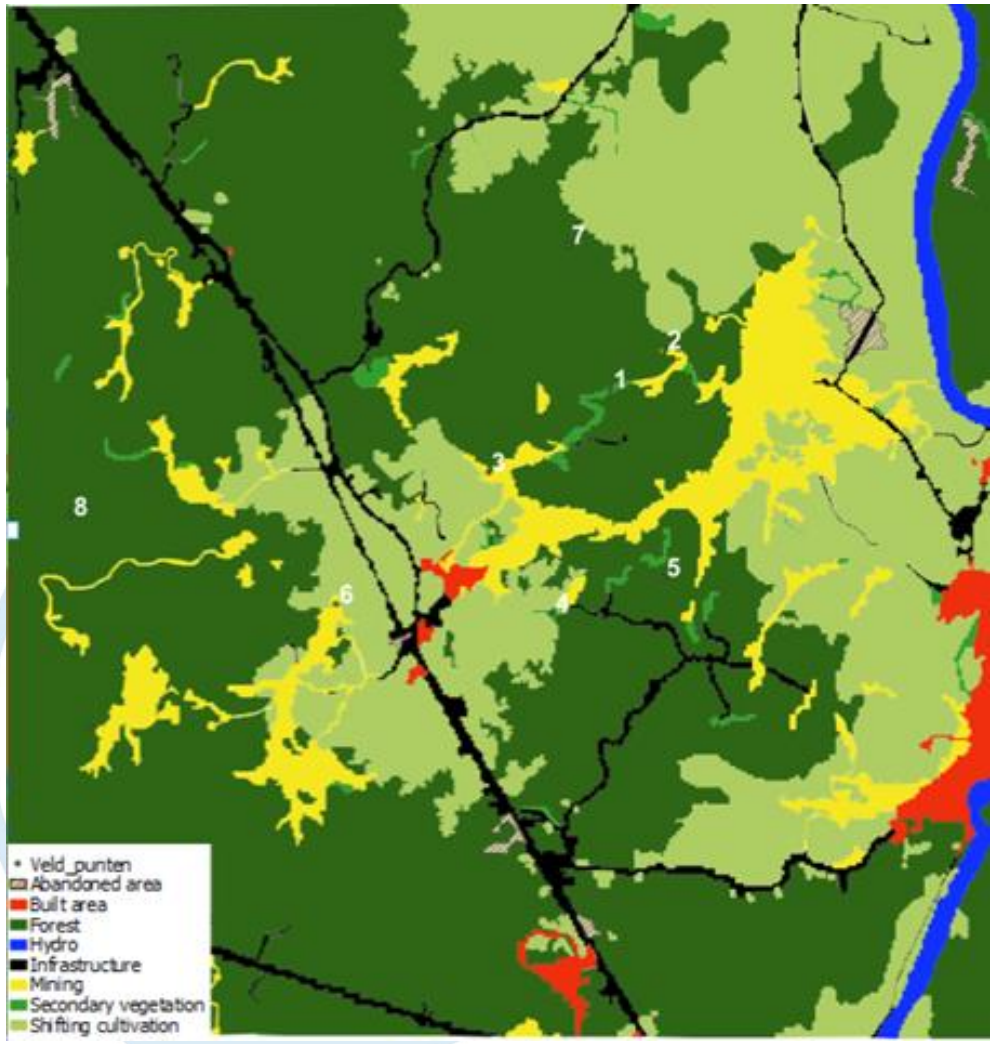
Nieuwe Mining gebieden identificeren

ongestoorde gebieden

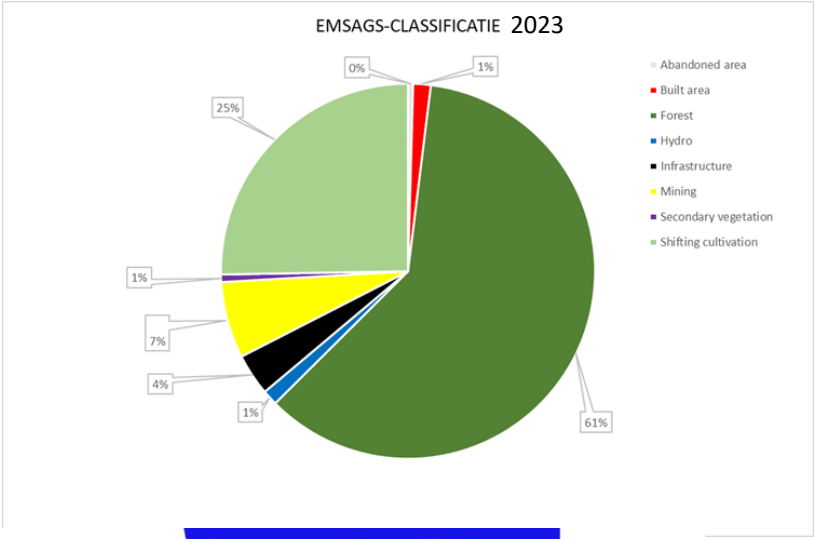


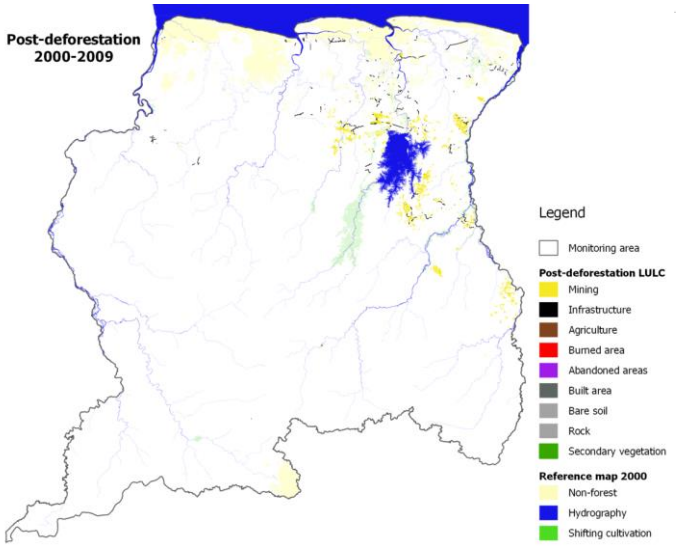
2024

Land use Land cover Map 2023 Compagniekreek



LULC2023_Compagniekreek	Area (ha)
Abandoned Area	48.64
Built area	168.73
Forest	6733.84
Hydro	146.60
Infrastructure	399.83
Mining	732.43
Secondary vegetation	72.19
Shifting Cultivation	2808.15
Total area	**11110.40785**





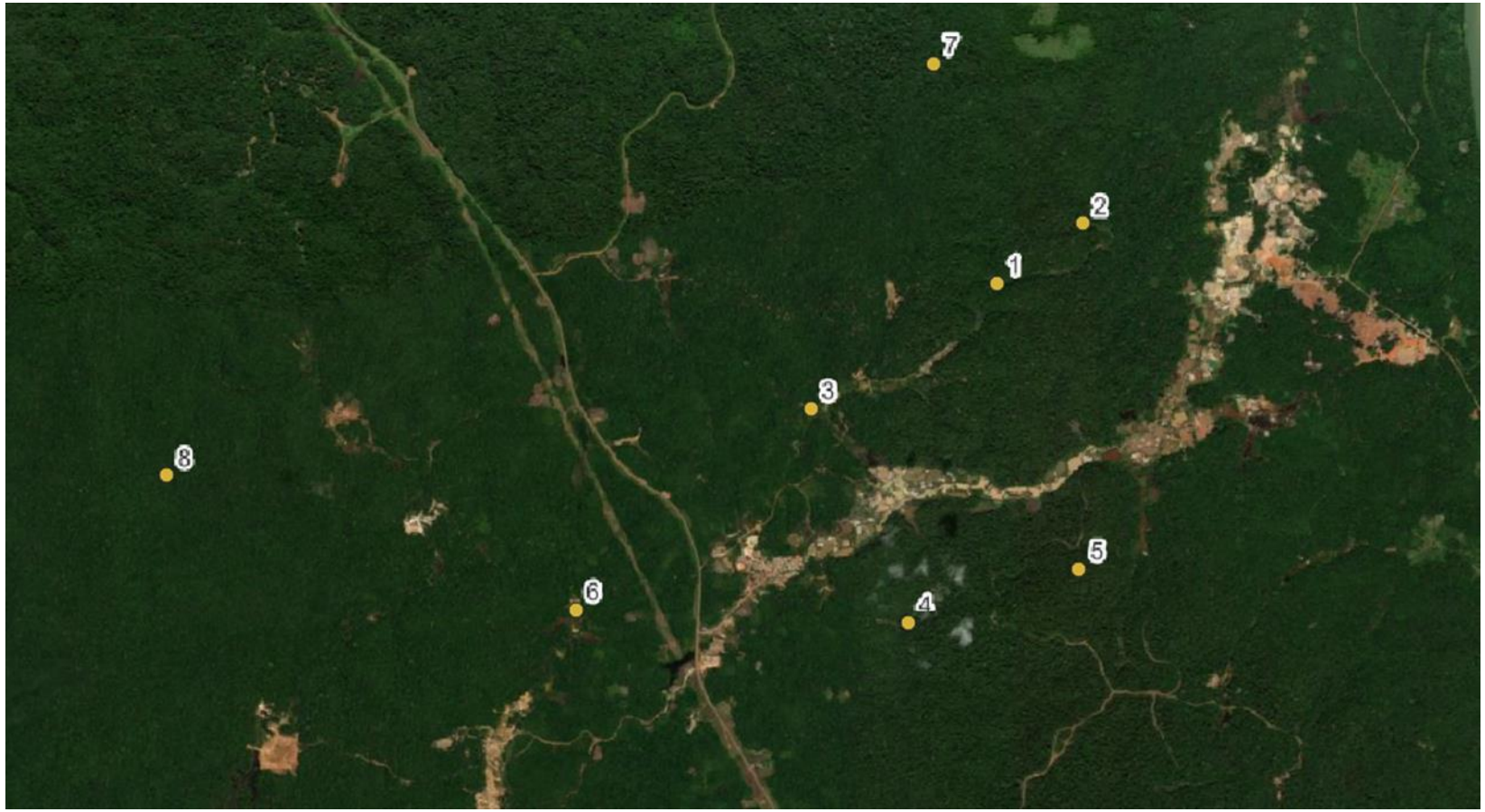
Forest Carbon Assessment plots

- Forest plots:

5, 7 en 8

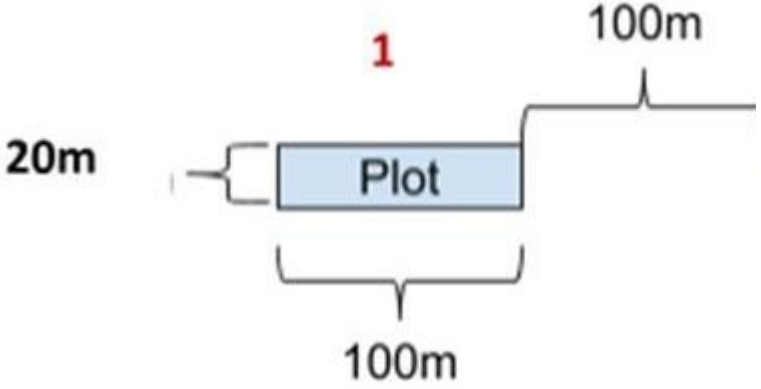
- Regeneration:

1-4 en 6



Methodiek

Aboveground biomass (AGB)



1	3	5	7	9	11	13	15	17	19
2	4	6	8	10	12	14	16	18	20

MAP (10mX10m)

Figure 1: Sample design (Source: SBB & CELOS, 2018)

Parameters

1. Levende bomen
2. Dode staande bomen
3. Lianen
4. Palmen

Metingen

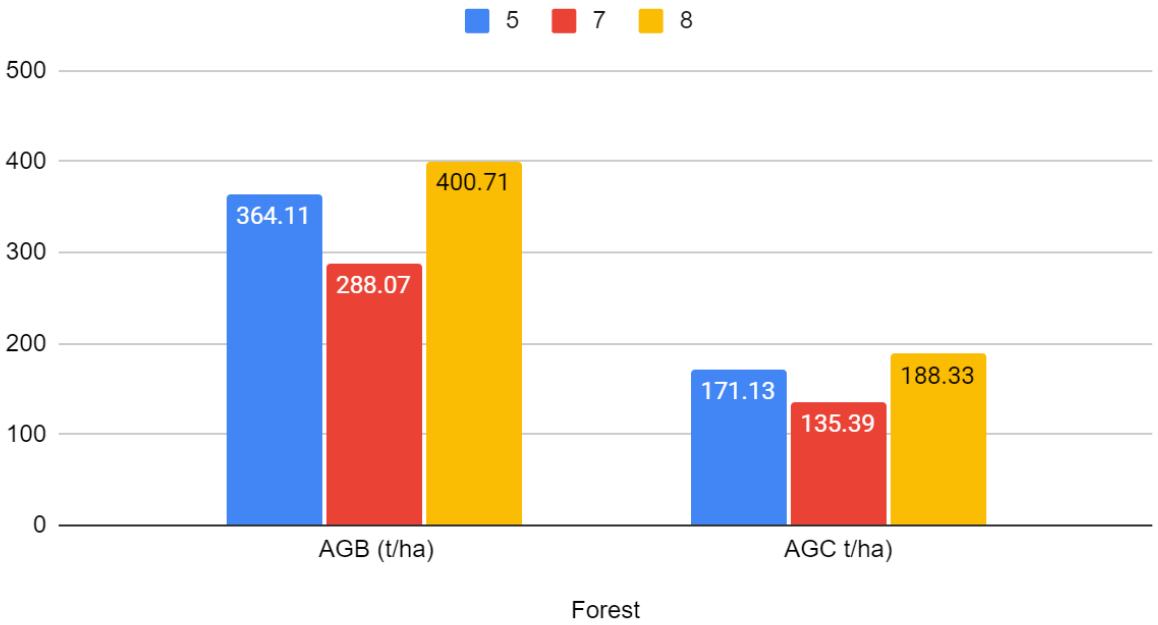
1. Hoogte
2. Soort boom
3. DBH vanaf 5 cm (MAP 3,4 &17,18)
4. DBH vanaf 10cm in overige MAPs

Resultaten 2023

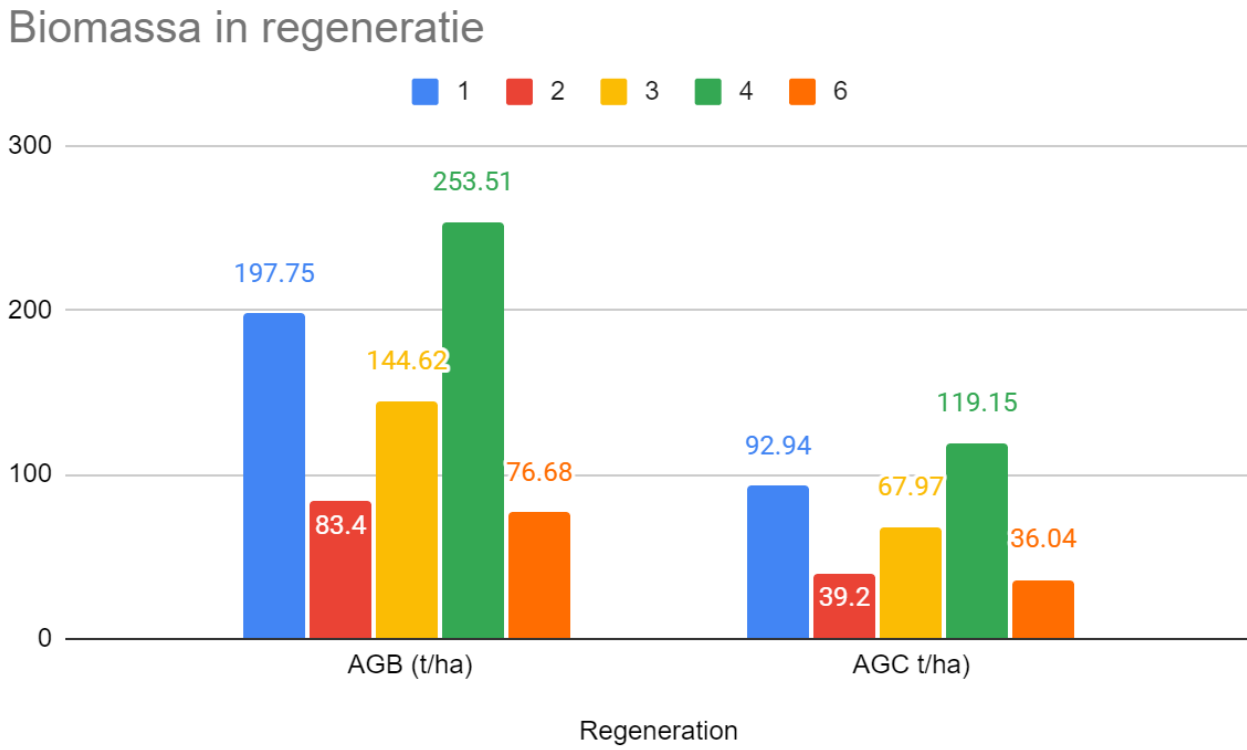
Forest	Aantal
Living trees	415
Palms	8
Standing dead trees	25
Lianas	8

Regeneration	Aantal
Living trees	702
Palms	80
Standing dead trees	100
Lianas	10

Biomassa
Levende bomen



Forest	AGB (t/ha)	AGC t/ha)
Avarage	350.96	164.95



Regeneration	AGB (t/ha)	AGC t/ha)
Average	151.19	71.06

Groei van de Biomassa

Regeneration	Start year of GM	Intensity of mining	Inactive years	AGB (t/ha)	AGC (t/ha)	AGB (t/ha) in 1 year	AGC (t/ha) in 1 year
Plot 1	2012	low	7-8	197.75	92.94	26.37	12.39
Plot 2	2011	low	5-6	83.4	39.2	15.16	7.13
Plot 3	2010	high	6-8	144.62	67.97	20.66	9.71
Plot 4	2014	low	6-7	253.51	119.15	**39.00**	**18.33**
Plot 6	2008	high	6-10	76.68	36.04	**9.59**	**4.51**
			Average	151.19	71.06	**22.16**	**10.41**

A ***"low" GM intensity*** includes ASGM areas where gold mining was done in a more artisanal manner with pans and usually along small creeks.

The ***"high" GM intensity*** describes GM areas where heavy machinery was used during the mining activities.

Total Carbon Stock

Parameter for carbon pools	Carbon stock (t/ha)				
		Primary Forest AGB	Primary Forest AGC	Regeneration Forest AGB	Regeneration forest AGC
Above Ground Biomass	Living trees (dbh ≥ 5cm)	350.96	164.95	151.19	71.06
	Lianas	4.00	1.88	2.18	1.02
	Palms	4.20	1.98	7.22	3.39
Below Ground Biomass	Conversion of AGB	86.19	40.51	38.54	18.11
Dead organic matter	Standing dead wood	26.39	12.4	11.7	5.5
TCS		**471.74**	**221.72**	**210.83**	**99.08**
CO_2-equivalents			**813.71**		**363.66**

Total Pilot area Biomass

LULC classes	Area (ha)	Carbon (t/ha)	Carbon (ton)
Forest	6734	221.72	1499796.48
Shifting cultivation	2808	52.2	146577.6
Secondary vegetation	75	99.08	7431
		Total	1653805.08

Meest voorkomende soorten

Bos
Eschweilera congestiflora (*Uma-barklak*)
Pourouma velutina, Cecropia peltata (*Bospapaya)*
Duguetia, Fusaea, Unonopsis, Guatteria *(Yariyari)*
Ocotea floribunda, Ocotea glomerata (*Zwarte pisi*)

Regeneratie
Pourouma velutina, Cecropia peltata (*Bospapaya)*
Vismia japurensis (*Man pinya-udu*)
Inga edulis (*Swietie-boontje, Switbonki*)

Conclusie

1. De forest plots metingen: 221.72 t/ha. Dit is vergelijkbaar met de nationale gemiddelde koolstofvoorraadwaarde van 225.85 t/ha zoals geschat door Catie (2017) in tropisch bos.

De IPCC (2006) standaardwaarde voor koolstofvoorraad in tropisch bos varieert van 60 tot 200 Mg C ha^{-1}

2. De Regeneratieplots: 99.09 t/ha. Dit is lager dan de schatting van Catie (2017), waarbij de koolstofvoorraad in secundaire vegetatie 113.81 t/ha bedraagt. (Meerdere regeneratie plots)

Conclusie

3. Binnen deze studie werd de AGB in het primaire bos voor levende bomen vastgesteld op 350,96 ton/ha en de AGC op 164,95 ton/ha.

Onze gegevens geven aan dat de duur voor een volledig herstel van de koolstofvoorraad tussen de 9 en 37 jaar zou liggen. (metingen jaar 2 zullen deze schattingen verbeteren)

Opkomende activiteiten

- Hermetingen van de 8 plots
  - Oktober t/m December

- Ontwerpen van de Landgebruik en Landbedekkingskaart 2024

- Finaliseren Analyse rapport (metingen-2024)

Contact gegevens

- Stichting voor Bosbeheer Bostoezicht
- Email: secretary@sbb.sr
- Telefoon: 8678084

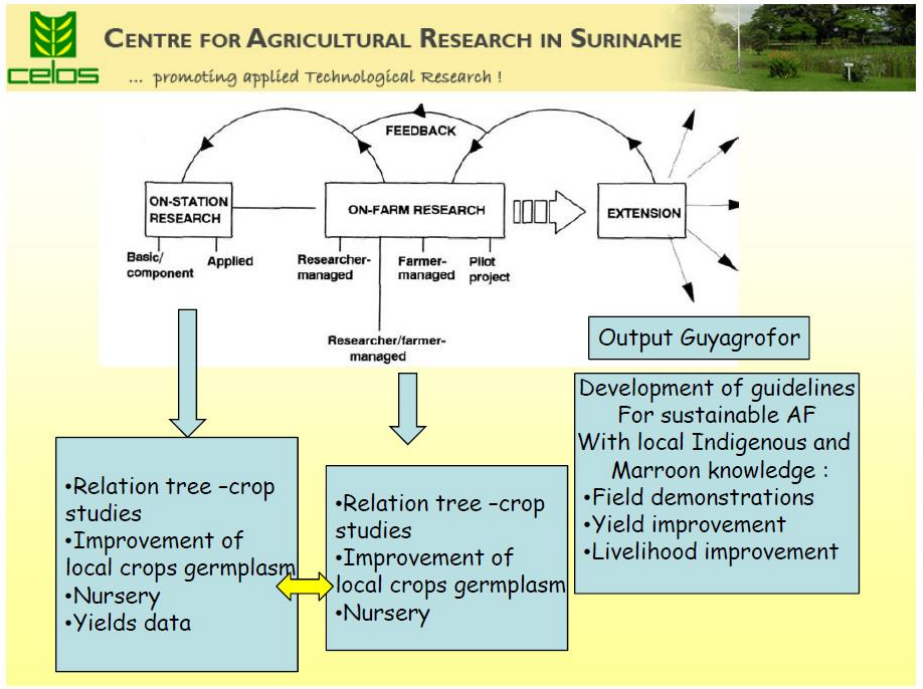
- Hoepel Ilgia
- Email: i.hoepel@sbb.sr/ ihoepel7@gmail.com
- Tel: 8612780

The introduction of the CELOS Agroforestry model in Brokopondo, grounded in the Enable Rural Innovation (ERI) concept and aimed at enhancing livelihood security and resilience through food security

Paramaribo, 24 Oktober 2024

Anwar Helstone MSc.
Agroforestry
Hfd. Afdeling Agrarische Productie
E: anwar.helstone@celos.sr.org

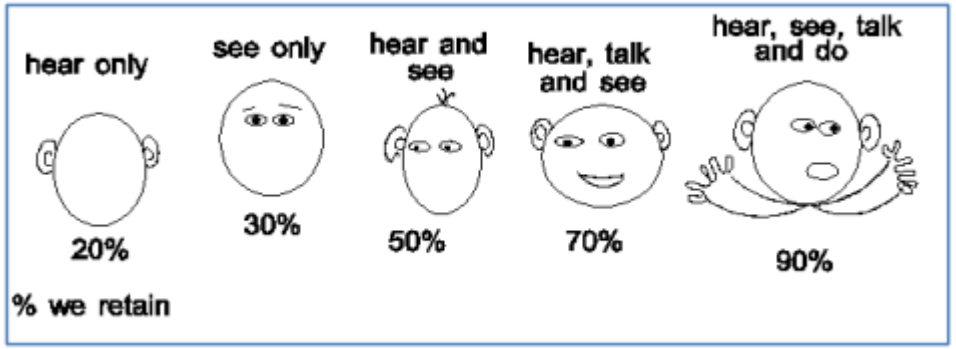
Agroforestry Onderzoek en Ontwikkeling CELOS

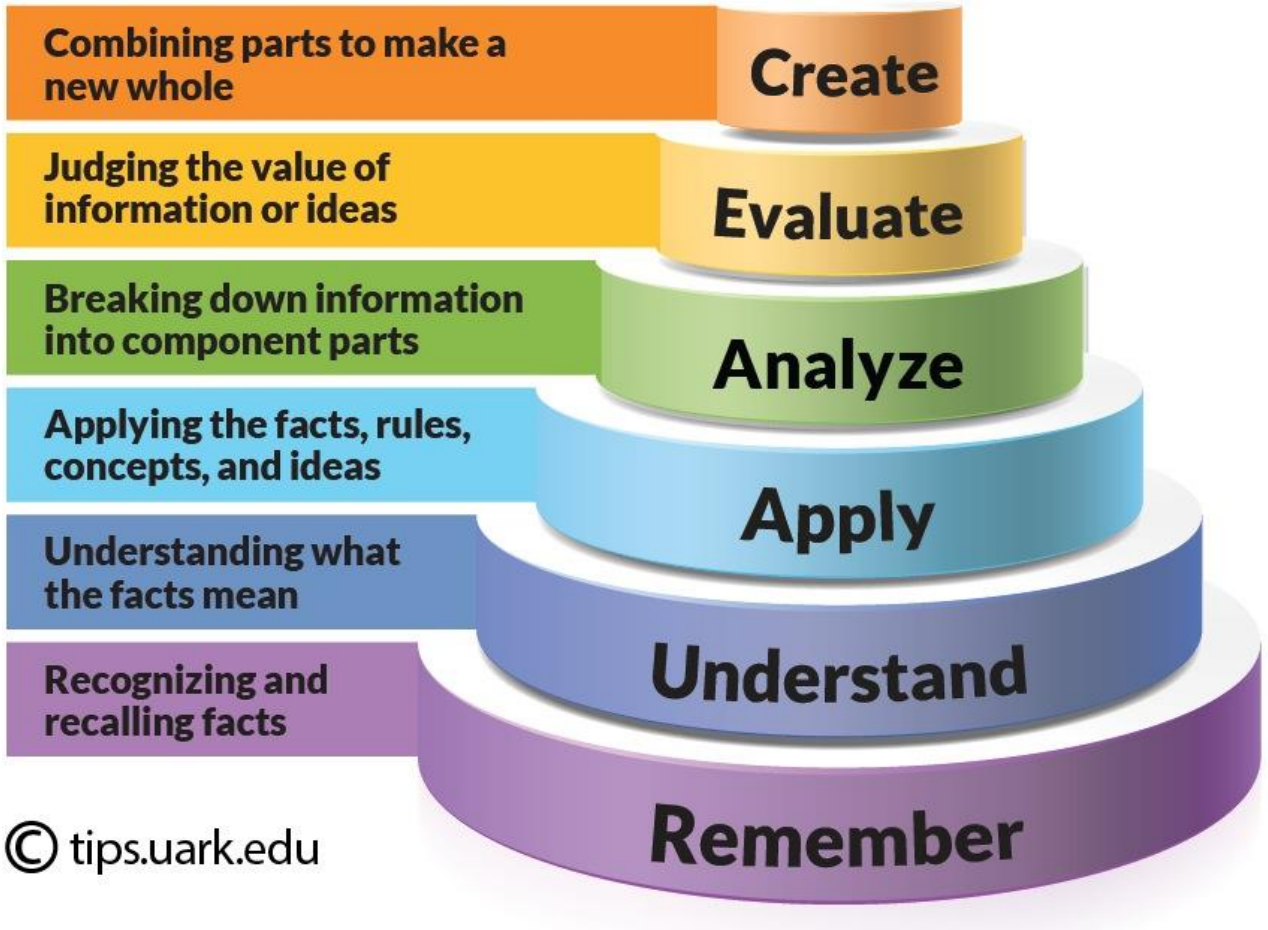


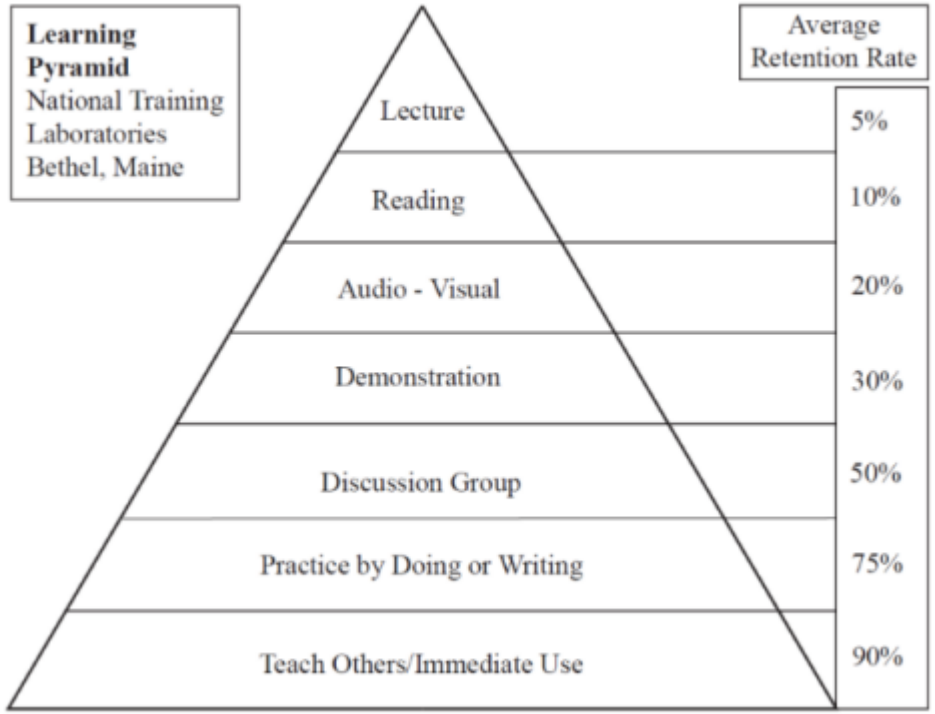
2014 : Marchallkreek Agroforestry opstelling (Multiestrata systeem) (Demonstratie veld)

2023 : Brownsweg Agroforestry opstelling (Demonstratie veld)

Participatory learning and interactive teaching

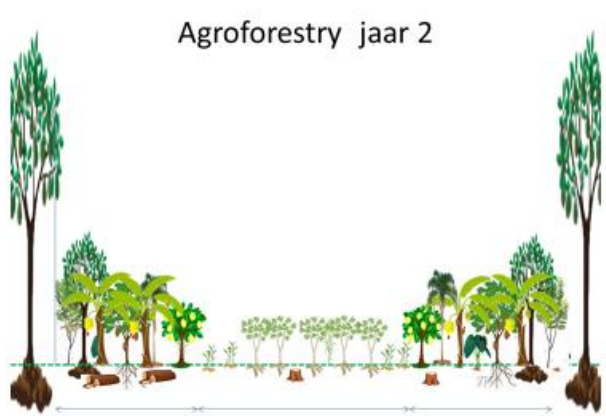


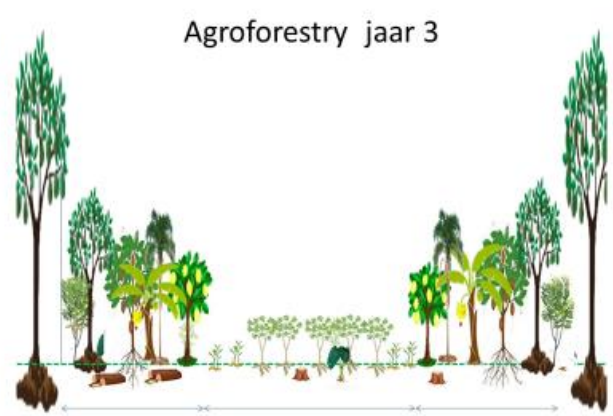


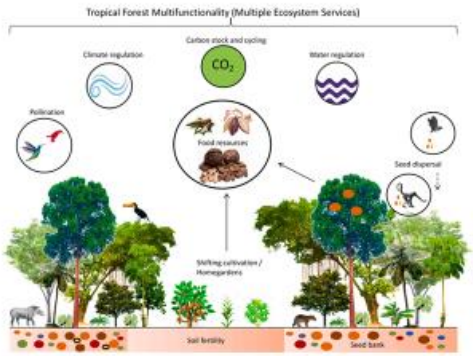


CELOS AGROFORESTRY MODEL

ALTERNATIEF VOOR KOSTGRONDEN IN HET BINNENLAND







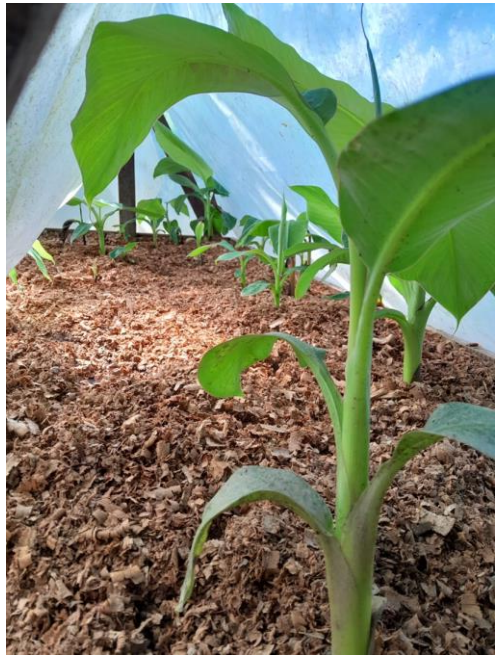
VOORDELEN:

- HET SPREIDEN VAN ECONOMISCHE RISICO'S
- ADAPTATIE MAATREGEL TEGEN KLIMAATVERANDERING
- VOEDSELPRODUCTIE

Project goals

- 1. Introduction of agroforestry techniques and setup of the CELOS Agroforestry model in Compagniekreek
- 2. Expanding the CELOS Agroforestry Initiative in Brownsweg by setting up two (2) on-farm demonstration fields
- 3. Implementation of the ERI concept to secure basic enhanced improved livelihoods and safeguard local food security
- 4. Monitoring the transition from traditional shifting cultivation land use system to an agroforestry-based system.

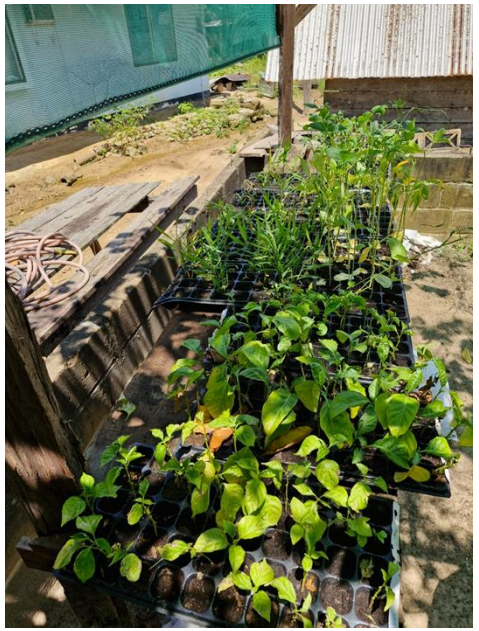

NIKE



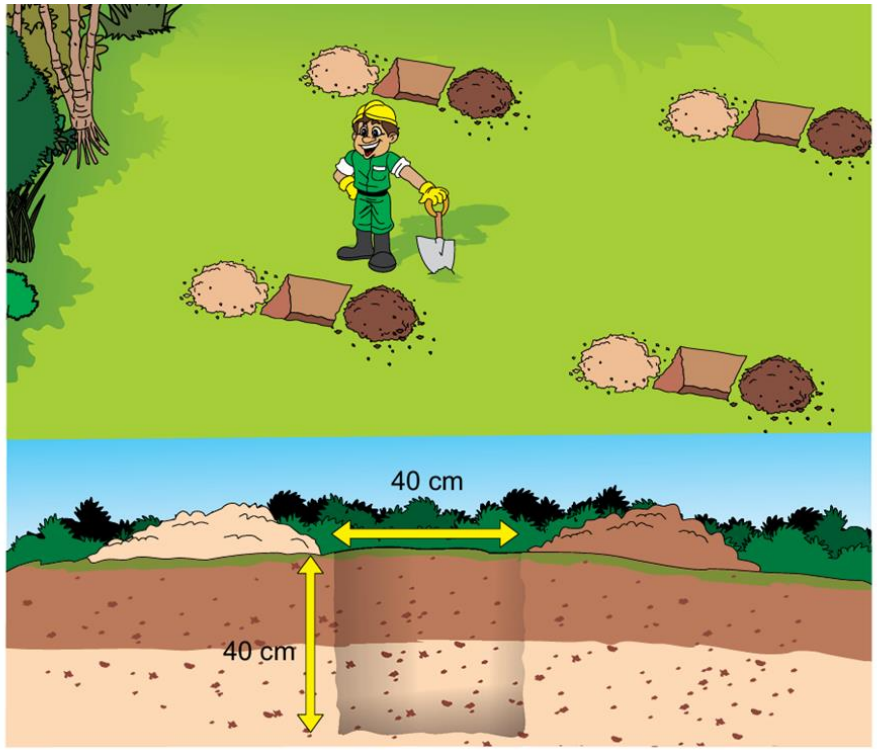
Gewassen en Bomen in de agroforestry systemen

- Cassave, Gember, Pomtayer, Chinese tayer, zoete bataat, banaan, groentensoorten, gele markoese
- Swiet bonki (Waki), Gliricidia , Pakoeli, Ceder
- Pinda, alibi (pesi)
- Cacao, Broodfruit, Podosiri, Palepou, Koemboe, Ramboetan, Cupuacu, Koffie, Zwarte peper, Papaja,

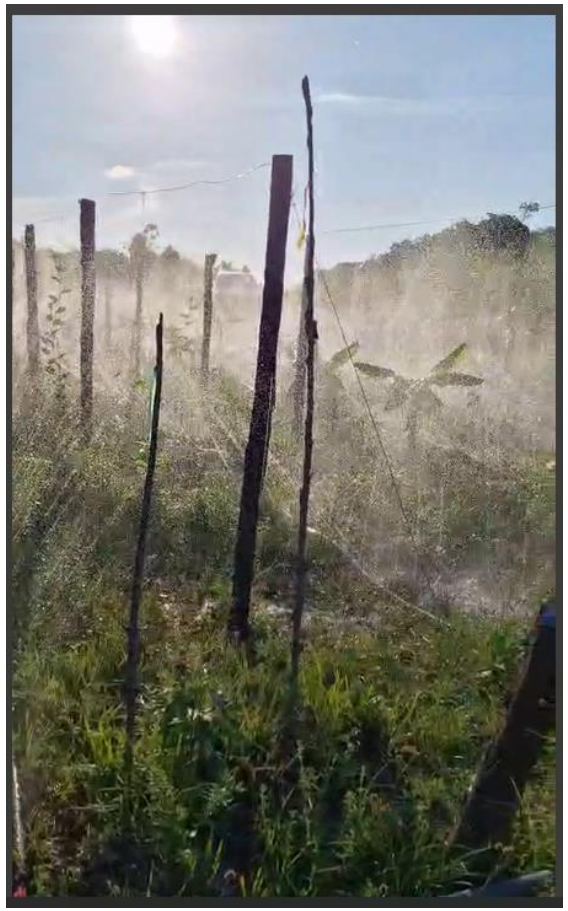
MTEC en Agroforestry Training & Awareness



Agroforestry technieken

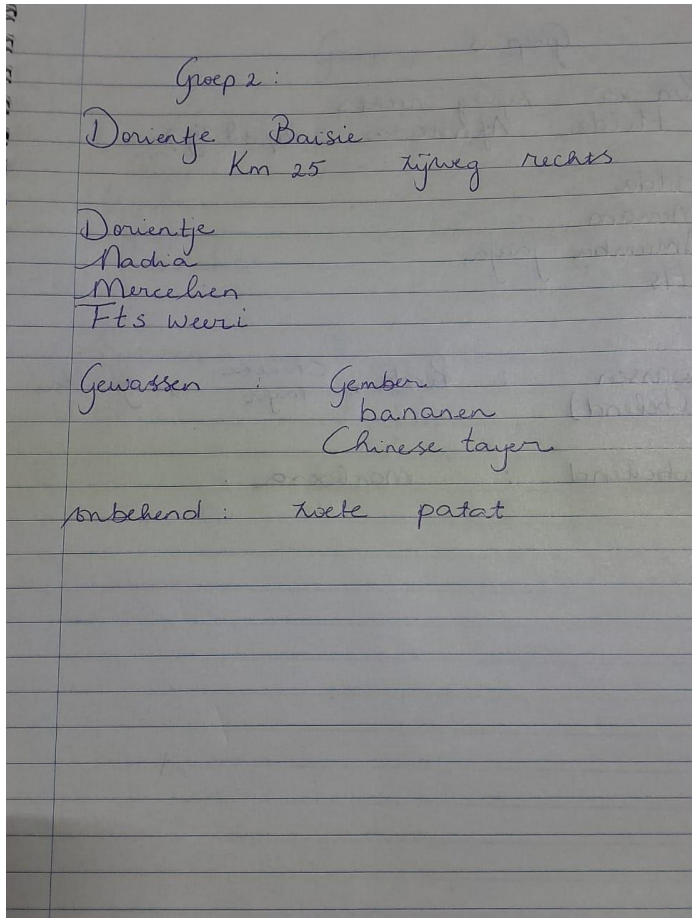



API



ERI Gewassen

Vier (4) Agroforestry Velden opstarten in November 2024

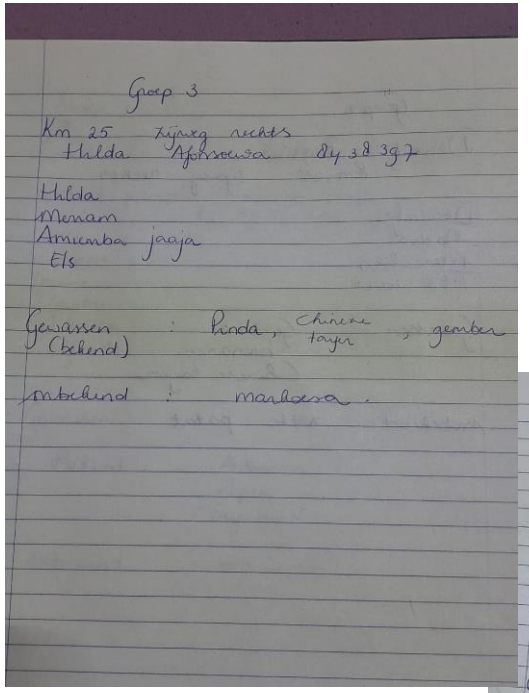

Groep 2:

Dorientje Baisie
Km 25 zijweg rechts

Dorientje
Nadia
Mercelien
Fts weeri

Gewassen : Gember
bananen
Chinese tayer

onbekend : zoete patat

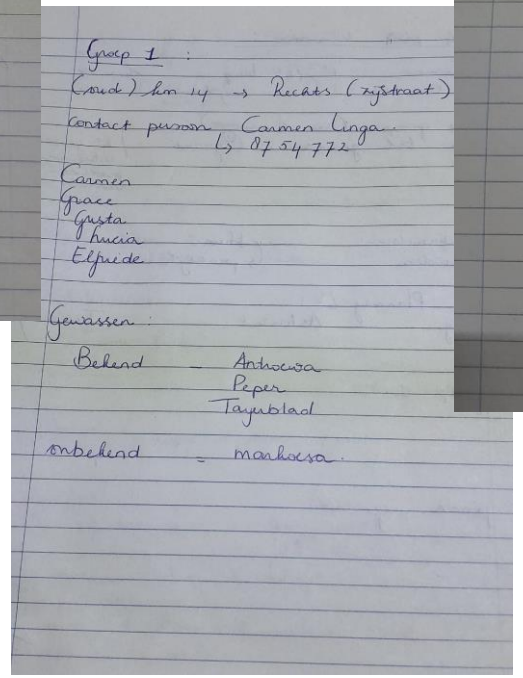

Groep 3

Km 25 zijweg rechts
Hilda Afonsowa 84 38 397

Hilda
Meriam
Amumba jaaja
Fts

Gewassen : Punda, Chinese tayer, gember
(bekend)

onbekend : markoesa.


Groep 1 :

(oud) km 14 → Rechts (zijstraat)

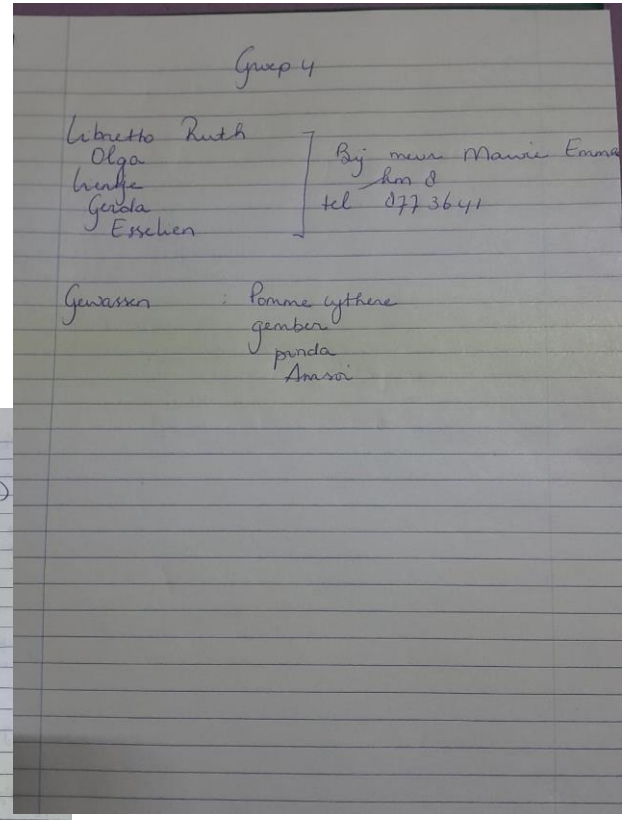
contact persoon Carmen Linga.
↳ 87 54 772

Carmen
Grace
Gusta
Lucia
Elfriede

Gewassen :

Bekend - Antwoesa
Peper
Tayublad

onbekend - markoesa.


Groep 4

Libretto Ruth
Olga
Wenfje
Gerda
Esselien

Bij meun Mamie Emma
km 8
tel 877 3641

Gewassen : Pomme cythere
gember
punda
Amasoi

Activiteiten periode November 2024 – Februari 2025

- CELOS Agroforestry model Demonstration field development in Compangiekreek and Brownsweg
- Coaching of the Agroforestry innovators and early adopters in Brownsweg
- Awareness and capacity strengthening of the livelihood in incorporation of the selected non-traditional crops
- Evaluation of the adaptation of the introduced CELOS Agroforestry system and applied agroforestry techniques
- National stakeholder communication to prepare a policy nota for agroforestry as a land use method

Thank you

Herstel bodemfuncties ASGM - locaties

Inrichting veldproef

Project stakeholder meeting

24 oktober 2024 Paramaribo

Introductie

Inhoud presentatie

- Introductie
- Fase 2 – Onderzoek
- Visie herstel alle bodemfuncties deel ASGM gebied bij Compagnie Kreek
- Fase 3 – Ontwerp veldproef herstel bodemvruchtbaarheid
- Fase 4 – Inrichting en uitvoering veldproef herstel bodemvruchtbaarheid

Introductie

Het Project

Fase 1 - Inceptie

- ✓ Desktop studie over de impacts van ASGM
- ✓ Eerste concept ontwerp herstel bodemfuncties
- ✓ Plan van aanpak locatieonderzoek

Mijlpalen

- ✓ Rapport – Concept plan van aanpak pilot
- ✓ Workshop – Inceptie workshop met lokale stakeholders

Fase 2 - Onderzoek

- ✓ Locatieonderzoek
- ✓ Veldwerk Data interpretatie
- ✓ Rapportage

Mijlpalen

- ✓ Capaciteit opbouwen – Veldwerktraining
- ✓ Lezing aan Anton de Kom Universiteit
- ✓ Rapport – Locatieonderzoek
- ✓ Workshop – Locatie onderzoek en herstel bodemfuncties ASGM locaties

Fase 3 - Ontwerp veldproef herstel bodemvruchtbaarheid

- ✓ Definitieve selectie optie
- ✓ Definitief ontwerp herstel bodemfuncties
- • Rapportage set-up pilot

Mijlpalen

- • Project overleg – Definitief ontwerp met plan van aanpak pilot
- • Rapport – Plan van aanpak pilot
- • Workshop – Definitief ontwerp en plan van aanpak

Fase 4 - Uitvoering veldproef herstel bodemvruchtbaarheid

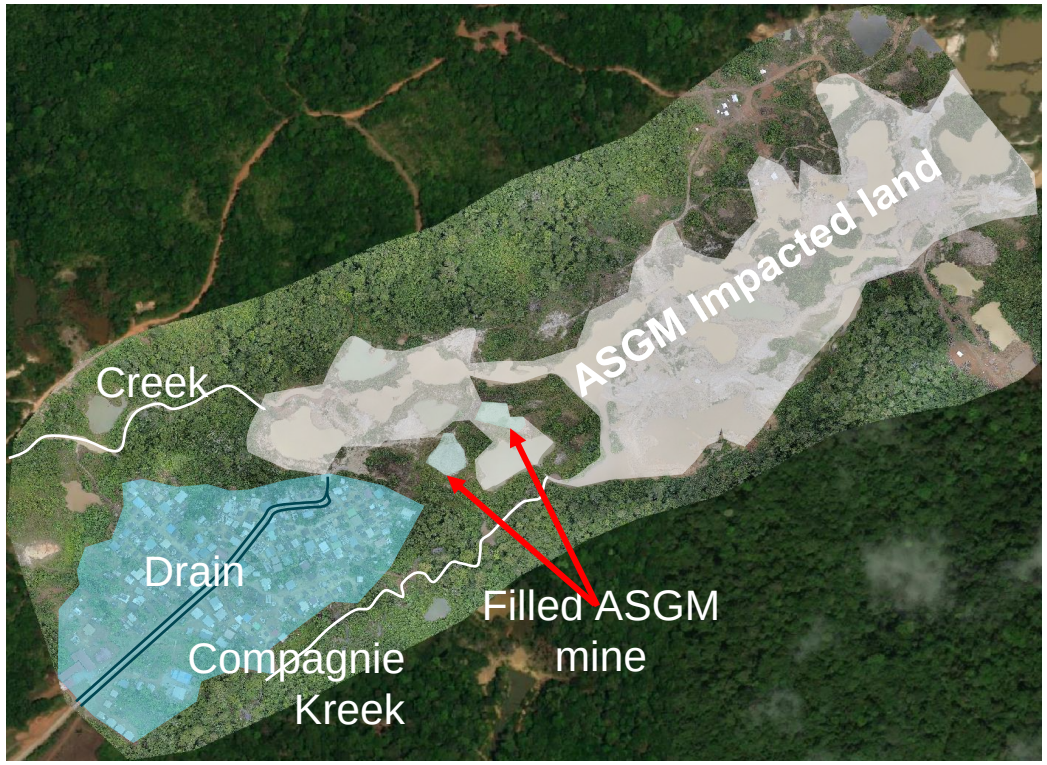
- • Implementatie herstel bodemfuncties
- • Monitoren van herstel bodemfuncties en periodieke rapportage
- • Ontwikkeling protocol voor herstel bodemfuncties verlaten ASGM sites

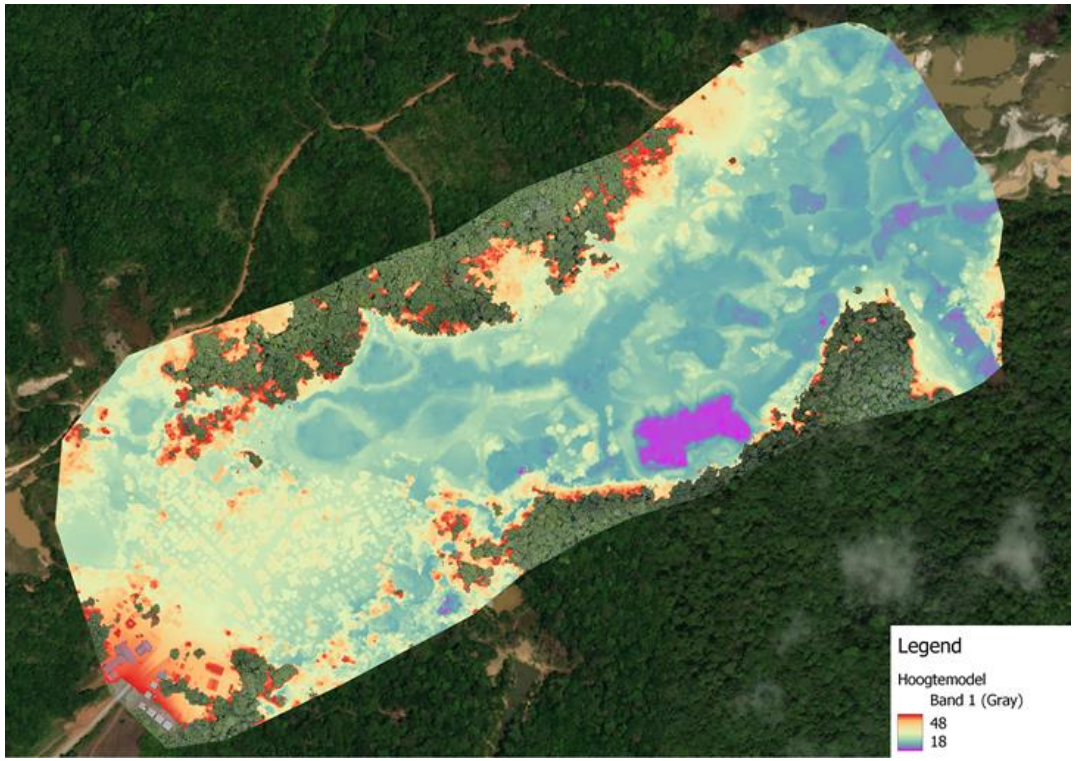
Mijlpalen

- • Ingerichte proefveldjes tbv selecteren recept herstel bodemfuncties
- • Monitoring data van herstel bodemfuncties
- • Protocol voor herstellen bodemfuncties bij verlaten ASGM sites
- • Kennisdeling

Introductie

Huidige situatie





Fase 2 – Onderzoek

Monstername

Drone flight

- Aan de zijkanten en in het centrum van het projectgebied totaal 14 control points
- Met drone data een orthophoto kaart gemaakt
- Orthophoto kaart gebruikt in elke project fase

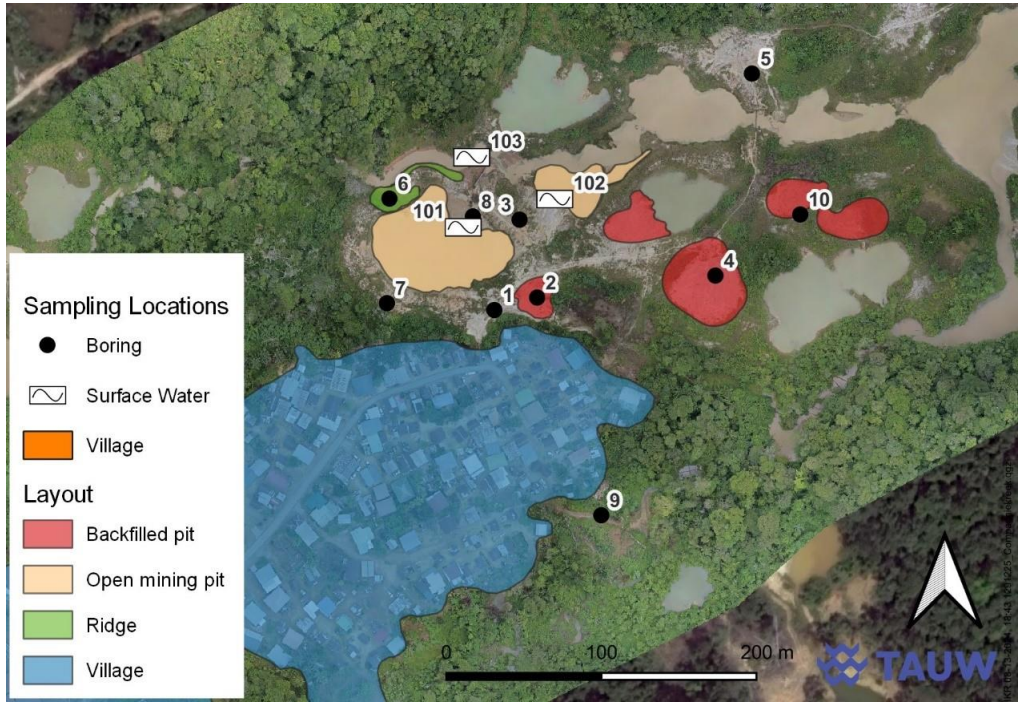
Monstername

- 10 boringen in ASGM mine tailing bemonsterd
- Opgeboorde grond/tailings gemeten met XRF
- Sediment en water uit verlaten ASGM mijn bemonsterd
- Oppervlakte water kreek bemonsterd

Fase 2 – Onderzoek

Resultaten kwik analysen

- XRF metingen bodem en sediment onder detectie limit
- Lab analyses bodem lager onder 0.12 mg/kg d.w. en lager of gelijk aan 0.27 mg/kg d.w.
- Lab analyses sediment lager onder 0.12 mg/kg d.w. en en lager of gelijk aan 0.54 mg/kg d.w.
- Concentraties, incl. kwik, in bodem en sediment vormen geen obstakel voor uitvoering veldproeven
- Concentraties kwik in oppervlaktewater onder detectie limit
- Verhoogde gehalten koper en zink in oppervlaktewater



Visie herstel alle bodemfuncties

Gewenste bodemfuncties ASGM gebied bij Compagnie Kreek

Vier typen landgebruik

- **Natuur**

  Herstel bodemvruchtbaarheid tbv ontwikkeling natuurlijke vegetatie

- **Wetlands**

  Stimuleren sedimentatie voor schoner oppervlaktewater

- **Landbouw**

  Herstel bodemvruchtbaarheid tbv van landbouw

- **Civiel**

  Land geschikt maken tbv uitbreiding dorp

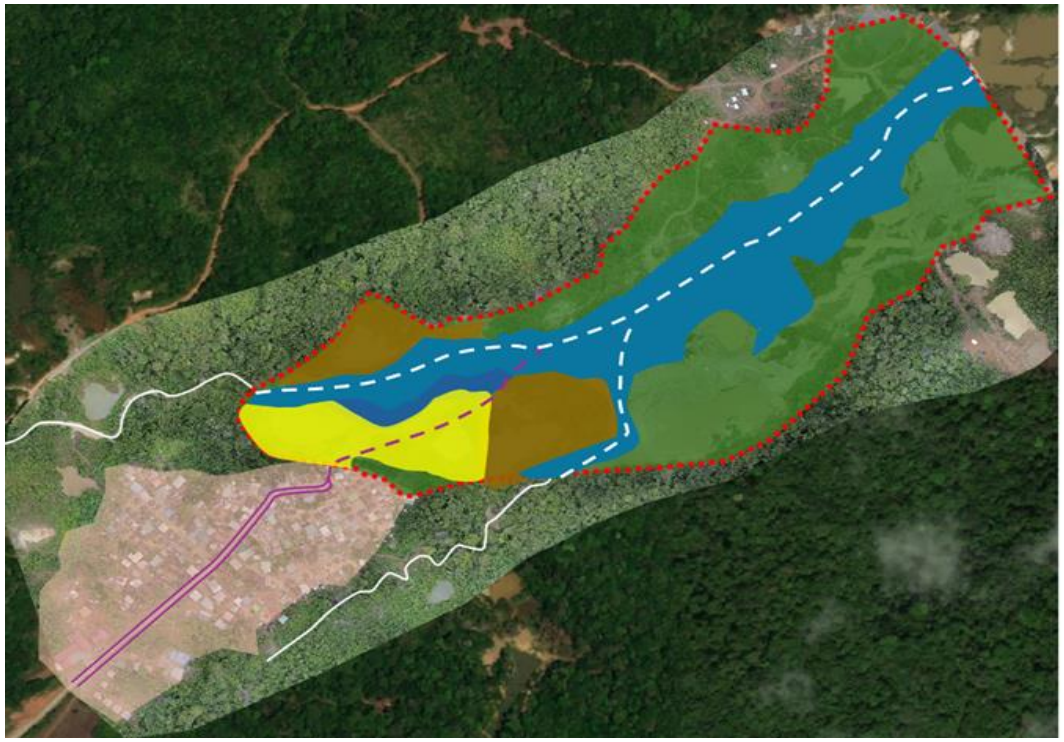
Herstel bodemfuncties moet

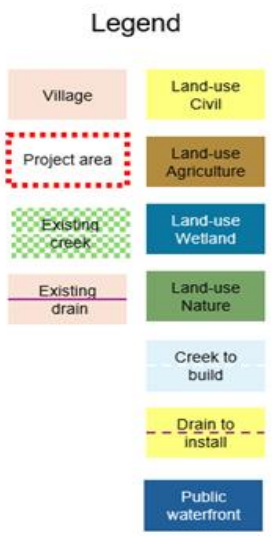
- Toepasbaar op grote schaal
- Sociaal geaccepteerd
- Bijdragen aan duurzame gebiedsontwikkeling
- Economisch haalbaar

Visie herstel alle bodemfuncties

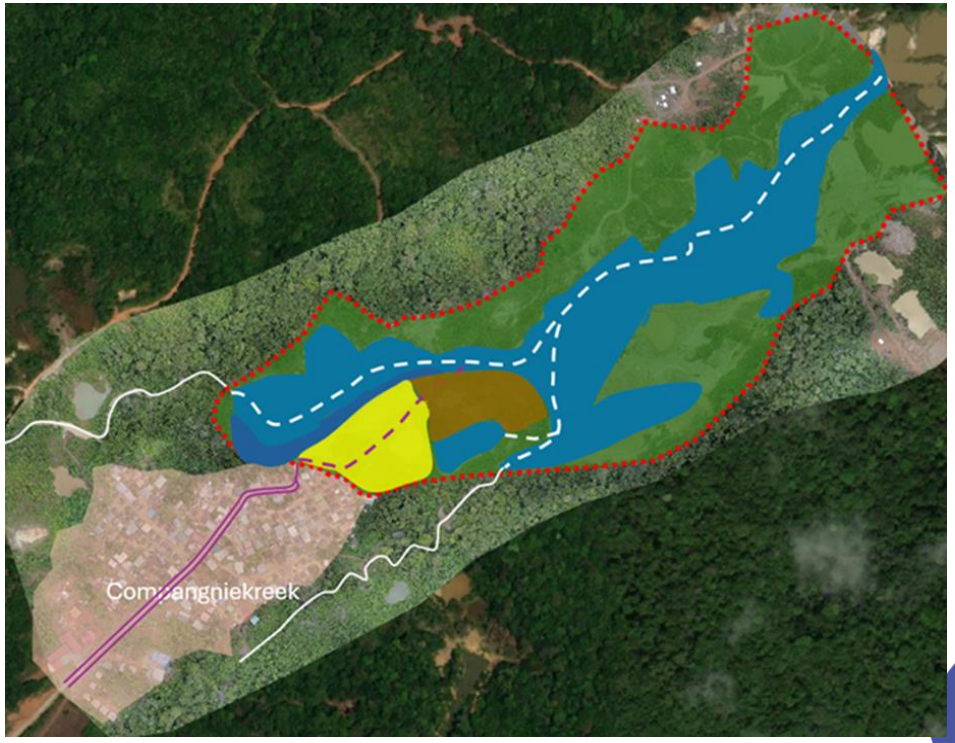
Betreft deel ASGM gebied bij Compagnie Kreek

Uitgebreide variant





Aangepaste variant



Visie herstel alle bodemfuncties

Fase 3 & 4 zijn gericht op herstel bodemvruchtbaarheid voor natuur en landbouw

Landgebruik	Doelstelling	Bodemfunctie(s)	Actie(s) herstel bodemfunctie
Civiel	Uitbreiding gebied voor bewoning	Voorzien in een stabiele ondergrond	Verdichten
Landbouw	Uitbreiding landbouwareaal	Produceren gewassen en immobiliseren Hg	Bodemvruchtbaarheid stimuleren
Wetlands	Bevorderen sedimentatie en voorkomen overstromingen	Opschonen water, immobiliseren Hg, verkleinen kans op overstroming	Aanvullen
Natuur	Stimuleren natuurontwikkeling	Voorzien in een gezonde leefomgeving voor flora en fauna en immobiliseren Hg	Bodemvruchtbaarheid stimuleren
Waterkant	Veilige waterkant kreek	Voorzien in een stabiele ondergrond	Verdichten profilering
Kreek herstel	Bevorderen afwatering	Opschonen water, immobiliseren Hg en reduceren erosie	Profilering
Drain	Bevorderen afwatering	Voorzien in een stabiele ondergrond	Verdichten

Visie herstel alle bodemfuncties

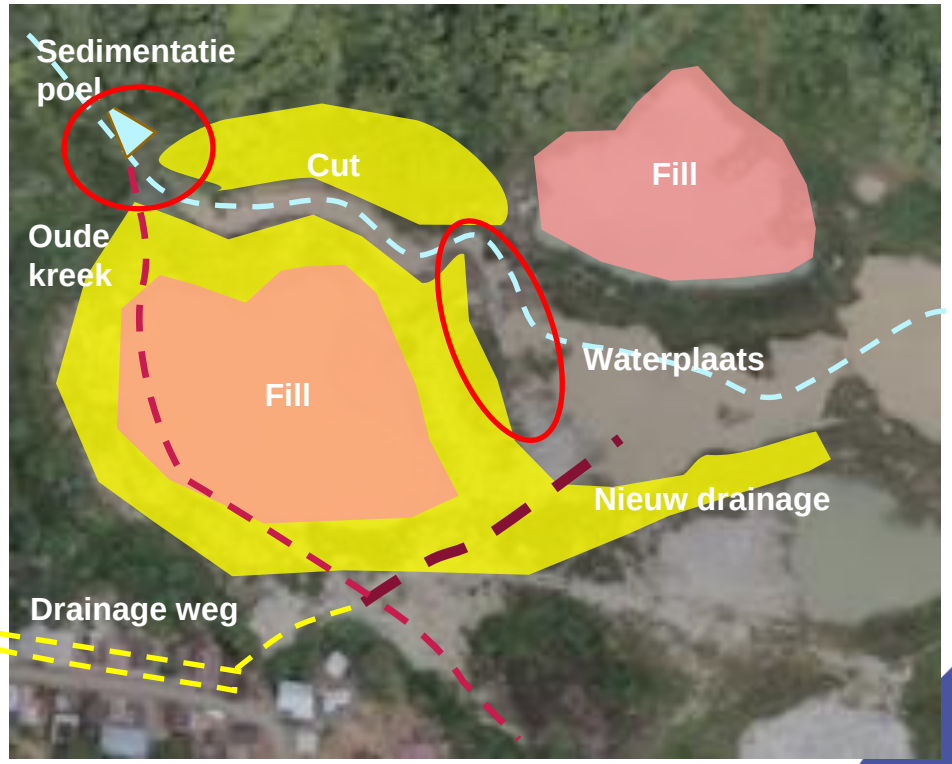
Fase 3 & 4 zijn gericht op herstel bodemvruchtbaarheid voor natuur en landbouw

Landgebruik	Ontgraven	Aanvullen profileren	Verdichten	Bodem bewerking	Groen bemesten	Bomen planten	Gewassen verbouwen	Bouwen
Civiel	x	x	x			x		x
Landbouw	x	x		x	x	x	x	
Wetland	x	x						
Natuur	x	x		x	x	x		
Waterkant	x	x	x					x
Kreek herstel	x	x						x
Drain	x							x

Visie herstel alle bodemfuncties

Aanvullend: Wanneer middelen beschikbaar zijn kan hiermee worden begonnen

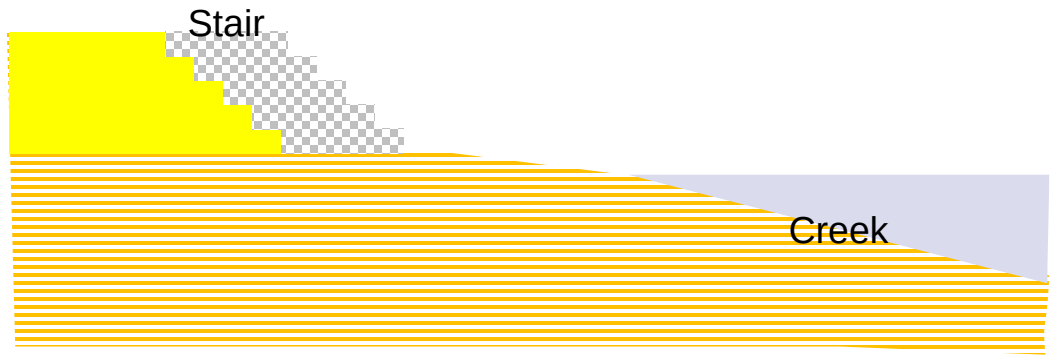
- Afvlakken steile kanten langs kreek
- Stabiliseren niet stabiele hellingen
- Ontgraven, aanvullen en egaliseren gebied
- Backa santi gebruiken voor aanvullen ASGM mijnen
- Bovengrond gebruiken voor herstel bodem-vruchtbaarheid
- Aanleg trappen naar waterkant met geleidelijke overgang van waterkant naar kreek
- Verlengen drainage weg met uitstroom in kreek benedenstrooms waterkant
- Aanleg sedimentatie poel bovenstrooms waterkant



Visie herstel alle bodemfuncties

Aanvullend: Detail voorzieningen

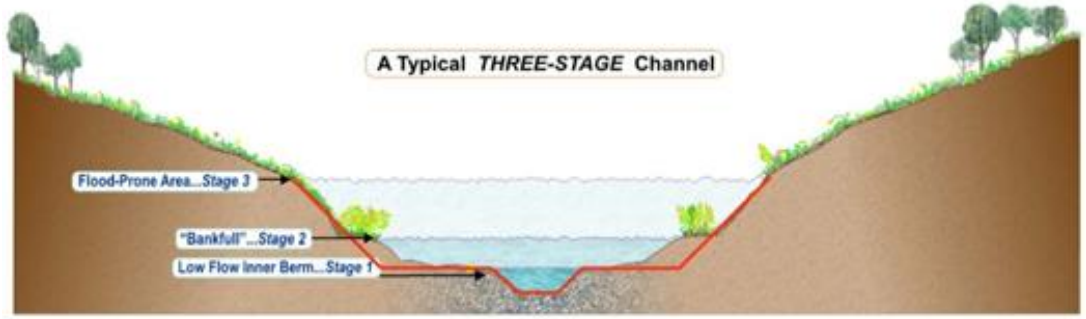
- Trappen om veilig entree waterkant te faciliteren
- Trappen om erosie van entree waterkant te reduceren/voorkomen
- Waterkant en kreek gaan geleidelijk in elkaar over
- Verlengen drainage met uitstroom in kreek benedenstrooms waterkant

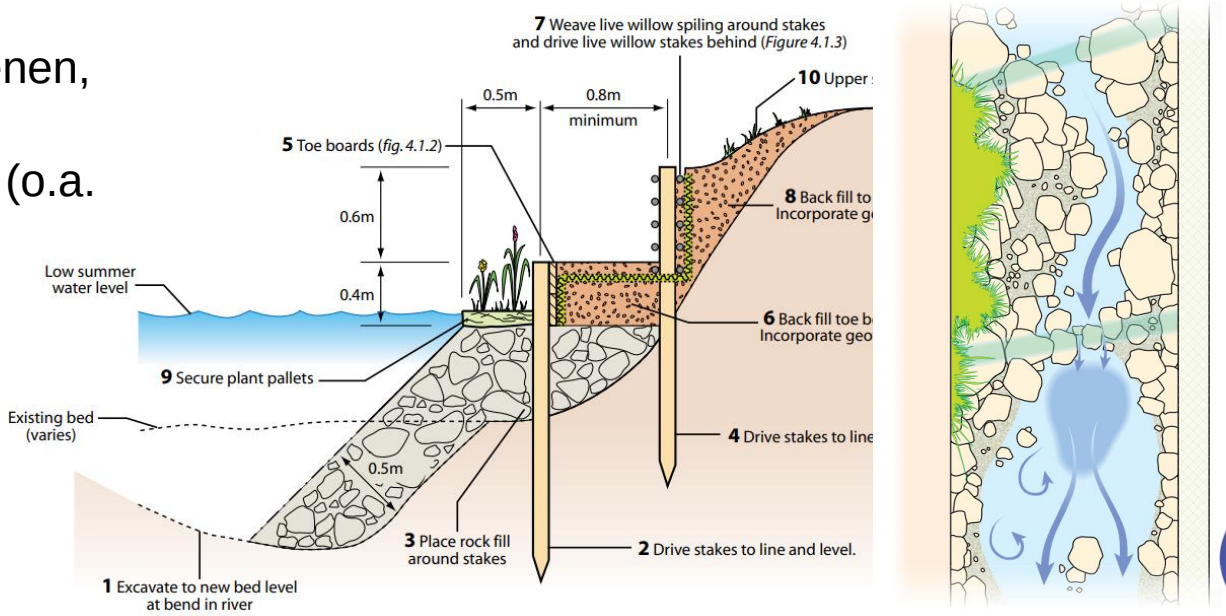


Visie herstel alle bodemfuncties

Aanvullend: Kreekherstel

- Herstellen natuurlijk watergang
- Verlagen van sedimentvracht in de kreek
  - ✓ Vertragen stroomsnelheid
  - ✓ Versterken van de oevers (o.a., wilgentenen, wilgenmatten)
  - ✓ Plaatsen van obstakels in de watergang (o.a. stenen, bomen/stronken, steenkisten)
- Reduceert erosie van de kreek
- Bevorderd de waterkwaliteit





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Fase 3 – Ontwerp veldproef verbeteren bodemvruchtbaarheid

Voorwaarden herstel bodemvruchtbaarheid

- Minimaal grondverzet om kosten te besparen
- Minimaal transport om kosten te besparen
- Aanvullen van grote ASGM mijnen derhalve niet haalbaar
- Zoveel mogelijk gebruik lokaal materiaal

Fase 3 – Ontwerp veldproef

Maatregelen herstel bodemvruchtbaarheid

- **Landbouw en natuur**
  - Wel of niet toedienen van bovengrond en/of clay en/of organische stof op basis van resultaten veldproef (Fase 4)
  - Wel of niet grondbewerken op basis van resultaten veldproef (Fase 4)
  - Planten van inheemse groenbemester
- **Vervolgens voor landgebruik landbouw**
  - Grondbewerking
  - Planten gewassen
- **Vervolgens voor landgebruik natuur**
  - Planten en verzorgen inheemse bomen en planten
  - Tijd geven voor herstel

Fase 3 – Ontwerp veldproef

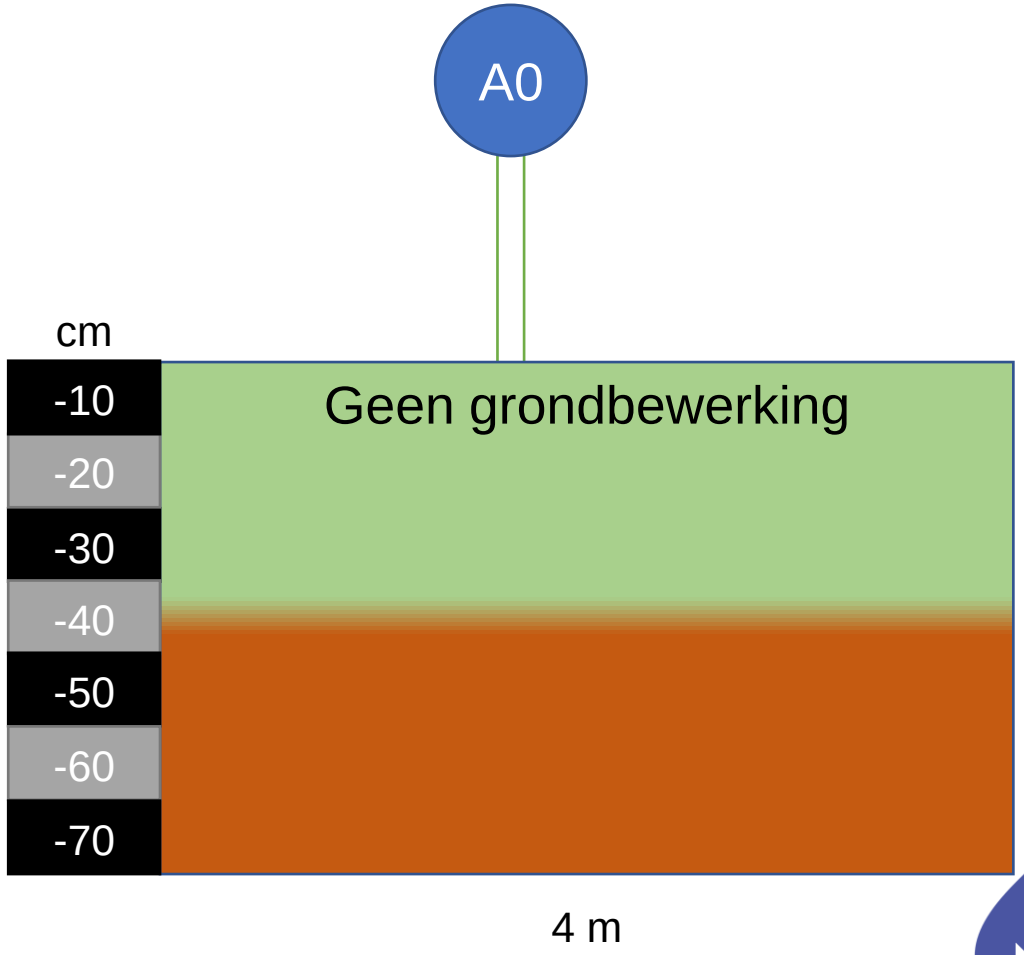
Beste recept voor herstel bodemvruchtbaarheid selecteren

- Samenstellen van 4 recepten voor bodemverbetering Aanleggen proefveldjes van 4 x 4 meter met 4 verschillende recepten en 1 controleveldje
- Monitoren proefveldjes voor 1 jaar en 1 groeiseizoen
- Beoordelen bodemontwikkeling en groei in de diverse proefveldjes en vervolgens beste recept selecteren
- Op basis van resultaten grondverbetering met beste recept toepassen in arealen bestemd voor
  - Landbouw
  - Natuur

Fase 3 – Ontwerp veldproef

Optie - 0 de blanco optie

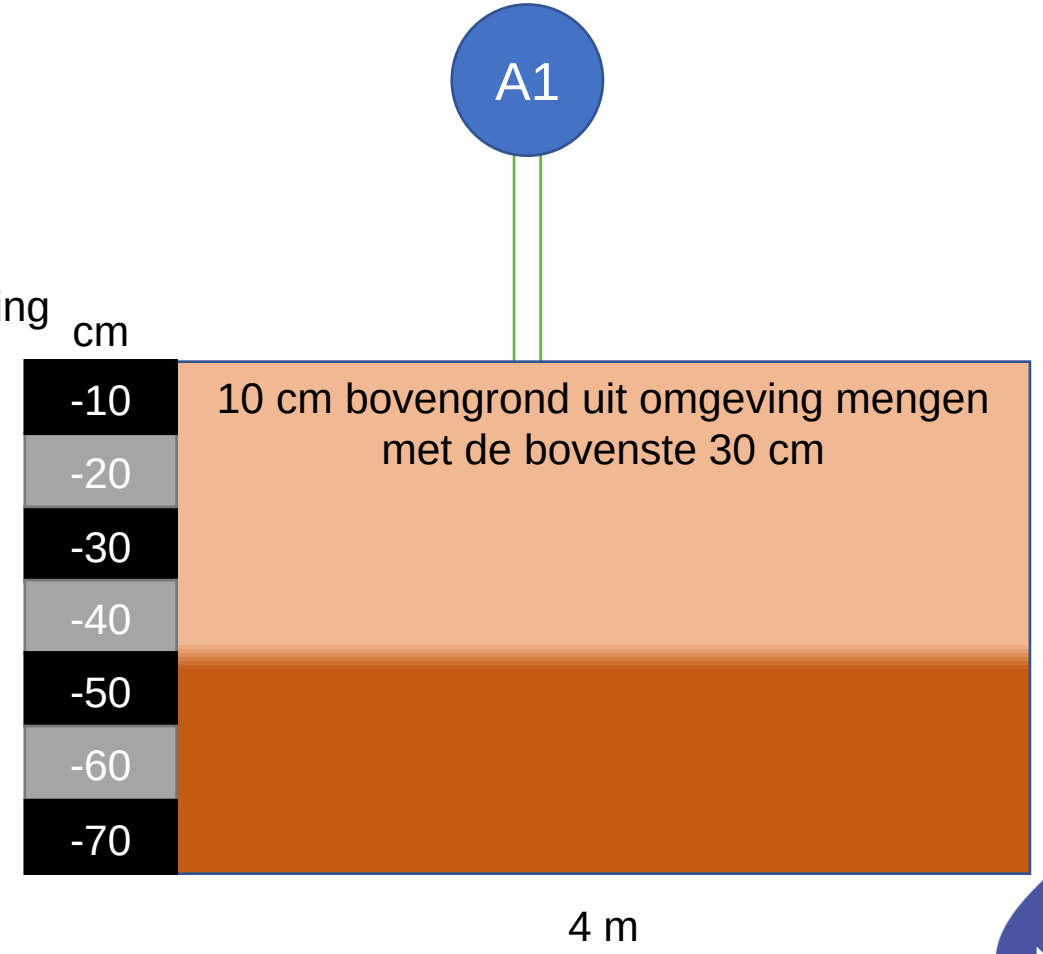
- Vier proefveldjes A0, B0, C0 en D0
- Geen grondbewerking
- Aanplanten groenbemester
- Monitoren groei en bodemontwikkeling gedurende 1 jaar
- Planten cassave
- Monitoren groei en bodemontwikkeling voor 1 seizoen
- Resultaten vergelijken met ander proefveldjes



Fase 3 – Ontwerp veldproef

Optie - 1 de maximale optie zonder import

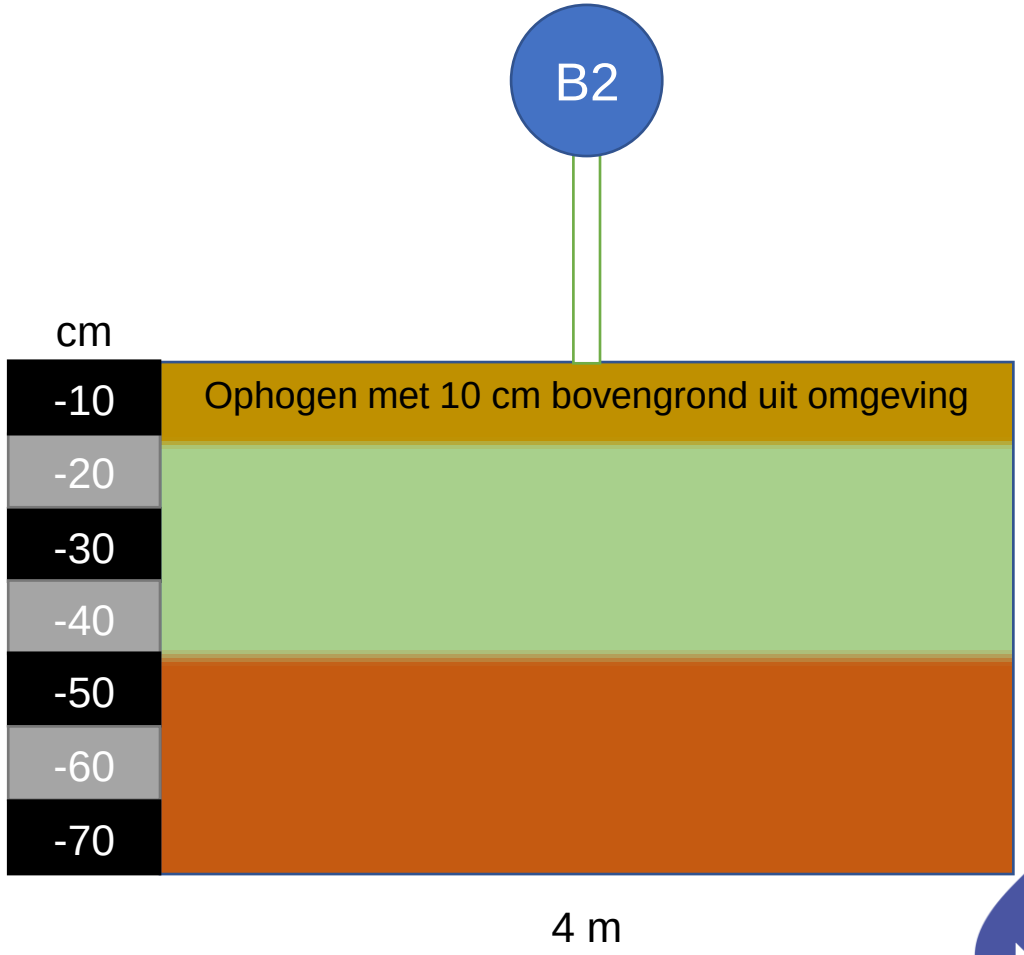
- Vier proefveldjes A1, B1, C1 en D1
- Mengen bovenste 30 cm met 10 cm bovengrond uit omgeving
- Aanplanten groenbemester
- Monitoren groei en bodemontwikkeling gedurende 1 jaar
- Planten cassave
- Monitoren groei en bodemontwikkeling voor 1 seizoen
- Resultaten vergelijken met ander proefveldjes



Fase 3 – Ontwerp veldproef

Optie – 2 de minimale optie

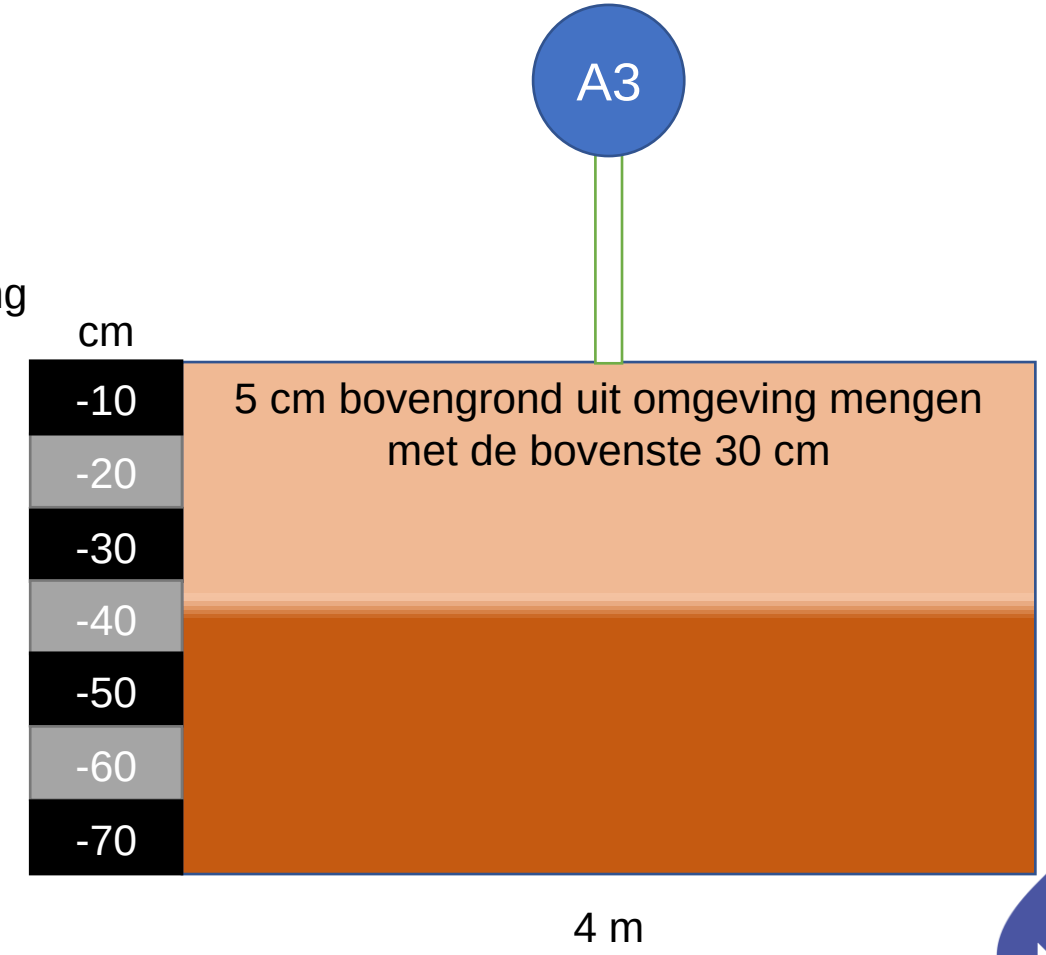
- Vier proefveldjes A2, B2, C2 en D2
- Met 10 cm bovengrond uit de omgeving ophogen
- Aanplanten groenbemester
- Monitoren groei en bodemontwikkeling gedurende 1 jaar
- Planten cassave
- Monitoren groei en bodemontwikkeling voor 1 seizoen
- Resultaten vergelijken met ander proefveldjes



Fase 3 – Ontwerp veldproef

Optie - 3 de tussen optie

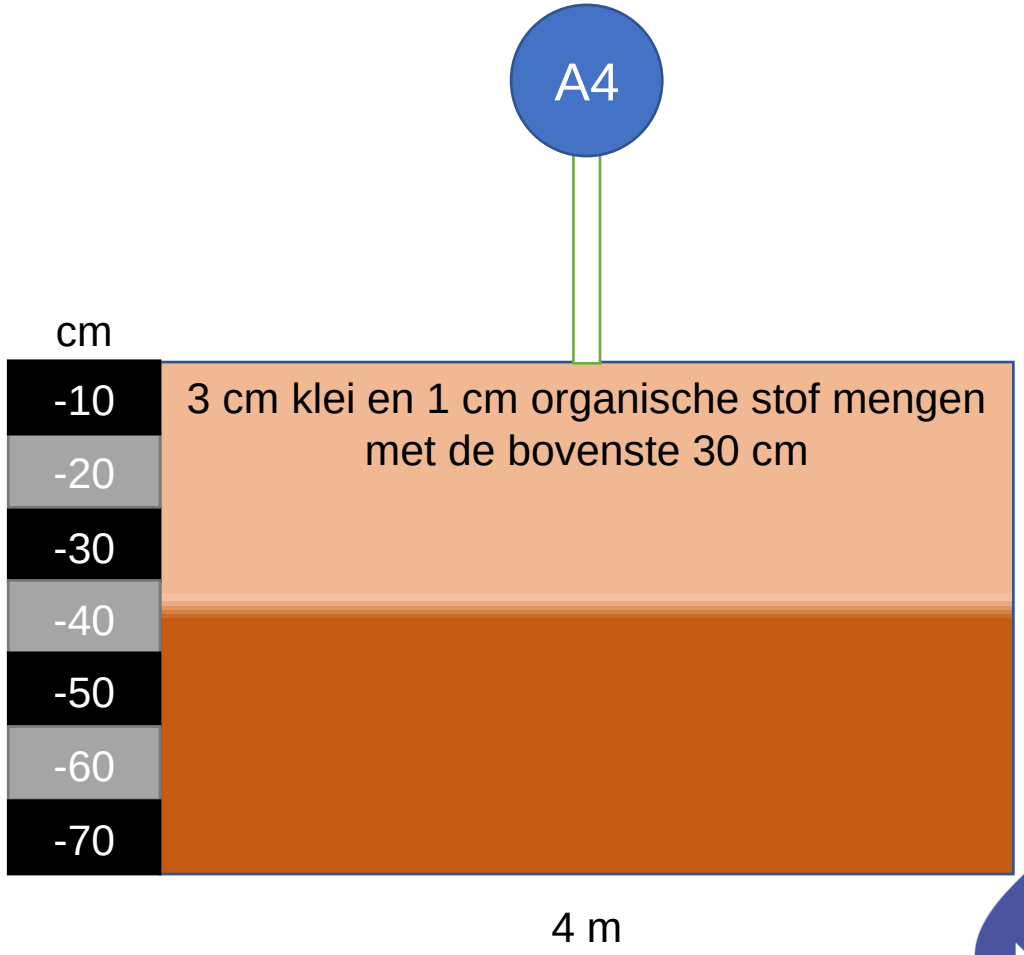
- Vier proefveldjes A3, B3, C3 en D3
- Mengen bovenste 30 cm met 5 cm bovengrond uit omgeving
- Aanplanten groenbemester
- Monitoren groei en bodemontwikkeling gedurende 1 jaar
- Planten cassave
- Monitoren groei en bodemontwikkeling voor 1 seizoen
- Resultaten vergelijken met ander proefveldjes



Fase 3 – Ontwerp veldproef

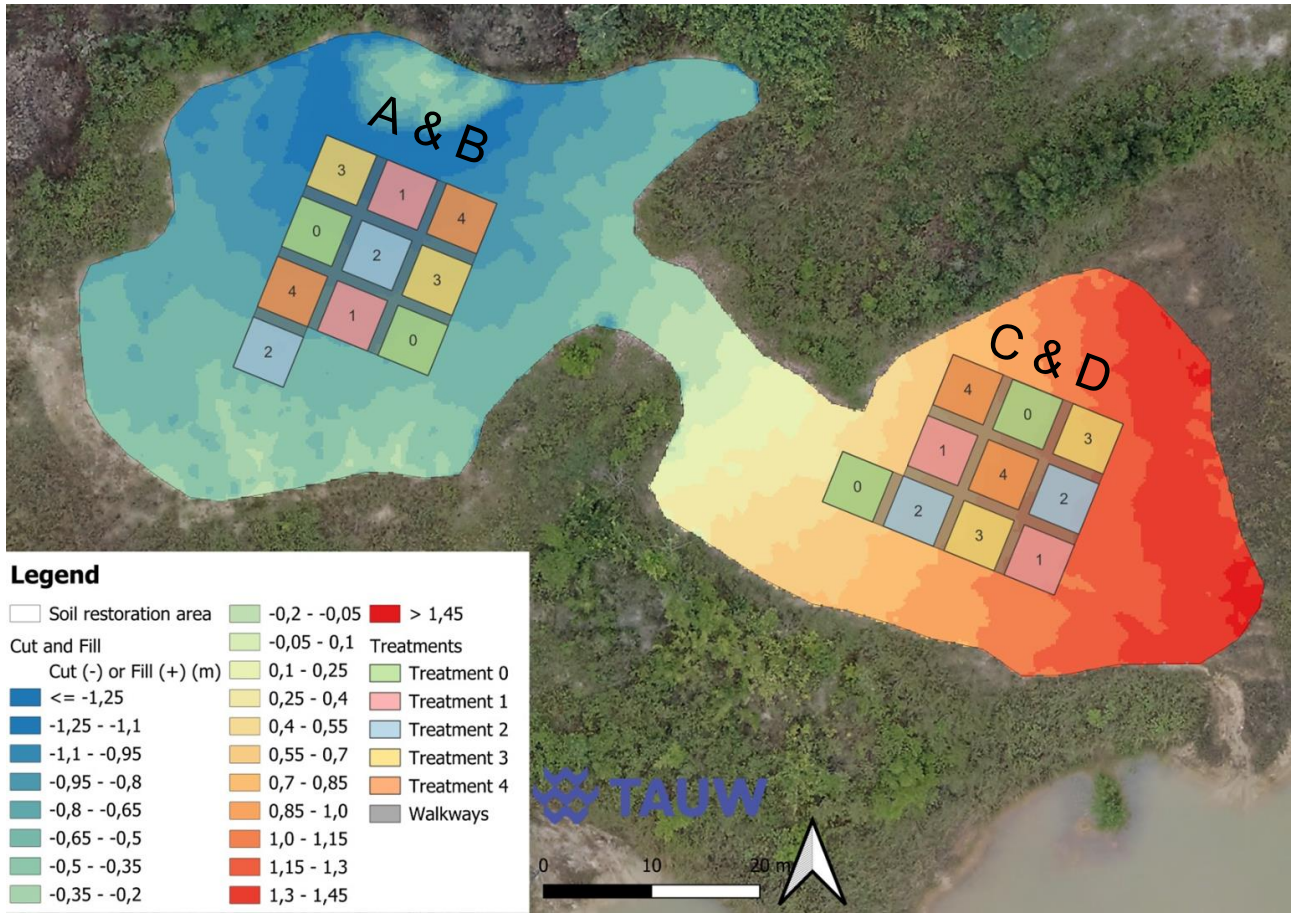
Optie – 4 de maximale optie met import

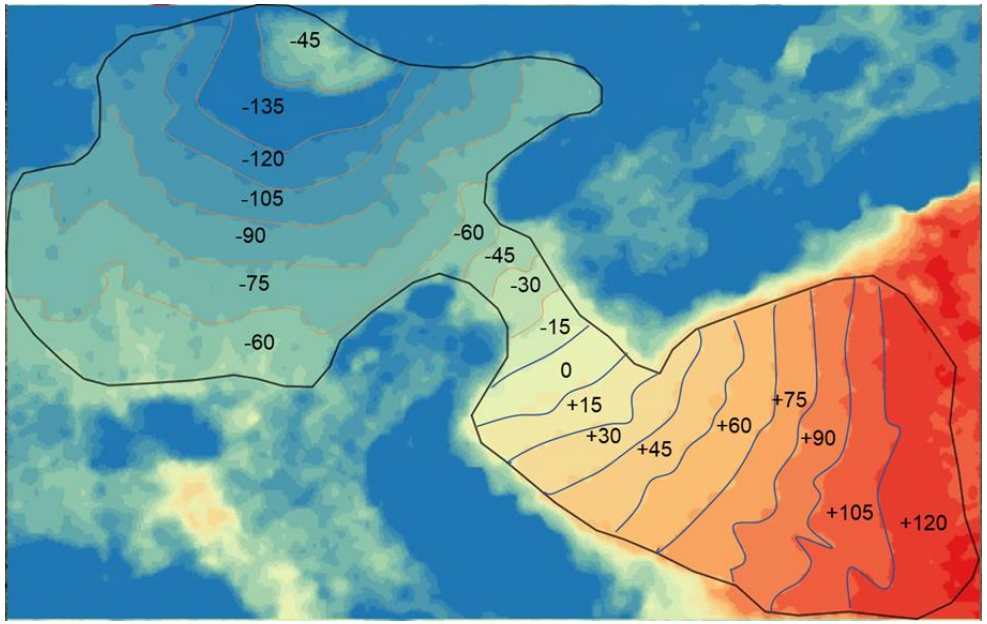
- Vier proefveldjes A4, B4, C4 en D4
- Mengen bovenste 30 cm met 3 cm klei 1 cm organische stof
- Aanplanten groenbemester
- Monitoren groei en bodemontwikkeling gedurende 1 jaar
- Planten cassave
- Monitoren groei en bodemontwikkeling voor 1 seizoen
- Resultaten vergelijken met ander proefveldjes



Fase 3 – Ontwerp veldproef

Locatie 20 proefveldjes





Fase 4 – Uitvoering

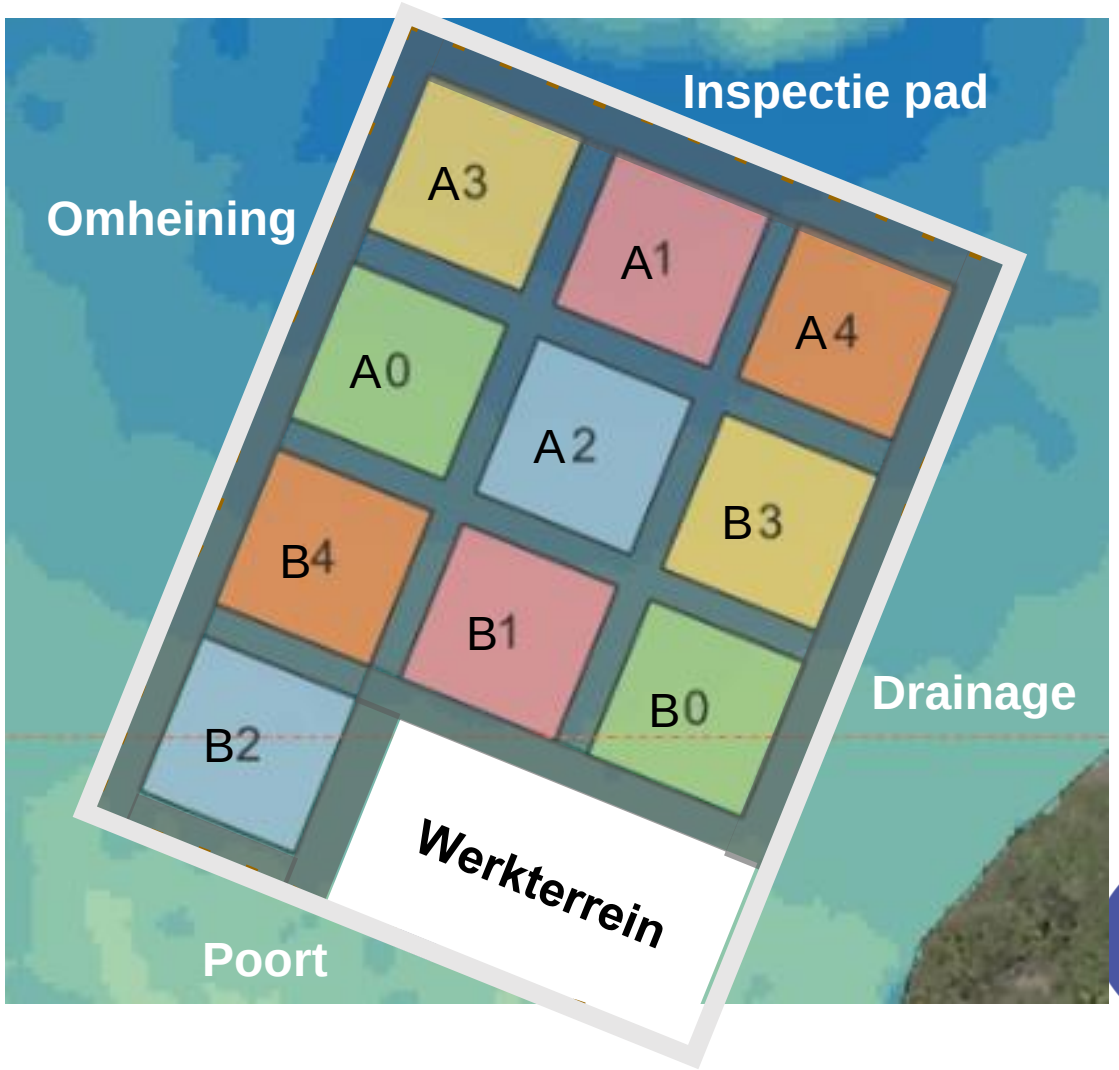
Aanleg 20 proefveldjes

- Egaliseren locatie van de proefveldjes
- Uitzetten 20 proefveldjes van 4 x 4 meter met inspectie pad van 1 meter tussen elk plot
- Maximale optie, proefveldjes A1, B1, C1 en D1 mengen bovenste 30 cm met 10 cm bovengrond uit omgeving
- Minimale optie, proefveldjes A2, B2, C2 en D2 met 10 cm bovengrond uit de omgeving ophogen
- Tussen optie, proefveldjes A3, B3, C3 en D3 mengen bovenste 30 cm met 5 cm bovengrond uit omgeving
- Import optie, proefveldjes A4, B4, C4 en D4 mengen bovenste 30 cm met 3 cm klei 1 cm organische stof
- De 20 proefveldjes beplanten met groenbemester
- De proefveldjes A en B omheinen
- De proefveldjes C en D omheinen

Fase 4 – Uitvoering

Aanleg 20 proefveldjes

- Proefveldjes 4 x 4 m
- Inspectie padden tussen proefveldjes 1 m breed
- Omheining minimaal 1 m hoog
- Inspectie pad tussen omheining en proefveldjes 1 m breed
- 1 poort in omheining minimaal 1 m breed
- In omheinde areaal werkstrook



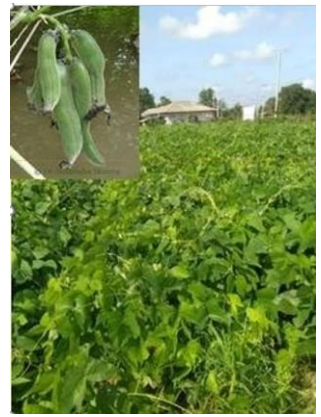
Fase 4 – Uitvoering

Aanleg 20 proefveldjes

Omheining met poort
- Van lokaal materiaal
- Schapen hek 1 m hoog
- Poort 1 m breed

ID van elke plot aangeven
- Bordje A5 groot
- Op bordje nummer proefveldje
- Vast aan piket 1 m

Groenbemester
- Pueraria Montana
- Kudzu genoemd
- Mogelijk aanwezig op Phedra.
- Snel groeiende bodembedekker



Groenbemester
- Mucuna
- Groenbemester
- Inheemse
- Klimplant en kruiper

Fase 4 – Uitvoering

Monitoring en onderhoud

- Start aanvangswaarden en situatie vastleggen
- Verschillende tijdstippen van monitoring gedurende 1 jaar
- Monitoren en onderhoud cruciaal voor slagen veldproef
- Belangrijke aspecten zijn
  - Voorkomen van erosie
  - Voorkomen dat beesten in de omheinde arealen komen

Fase 4 – Uitvoering

Na 1 jaar monitoring en onderhoud

- Groenbemester onder ploegen
- Planten cassave
- Verschillende tijdstippen van monitoring gedurende 1 seizoen
- Na 1 seizoen oogsten
- Boven en ondergrondse delen wegen

Cassave omdat

- Groeit op arme grond
- Verschillen in vruchtbaarheid zichtbaar in de groei van de plant

Fase 4 – Uitvoering

Monitoring en onderhoud gebied met proefveldjes	Aanvang	Wekelijk	Maandelijks	Einde proef
Bemonstering & Analyse Locatievreemd Materiaal				
Mengmonster nemen van 2 m^3 klei	X			
Kleur van klei bepalen mbv Munsel kleurenkaart	X			
Analyseren mengmonster klei op org% & korrelgrootte, en zware metalen met de handheld XRF analyzer	X			
Mengmonster nemen van 1 m^3 organische stof	X			
Analyseren mengmonster op organische stof op org%, en zware metalen met de handheld XRF analyzer	X			
Onderhoud				
Controleren hek en omheining, en drainage, repareren indien kapot of beschadigd		X		
Verwijder vegetatie binnen de omheining, maar buiten de proefveldjes		X		
Verwijder vegetatie van omheining en uit drainage		X		

Fase 4 – Uitvoering

Monitoring en onderhoud proefveldjes	Aanvang	Wekelijk	Maandelijks	Einde proef
Bemonstering van proefvelden				
Mengmonster nemen van de bovenste 30 cm van de proefveldjes	X			X
Kleur van bovenste 30 cm bepalen mbv Munsel kleurenkaart	X			X
Analyseren 4 mengmonsters op org%, korrelgrootte, en zware metalen met handheld XRF analyzer	X			
Analyseren van mengmonsters op org% van alle proefvelden				X
Analyseren van droge stofgehalte van de Casave (boven en ondegrondse delen)				X
Foto’s nemen van de 4 proefveldjes (versturen naar TAUW)	X		X	X
Gebruik standaard fomulier om van elk proefveldje				
Het percentage van het oppervlak dat bedekt wordt vegetatie te noteren	X		X	
De gemiddelde hoogte van de vegetatie te noteren	X		X	
De kleur van de bladeren van te beschrijven	X		X	
De schade en herstel werkzaamheden te beschrijven		X		

Afsluitende opmerkingen

- Fase 1 - Voorbereiding, Fase 2 - Onderzoek en Fase 3 - Ontwerp zijn afgerond
- Fase 4 - Uitvoering start en duurt ongeveer 2 jaar
- Uiteindelijk doel is het samenstellen handleiding voor herstel bodemfuncties voor verlaten ASGM locaties met recept voor herstel bodemvruchtbaarheid
- Herstel maatregelen anders dan voor natuur en landbouw, zijn locatie specifiek en niet afhankelijk bodemvruchtbaarheid
- Voor Compagnie Kreek zijn naast herstel bodemvruchtbaarheid voor natuur en landbouw de volgend landgebruik types van toepassing
  - Civiel – uitbreiding dorp
  - Wetlands benedenstrooms – vergroten waterveiligheid
  - Waterkant aanleggen – veilige entree waterkant/kreek
  - Herstel van de Kreek – verbetering waterkwaliteit
  - Drain verlengen en uitstroom benedenstrooms waterkant – voorkomen vervuiling
- Wanneer middelen beschikbaar zijn kan hiermee worden begonnen

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www.tauw.com

TROPENBOS SURINAME

Making Knowledge Work for Forests and People

Sustainable Food security and awareness on Goldmining effects

PRESENTATOR: Shanaya Vishnudatt

DATUM: 24.10.2024

INHOUD

Achtergrond Tropenbos Suriname

Visie

Wij streven naar een wereld waarin tropische bossen en bomen duurzaam worden beheerd door sterke instellingen en individuen op alle niveaus.

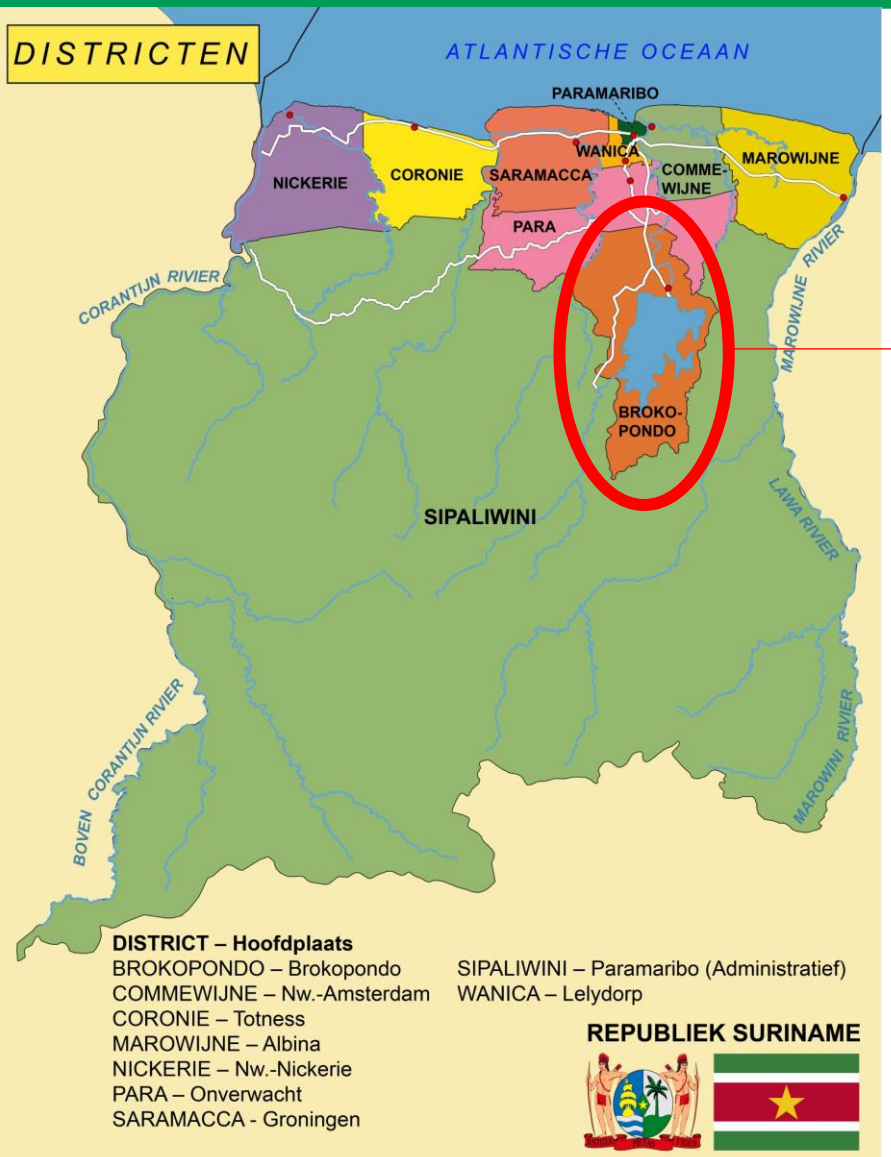
Missie

Het duurzaam gebruik van tropische bossen en bomen verbeteren ten behoeve van gezonde ecosystemen en het menselijk welzijn.

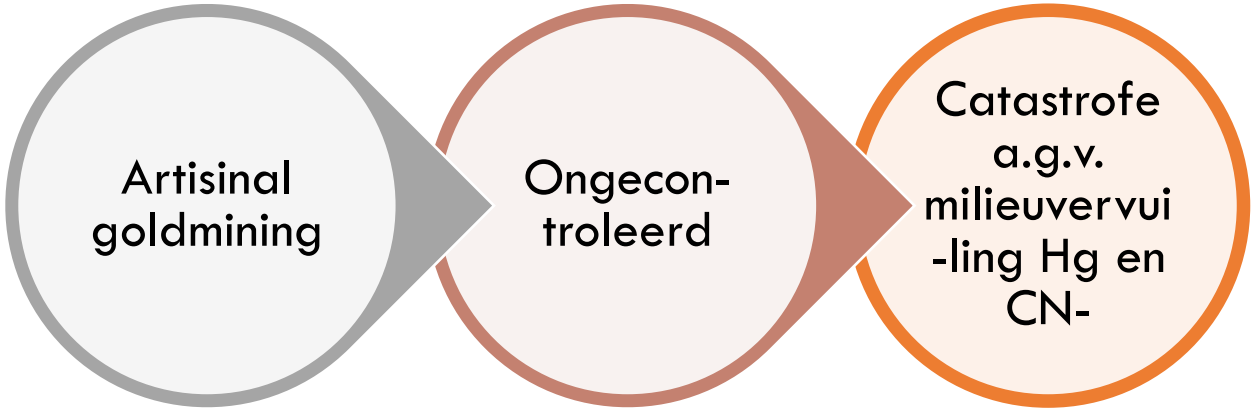
Aanpak

Wij treden op als kennismakelaar, waarbij onderzoek, pleidooi, partnerschappen en empowerment centraal staan, ter ondersteuning van geïnformeerde besluitvorming en lokaal gedragen, verbeterde beheerspraktijken.

Aanleiding



- Commerciële goudwinning
- Artisinal goldmining (ambachtelijke goudwinning)



Aanleiding

Negatieve effecten ambachtelijke goudwinning

Ontbossing

Nadelen gezondheid bij consumptie water

Bosdegradatie en afname biodiversiteit

Verontreininging bodem en waterwegen

Overstromingen a.g.v. onderbreking natuurlijke infrastructuur

Algemeen doel

- Met dit project willen we bewustzijn onder de lokale bevolking vergroten en hun levensonderhoud verbeteren m.b.v. alternatieve, duurzame en milieuvriendelijke inkomstenbronnen, zoals agroforestry.

- Start: september 2024

Doelen

Doelen

De lokale bevolking, m.n. de agro-coöperatie Everest U.A. bewust maken over alternatieve, duurzame en milieuvriendelijke inkomstenbronnen z.a. Agroforestry.

Onderzoek naar de invloed van kleinschalige goudwinning op de lokale landbouw.

Het ontwikkelen van educatief videomateriaal dat het verband weergeeft tussen de kleinschalige goudwinning en lokale landbouw.

Betrokken partijen

- Donor: EMSAGS project
- Uitvoerend orgaan: Tropenbos Suriname

- Gemeenschap:
  - Traditioneel gezag van het gebied
  - Lokale coördinator: lokale vertegenwoordiger
  - Participanten: agro-coöperatie

  Everest U.A. (uitgesproken aansprakelijkheid)

Fig. 1 Kapitein Waandels

Fig.2. Runes Mawi

Gemeenschap-Everest U.A.

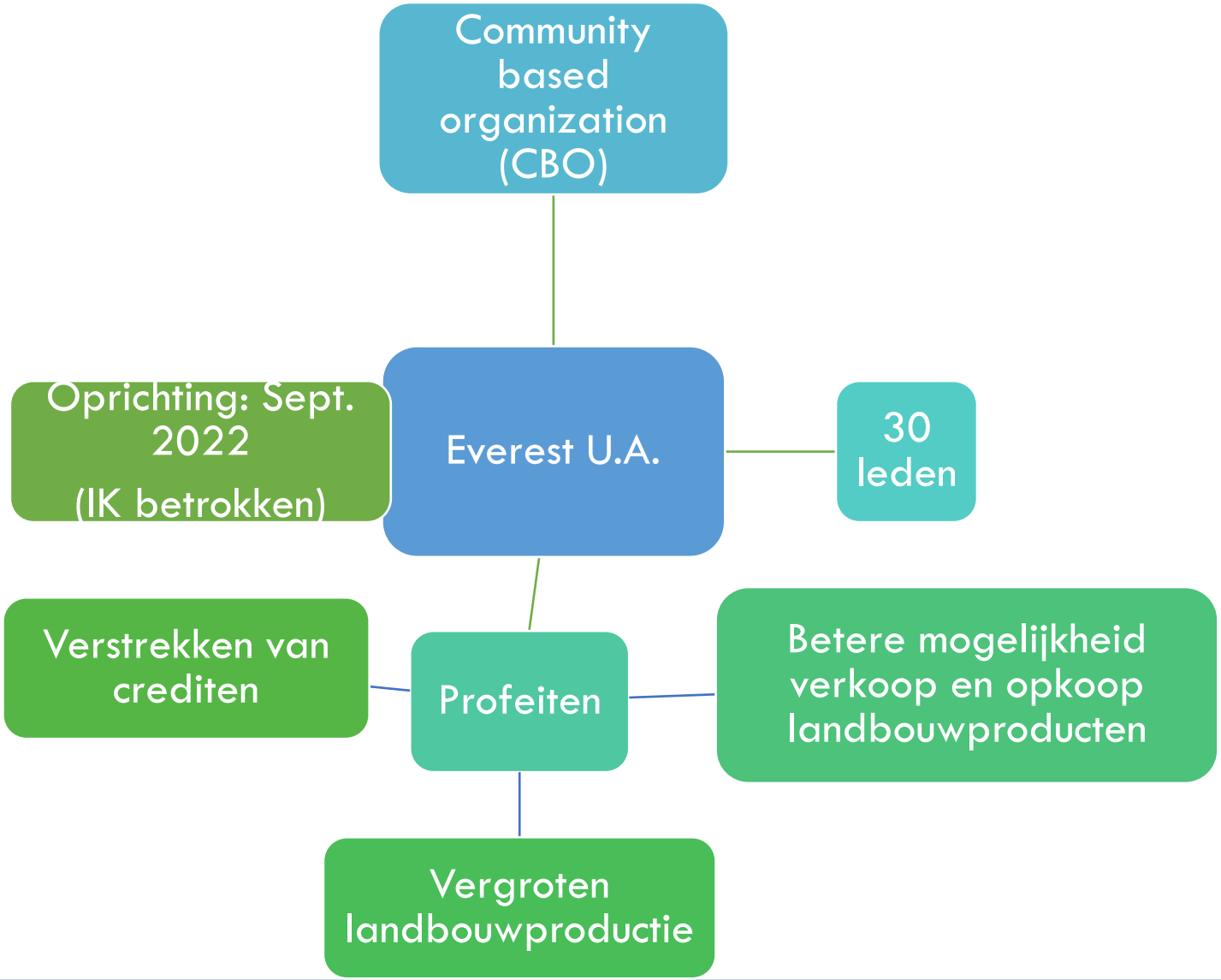


Fig.3 Enkele leden van agro-coöperatie Everest U.A.

Aanpak-TBS

- Free Prior and Informed Consent (FPIC)
- Trainingen in agroforestry en kostprijscalculatie
- Onderzoek naar verband kleinschalige goudwinning-lokale landbouw
- Informatie verstrekken middels educatieve video

Aanpak-TBS (FPIC)

Free Prior and Informed Consent (FPIC)

- Informatie project inhoud
- Inachtname feedback gemeenschap
- Sluiten overeenkomst

Fig. 4 Krutu-FPIC- Ivan Karnadi, Runes Mawi en bestuursleden van Everest U.A.

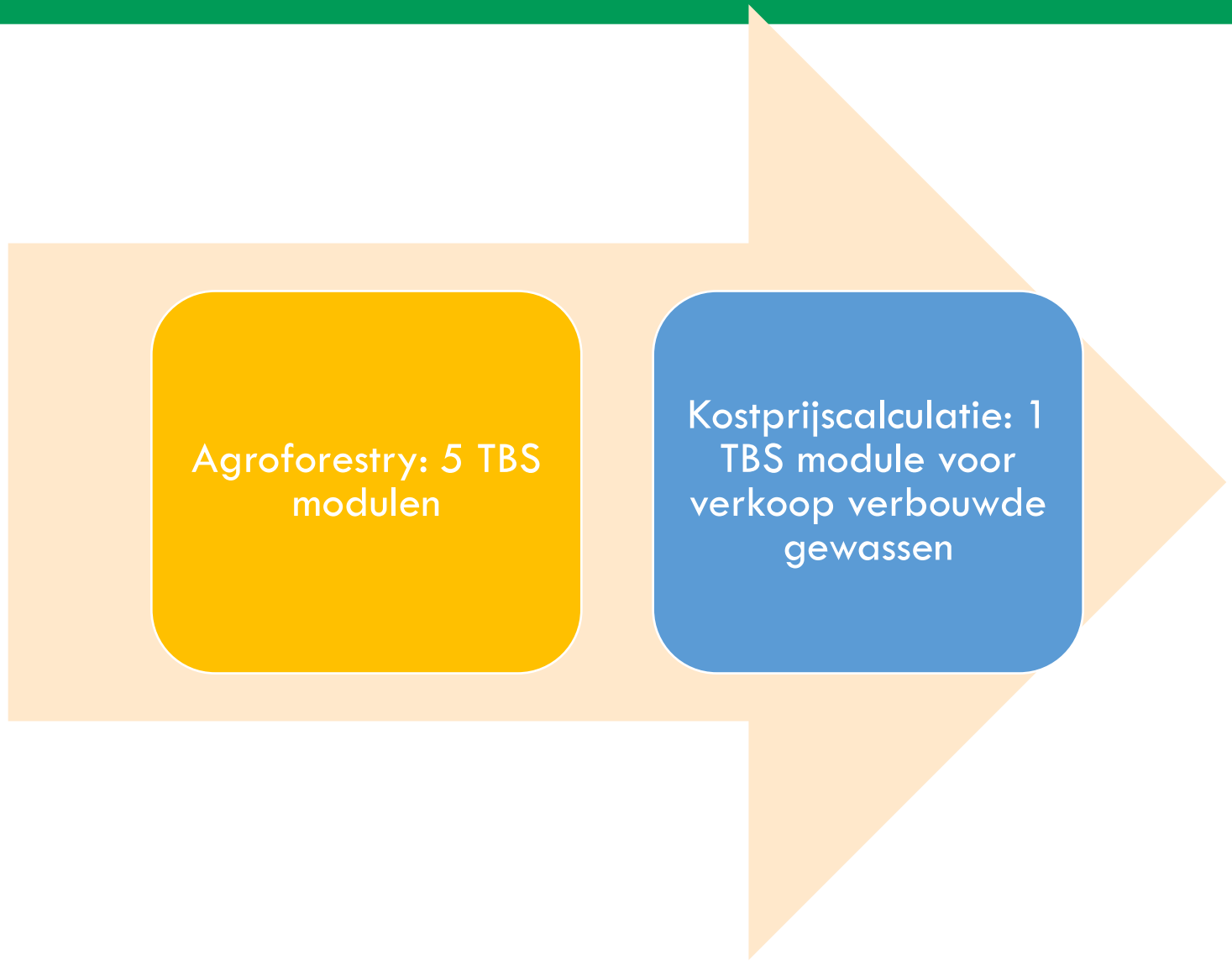
Aanpak-TBS (Agroforestry)

Agroforestry: een vorm van landgebruik, waarbij op één stuk land, tenminste één houtsoortige boom wordt gecultiveerd in combinatie met landbouwgewassen en/of diersoorten.

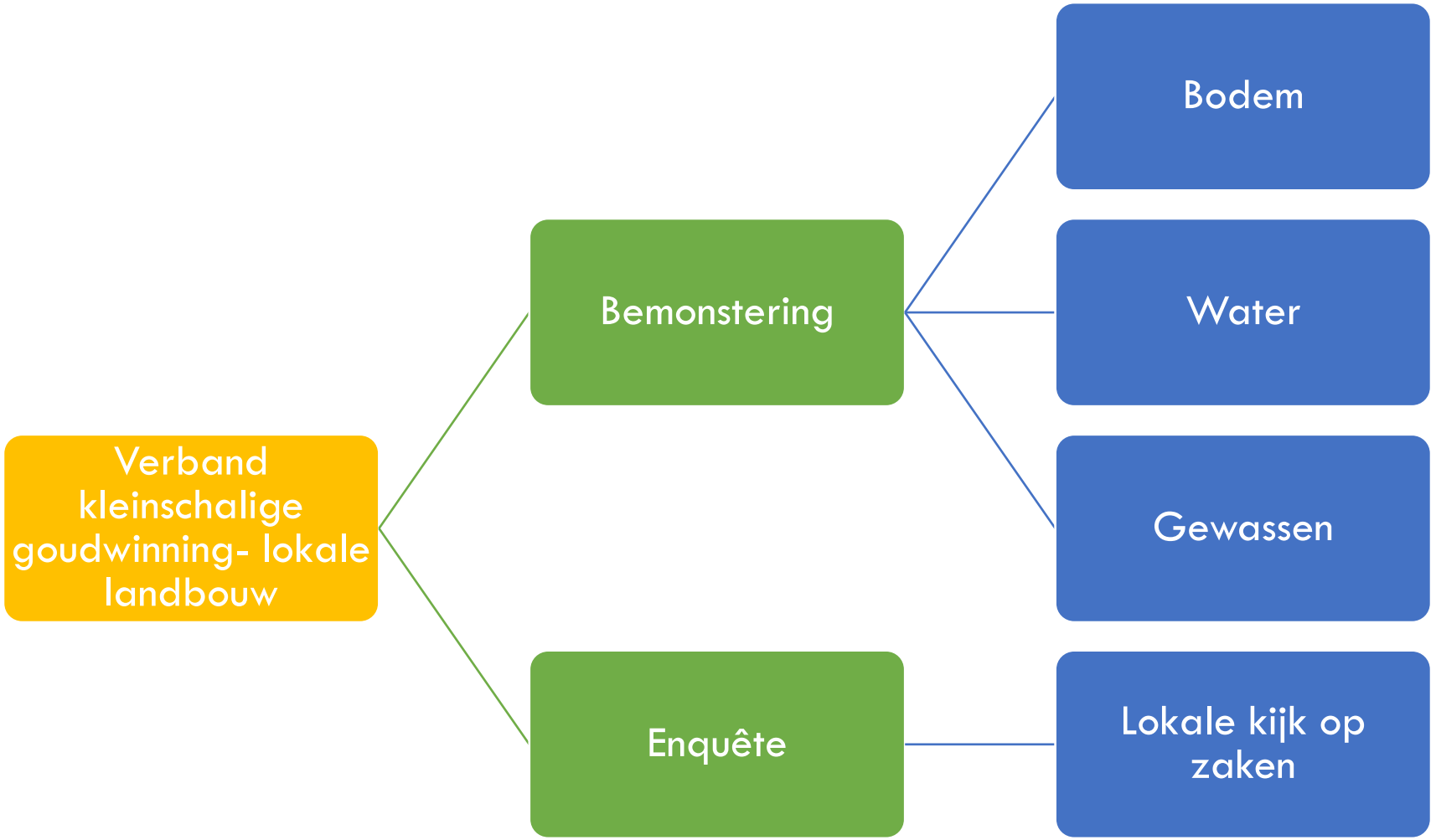
Duurzaamheidsacpecten:

- Bodemverbetering
- Verbetering in waterhuishouden
- Adaptatie van klimaatverandering

Aanpak-TBS (Trainingen)



Aanpak-TBS (onderzoek)



Aanpak-TBS (onderzoek)

Fig. 5 Bodembemonstering Randy van Bree (afstudeer milieutech)

Fig.6 bodemwater bemonstering- Niradj Hanoeman en Randy van Bree

Fig.7 Waterbemonstering- Niradj Hanoeman en Shanaya Vishnudatt

Fig.8 Veldanalyses- Randy van Bree, Itsel Edeling en Niradj Hanoeman

Aanpak-TBS (educatieve video)

Aanpak-TBS (educatieve video)

Bedankt!

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