

**PRODUCTIVE  
RURAL SCHOOL**

**SOCIAL  
PRODUCTION**





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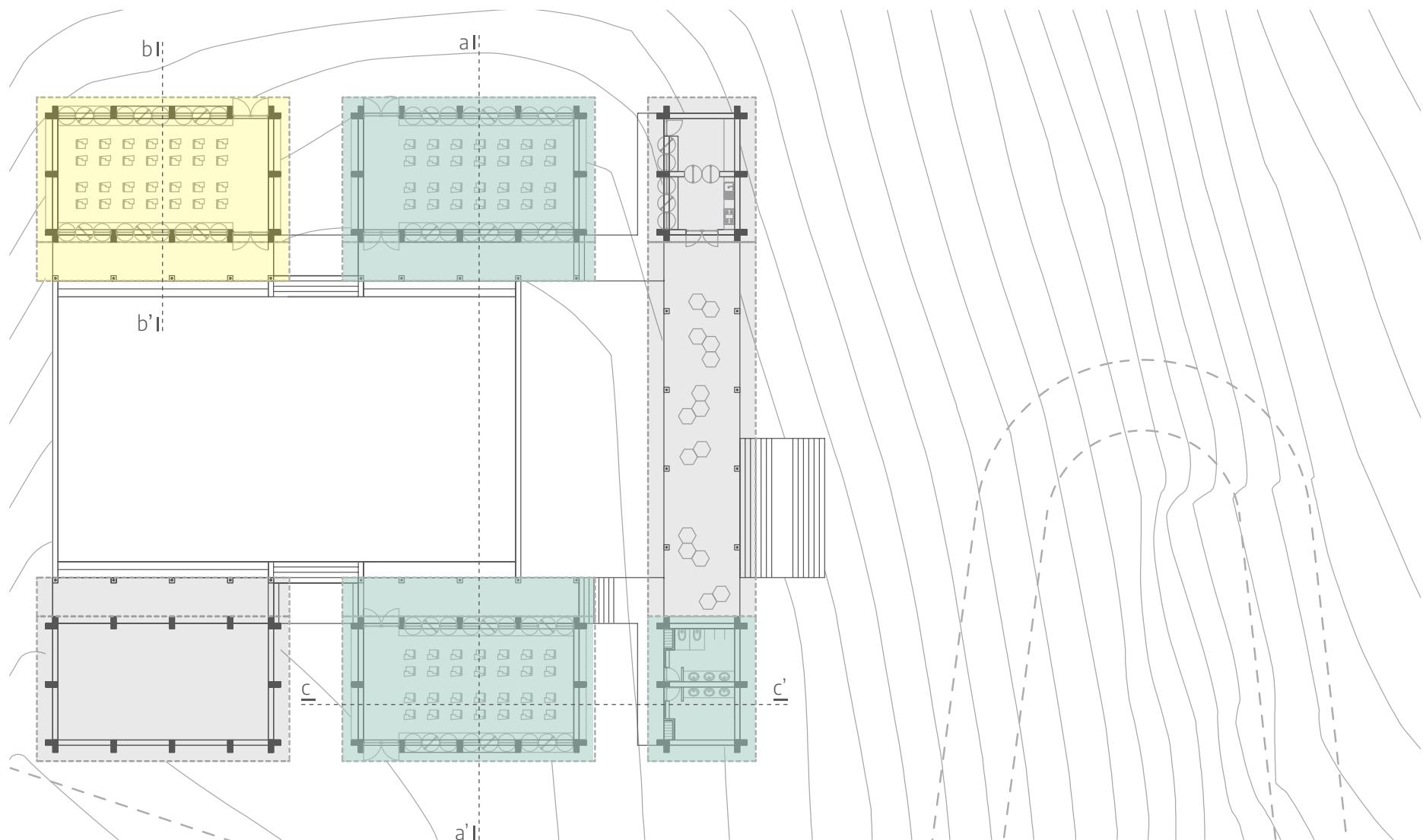
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Classroom 1 and 2. Photo: Onnis Luque.

# PROJECT PROGRESSIVENESS

Construction and future growth



Construction: 2016-2022

Construction: 2023-2024

Future growth

5 10 20 mts.



# PRODUCTIVE RURAL SCHOOL

01



# FIRST PHASE

[2016-2022]

In 2017, the “Productive Rural School” project was created by the students of the Digital Rural High School No. 186 [Tepetzintan, Sierra Nororiental de Puebla] in order to collectively design and produce their school, using local materials, traditional construction techniques and mutual aid schemes. From the beginning, the students have expressed the need **not only to have a quality public education, but one that is socioculturally, environmentally and territorially appropriate.** Likewise, they seek to have access to an education that enables them to actively **contribute to their community**, that gives them tools to access decent employment and thus, to reduce the gaps of poverty, inequality and discrimination that exist in the region.

**The main objective of the young people is to strengthen their**

**cultural identity and territorial knowledge** through the creation of an intercultural pedagogical space **where the Nahuatl language is valued, as well as their artistic talent rooted in the philosophy of living and the development of productive projects through learning-by-doing together.**

Thus, the Rural Productive School constitutes an intercultural commitment to strengthening the indigenous language of the students and their vision of the world through it. Its teaching-learning processes are based on the transmission of knowledge related to trades that allow young people to learn in a practical way, and in their own language, concepts of mathematics, chemistry, physics, economics, biology, ecology and history. In addition, the project promotes the **revaluation and rescue of ancestral agricultural knowledge**



Students from the school's first generations. Photo: Onnis Luque.

such as cornfields and vegetables, as well as traditional medicine, herbal medicine and the conservation of the melipona bee (an endemic species in danger of extinction).

The social process of the project began from **various moments of diagnosis and participatory design.** It was through these scenarios of dialogue and collective reflection that **the student community imagined an educational space with three main dimensions:**

**1) Intercultural dimension:** The proposal of the students is to create a comprehensive and intercultural pedagogical program that responds to the socio-cultural needs of those who live in their territory. Under this axis, one of the main objectives of the school is to produce teaching material in the Nahuatl language to strengthen the identity and self-esteem of young people, as well as to combat the discrimination and racism they experience for being speakers of an indigenous language.



Mural made by former students in classroom 1: Photo: Onnis Luque.

**2) Productive dimension:** Another fundamental aspect of comprehensive education is the productive dimension, which is based on the territorial, environmental and economic reality of Tepetzintan. From this axis, we seek to strengthen traditional trades and local production chains in order to avoid the migration of students outside the community.

**3) Artistic dimension:** For the student community, art is a form of expression and a tool that allows

them to link cultural identity, local territorial knowledge and philosophical thought with collective artistic production. Through this dimension, they seek to find local modes of artistic expression based on their life experiences and cultural identity.

**Based on these three dimensions, the young people proposed an architectural-pedagogical program** consisting of three classrooms, a vegetable garden, a



medicinal garden for the recovery of herbal medicine and traditional medicine, a kitchen-laboratory for the production of ointments, creams and syrups, as well as a practical workshop where they could continue learning about bamboo and other local crafts.

**The architectural project and the construction system also respond to the dimensions proposed by the student community,** since it uses local materials and strengthens traditional crafts.





Former students with a participatory model. Photo: Comunal.

“

My name is Mariela. From what I remember when I entered this school, we made the windows so that future generations would not suffer from so much cold, because when we arrived, we were assigned to this classroom, but there were still no windows. I learned new things here and I still remember them. [...] I invite the new students to continue participating, to put effort into this new stage, that everyone is a team [...]; as Professor Pablo always told us: “we are all a family”. Currently, I am studying for a degree in preschool education for indigenous peoples and I am also working.

Notokay Mariela tein nej nikelnamiki keman nej ni kalak itech in kalmehtiloyan amo onkaya in tatsakmej uan tejuan tikchiujkej iikon timonemilijkej tein satepan ejkoskej amo sekuiskejyok. Nikan niuelik yankuik nemachtil uan nikelnamikiok [...] nikan yoleua in pipilmomachtianij maj teuantikan itech in yankuik tekit tein uitsa [...] kemej nochipa tech tanauatiliaya in tamachtijkej Pablo “tinochimej nikan tichanchiuij uan moneki maj timopoukaitakan”. Yekintsin nimomachtijtok in coyokopa kiliaj Licenciatura en Educación Preescolar itech in tomajseual xolalmej uan no titetekitilia.

Former student Mariela

”

“

Maybe there are other schools that are closer or have better access, but here there is complicity, because we form an emotional bond between everyone. That's why we're not going back, we're going to keep moving forward to finish school and continue learning to build together.

**Onkas okseki kalmachil tein achi kualmej, nikan tinochimej timo poukaitaj. Tisenojtokaton uan timopaleuitij tinochimej, ijkon tik ueyi chiuaskej in totekiu.**

Professor Pablo

”

**During the first phase of the project (2017 - 2022), the young people managed to collectively build two classrooms and a service module.** These spaces allowed the activation of the educational project, as well as the delivery of productive, artistic and pedagogical workshops related to the main dimensions of the project. **Today, the young people who attend the school are originally from 12 localities** (Tixapan, Cozamalomila, Acaxiloco, Ayotzinapan, Atmolon,

Pacmaco, Xaltepec, Tecolapa, Tzolan, Ayohuapan, Taltzintan and Chalahuijyako) and, for 3 years, **the student community has self-managed different productive and artistic workshops to sustain their connection with the territory:** murals and narratives that tell the history of the place, plant gardens to strengthen traditional medicine, flower gardens for the care of melipona bees, mushroom production and vegetable planting. This has consolidated the Rural Productive



Training workshops: bamboo cutting. Photo: Comunal.

School as a self-managed pedagogical space on a regional scale that contributes to culturally appropriate learning and to preventing the migration of young people outside their communities.



Participatory Design Workshops with the first generation of students. Photo: Comunal.



Participatory Design Workshops with the first generation of students. Photo: Comunal.





Bamboo plantations in the Tepetzintan territory.

Photo: Comunal.



Community contribution of bamboo. Photo: Comunal.



Community contribution of bamboo. Photo: Comunal.



Bamboo cutting workshops with students. Photo: Comunal.



Bamboo cutting workshops with students. Photo: Comunal.



Community contributions: layout and excavation. Photo: Comunal.



Community contributions: layout and excavation. Photo: Comunal.





Community contribution of labor: work teams.

Photo: Comunal.



Collective production and self-construction: contribution of community work. Photo: Comunal.



Former students of the school building the structure of the second classroom. Photo: Comunal.



Collective production and self-construction: contribution of community work. Photo: Comunal.



Stone carving: traditional trades and vernacular construction systems. Photo: Comunal.







Community contribution of labor: work teams. Photo: Comunal.



Community contribution of labor: work teams. Photo: Comunal.



Local crew placing bamboo structure for the roof.

Photo: Comunal.





Community contribution of labor: work teams. Photo: Comunal.



Community contribution of labor: work teams. Photo: Comunal.













# THIRD CLASSROOM

[2023-2024]



# SECOND PHASE

2023 - 2024

**The second phase of the project, carried out in collaboration with Groundbreaker (and its allied donors: Acronis and Virtual Tech), was created with the aim of expanding and improving the spaces of the Rural Productive School, as well as giving continuity to the productive, pedagogical and intercultural processes** that the new generations of students can promote. During all these years, the vision and transformative action that the student community and its teachers have implemented are fundamental to collectively create exemplary **situated teaching-learning processes** for our country. Therefore, the second phase of the project began with the construction of various **spaces for dialogue and collective reflection** in which students and teachers narrated their stories, experiences, affections, challenges, learnings and assessments

of what happened in previous years, in addition to their expectations and dreams about the future of the Rural Productive School.

The project has been carried out through **a non-linear sequence composed of various moments of participation** focused on: collectively building strategies for social production and improvement of new spaces, learning about the appropriate forms of social organization to strengthen emotional ties between young people during their involvement in the project, weaving closer ties with the student community and the community of teachers, in addition to learning how they experience the stories of the social process from their perspectives and voices.



Student contribution: Truss hauling. Photo: Community of students and teachers.



Participatory evaluation: Affective mapping. Photo: Comunal.



How do you feel about this new social process that we will start together to improve and expand the Rural Productive School? What excites you most about being part of this process?

**¿Keniu namomachiliaj itech in yankuik tekit tein tik peualtitij itech in Escuela Rural Productiva?  
¿Toni namech toltilana itech in yankuik tekit tein mochiuati?**



I think that past students put in a lot of effort to make these classrooms available, I think we need to keep improving them in order to collaborate with them / New projects / Little by little we will build something new / Because we are all going to support each other as a team and everyone wants to contribute a grain of sand / We are going to work as a team and we are going to get to know each other's classmates, we will get to know each other better and we are going to work together / We are going to have new experiences as a team and we will have very nice memories / As teams we are going to support each other, but we are going to learn new things and we are going to learn much better how to work as a team and collaborate, how to divide up the work well and support each other.

**Tein achtó nikán momachtíkéj moyolchikaukjéj miak keman peuak in kalmachtiliyan, moneki maj tejuán tik pouakitakan inin tekit tein kichiukéj/ tinochimej timopaleiuitij uan tisentekititij ijkón nochimej timo ixmat 'titij/ tikpiaskej miak talnamikilis keman timosnpaleuiskej itech in teit, yon mokauas itech totanemilil/ timosenpaleuitij, timoixmatitij, timosenyolchikauaskej."**

Students





Field visit: Dialogue with Gaudencio and Professor Pablo. Photo: Comunal.

The intentions behind the different moments of participation have been changing depending on the objectives of the project and the changing reality to be faced. In this way, the project has consisted of the integration of **participatory processes of diagnosis, design, evaluation, planning and collective production of the spaces, in addition to reflective moments on the coexistence, use and maintenance** of these. On the other hand, the integral collaboration of the second

phase of the project has sought to strengthen the emotional ties between the participating people and **promote inter-learning processes during the collective production of the spaces.** In order to shorten the geographical distance of those who participate in the project and maintain constant communication between the actors, it has been necessary to build different collaborative strategies, such as:

**Field visits:** The visits are previously



Field visit: Dialogue with students. Photo: Comunal.

agreed upon with the main actors, respecting the biocultural calendar of the community and constantly evaluating their relevance based on the technical, social, emotional and organizational requirements of the project. Each field visit has included moments of dialogue through participatory workshops that address reflective, organizational, affective and planning issues of the social process. In addition, the visits integrate work monitoring processes in which the technical-constructive resolutions of

the project are collectively reviewed and designed through the exchange of knowledge.

**Remote connections:** To continue the collaboration at a distance, the creation of several WhatsApp groups has been agreed upon to allow for constant communication in relation to the social and construction processes. This is done through photos, videos, audios, calls and sending information corresponding to the project.



What do you remember about your experience of participating in the first stage of building the school? What would you like to share with this new generation?

**keman euak in kalmachtiloyan, toni mits elnamiktilia keman mochiu inyekinika tekit? ;toni tikuelitaskia tikintapouis in yankuik momachtianij**



The experiences and learnings I have from this school are many, because when I entered it was something very new for me. The way of working was very different and here I learned many things such as working as a team with my classmates. At first we couldn't agree, it was a challenge to work as a team. When we came here some things were missing, but even so we adapted to what there was; we also put effort into making the windows. When there were workshops I remember that I was in the sewing one, that I was very excited about my blouse and my skirt.

My brother was in the bamboo workshop and in the drawing one. I remember that we could no longer continue because of the pandemic, it was very hard and we had to go home. We could have learned more things, but it wasn't possible. Afterwards we came every eight days or whenever we could, the same, but it wasn't the same. Then they told us that we were going back to school and it was very nice.

[...] I am very proud to have studied here and to finish my high school. I thank the teachers for supporting us and motivating us every day, thanks to this I continue studying. I feel proud of what I have achieved, and I also thank you for not leaving school. I want to tell my first semester classmates to put in the effort and value everything they have here, to value the material.

**Miak taman niuelik itech in kalmachtiloyan, keman nej nikalak noch in tanemililis katka yankuik. Taman ti tekitiaj, niuelik keniu tisentekitiskej inian nopipilikniuaj. Yikinika amo timotakamatiaj, yolk tisentekitikej. Keman tikalak 'kej miak taman monekia ijkon tisentekitikej uan amo timokaukej, timopaleuijkej ika in tatsakualoni tein tik chiuke. Keman tech maxtiyaj nejnniyetoya iniaun tajkitinij, uan ni yolkak ika taken tajmach uannokuey. Nokniu kitekitiliaya in ojat. Nikejnamiki keman ejkok in kokolis tech titankej tokalijtik uan tikaukej noch in tekit. Tiueliskiaj kian tamanok. Satepan peuak**

iuitsej chikueyi tonalika o keman tech tanauatiliayaj. Timo uelmatkej kemaj techilijken timokepatil in kaltamachtiloyan.

[...] Nipaki nikan nimomachtij uan nimatj in Bachillerato. Nikintasojkamatilia in tamachitianij tein tech yolmelaukej mostaj, ika noch i nikojtokatokok no nemachtij. Kuali nimomachila ika noch i tein nikchiutok in aman. No namech tasojkamatilia namejuan tein amo nankikauaj in kalmachtiyan. Nikintapouisneki in momachtianij tein yetokej itech in yekinika xiuit maj kipoukaitakan noch i tein nikan kipiaj.

Former student Pilar



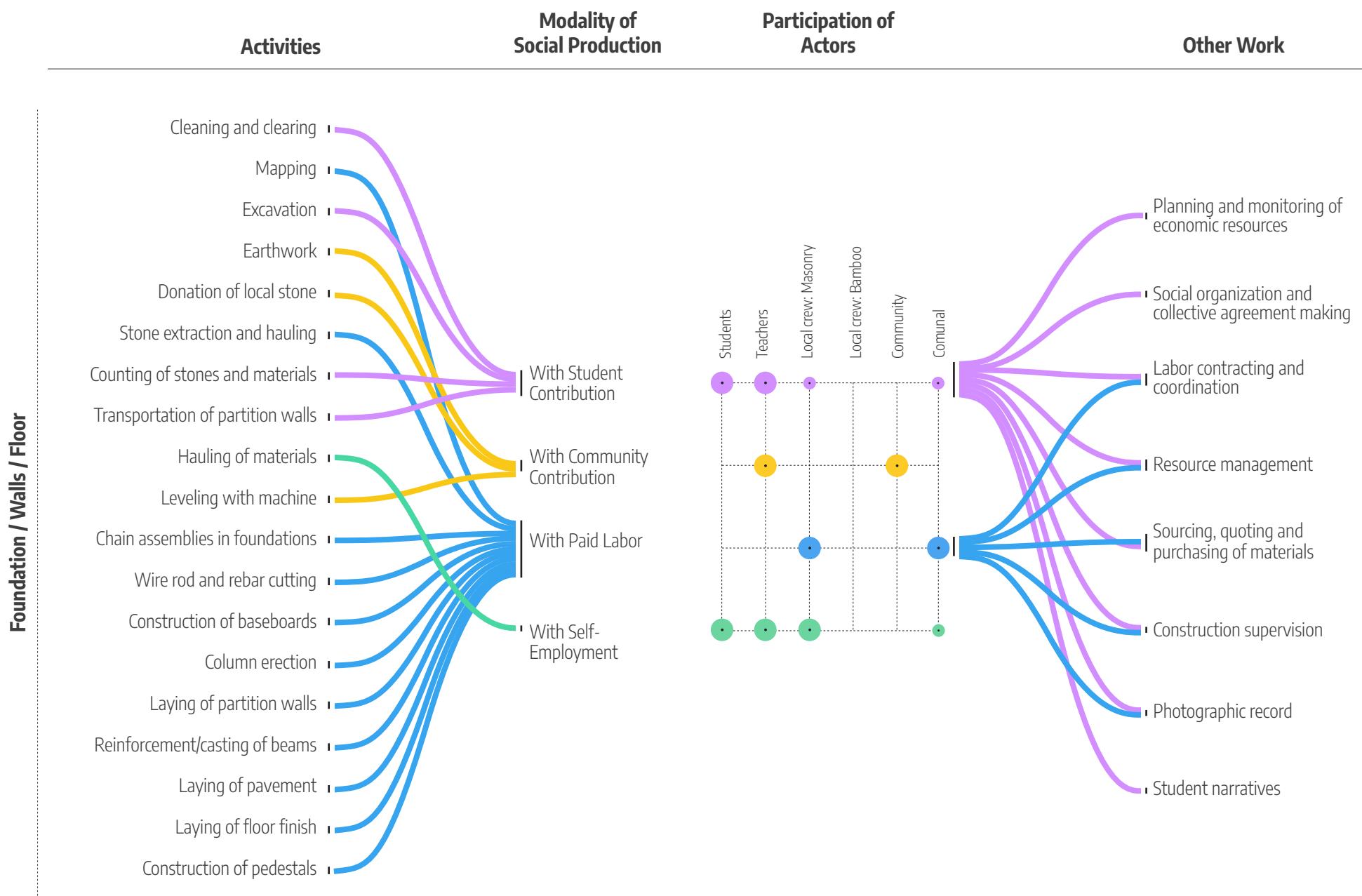
Student contribution: Window weaving. Photo: Community of students and teachers.



Student contribution: Bamboo hauling. Photo: Community of students and teachers.

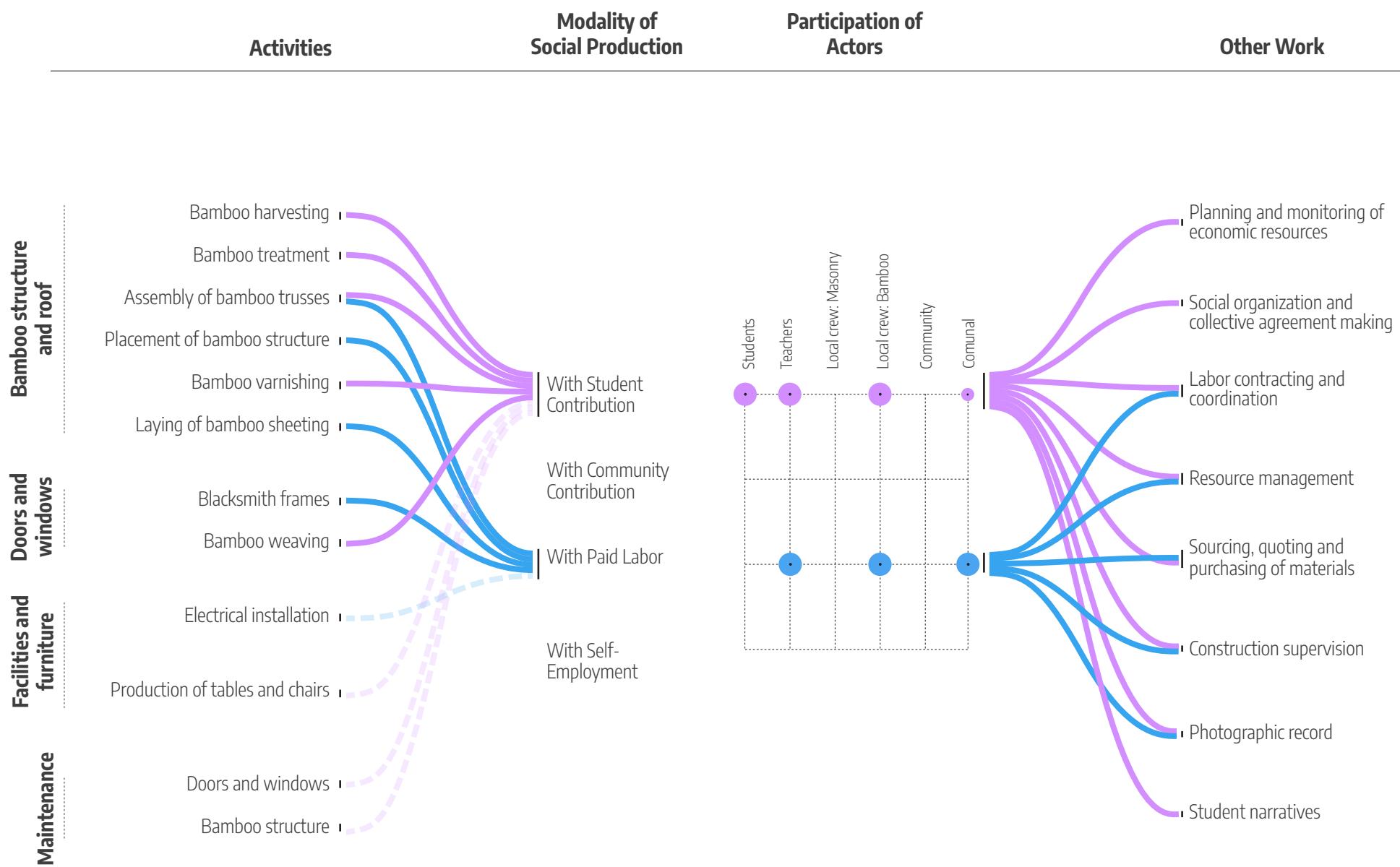
# SUMMARY OF THE SOCIAL PROCESS

2023 - 2024



# SUMMARY OF THE SOCIAL PROCESS

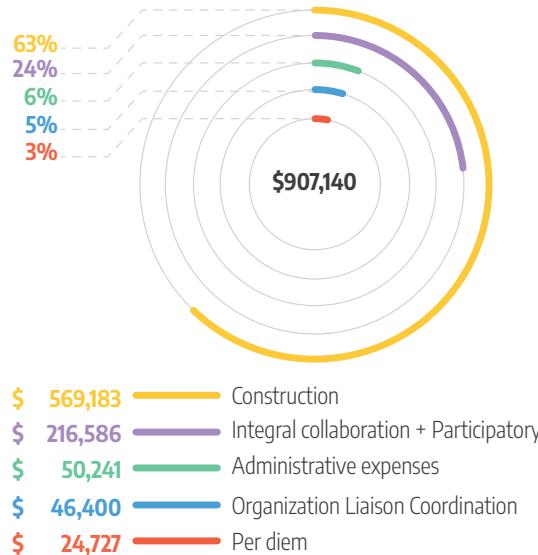
2023 - 2024



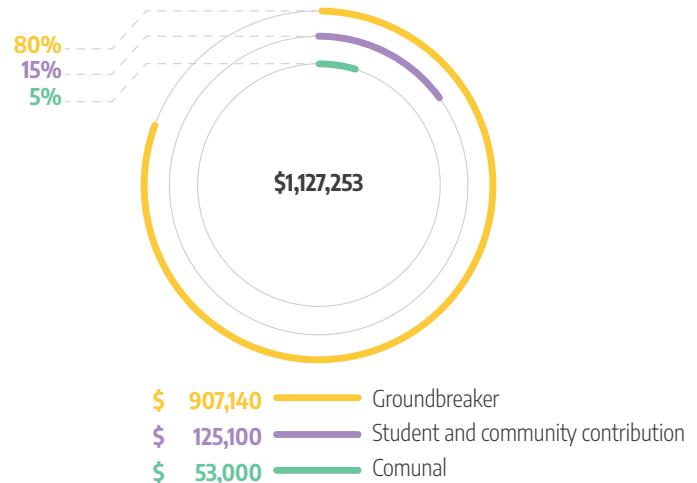
# SUMMARY OF THE SOCIAL PROCESS

2023 - 2024

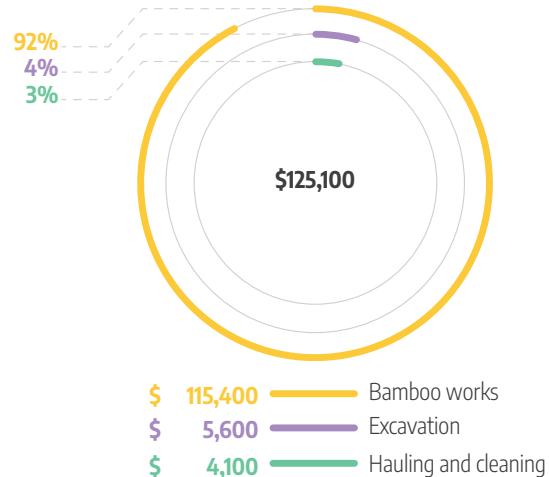
Summary of Groundbreaker Donation Usage



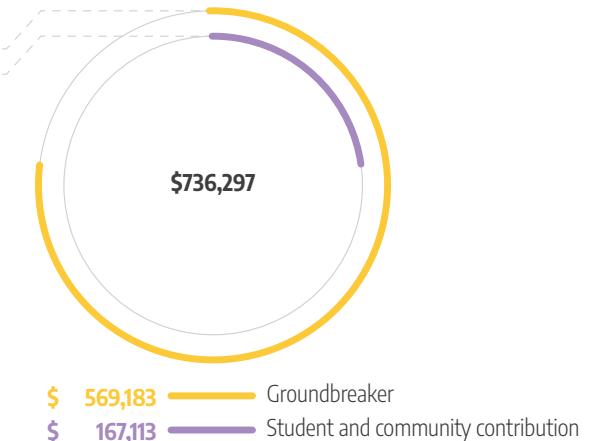
Resources provided



Types of student contributions

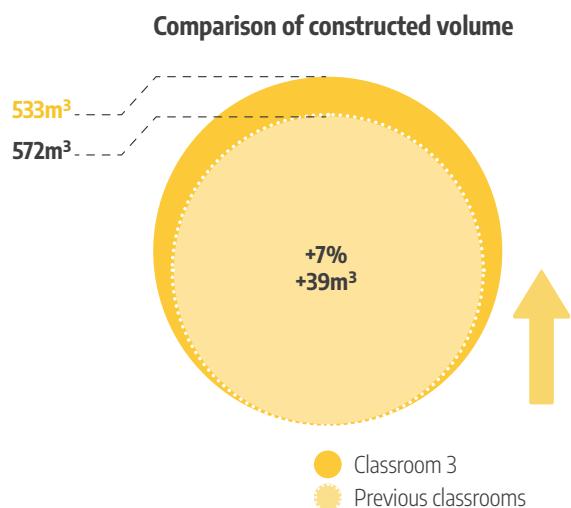
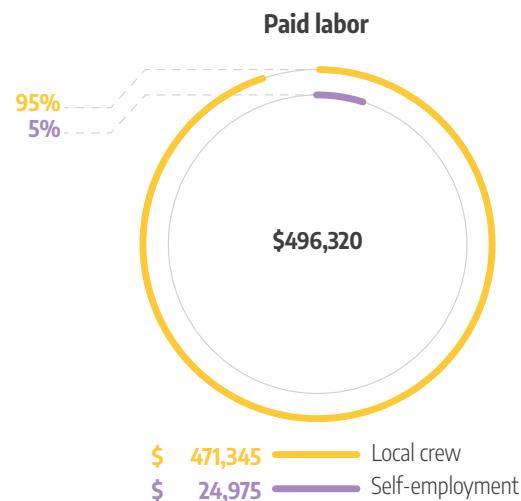
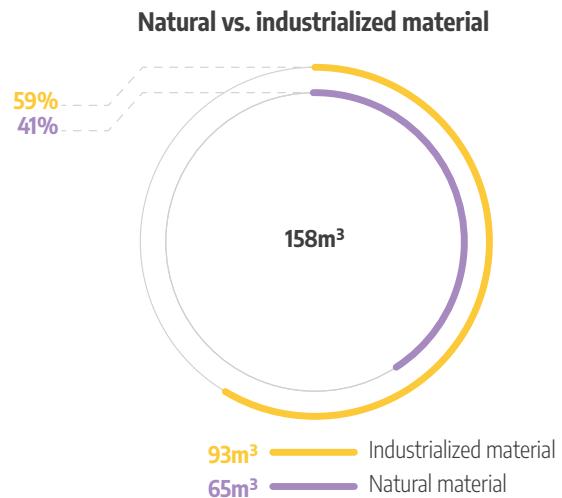


Student and community contribution vs. cost of construction



# SUMMARY OF THE SOCIAL PROCESS

2023 - 2024



# ACTORS AND ORGANIZATIONS INVOLVED

## 1) STUDENT COMMUNITY

### GRADUATES CLASS OF 2021 - 2024

#### FIFTH SEMESTER

Diana Díaz Domínguez  
Carlos Millan Hernández  
Claudia de Jesús Juárez  
Yuliana Reyes de Jesús  
Fátima Hernández Reyes  
Raymundo Huachina Diego  
Pedro Teresa Huachin  
Juan Huachin Morales  
Yareli Guerra Hidalgo  
Norberto Arollo Hidalgo  
César Lome Reyes  
Jenifer Guerra Molina  
Fátima Hernández Reyes  
Juan Carlos Huerta Dionicio

#### THIRD SEMESTER

Teófilo Arroyo Lemus  
Viviana Esmeralda Arroyo Sacramento  
Daniel Chabero Gutiérrez

Eva María Chico Vázquez  
Pedro Decisión Hernández  
Yadira Francisco Rosario  
Vanessa Guerra Hidalgo  
Francisca Morales Esteban  
Eilen Reyes Francisco  
Heydi Santiago Isunza  
Xóchitl Matilde Faustino Antonio  
Leonardo Teresa Guerrero  
Silvina Domínguez Díaz  
Eilen Reyes Francisco

## 2) COMMUNITY OF TEACHERS

Pablo López Báez  
Juan Osorio González  
Jesús Pablo Moreno Troncozo

## 3) LOCAL CONSTRUCTION TEAM

José casiano Teresa Francisco  
Guilebaldo Francisco Molina  
Miguel Coyota Francisco  
Constantino Becerra Arroyo  
Jonathan Francisco de Jesus  
Gaudencio Francisco de Jesus

## 4) IKA BAMBÚ

Isauro Edmar Manzano Tirado  
Gerardo Reyes Esteban  
José Miguel Cárcamo Rodriguez  
Enrique  
Carmelo

## 5) INHABITANTS OF THE AREA

Doña Mica  
Persona que donó un día de máquina excavadora (preguntar al Profe)

## 6) GROUNDBREAKER

## 7) ACRONIS

## 8) VIRTUAL TECH

## 9) COMUNAL

Jesica Amescua Carrera  
Naomi Jost Escobar  
Brenda Maleny Martínez Meléndez  
Mariana Ordóñez Grajales

# PARTICIPATORY DIAGNOSIS

02

Participatory Diagnosis is a collaborative process that seeks to understand a socio-ecological context or a particular situation through the vision, thoughts, experiences and feelings of the people who inhabit the places. In other words, it seeks to produce situated knowledge, critical reflections and appropriate strategies to achieve the desired processes of social transformation, correlating the multiple dimensions of living: socio-cultural, territorial-environmental, economic-productive and political-normative.

# PARTICIPATORY DIAGNOSIS

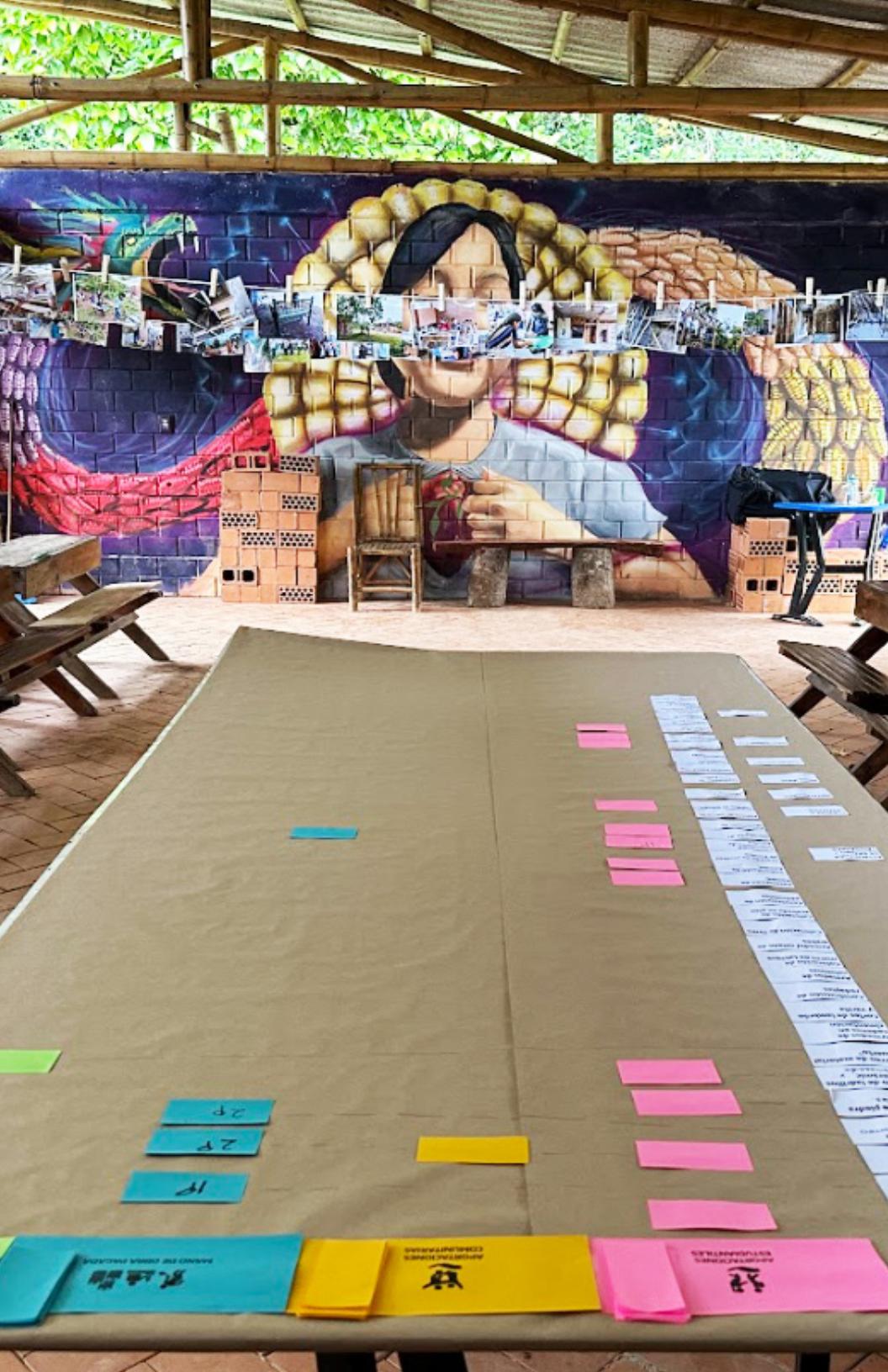


Participatory diagnosis: Clothesline of memories and community tree. Photo: Comunal.

The participatory diagnostic workshops began with processes of **collective reflection** based on triggering questions and the **sharing of experiences** by former students. This was done with the aim of **remembering what was achieved in previous years and recognizing the collaborative work** of the people involved, in order to then collectively decide on future forms of participation and student contributions during the following moments of social production of the

second stage of the project.

Starting from these first spaces for dialogue, we began **two remembrance activities** (**“Clothesline of memories” and “Genealogical tree”**) with the aim of generating an **affective and reflective bridge between past collective efforts and the new desires** of the current student generations in relation to the project.



## CLOTHESLINE OF MEMORIES



The “Clothesline of Memories” is a technique that seeks to trigger and cultivate collective memory through processes of remembrance and sharing of experiences, challenges, achievements and affections, among other topics. To do this, images, photographs or illustrations are used to promote dialogues around the recounting of significant stories for the participants and, thus, connect previous events with current reality.



# CLOTHESLINE OF MEMORIES

**The second phase of social production of the Rural Productive School began** through dialogues between students who are currently in high school, teachers, alumni and our work team, **with the aim of reviving the collective history of the social processes of the project and the path we have walked together.**

This was carried out through the activity called Clothesline of Memories, during which **printed photographs were hung in one of the constructed classrooms**, thus showing the new student generations the social and constructive processes of the first stage of the project. **In this way, the different activities, forms of organization and coexistence, anecdotes and stories of the students and teachers were reflected upon.** During the process, they began to **recognize their**

**family members and friends** in the photographs, whose participation has been an important pillar for the existence of a **pedagogical and intercultural space in the community** today. Likewise, graduate students and teachers who previously collaborated in the design, management, social production and maintenance of the school shared their experiences, achievements and challenges, **cultivating the collective memory of the project among the current student community.**



Clothesline of memories: Alumni getting to know efforts of previous generations.  
Photo: Comunal.



Clothesline of memories: Alumni getting to know efforts of previous generations.  
Photo: Comunal.



Participatory diagnostic session: Dialogue at the memory clothesline  
and community tree. Photo: Comunal.



Clothesline of memories: Alumni getting to know efforts of previous generations.  
Photo: Comunal.

“ ”

[...] Now they are part of this process and the clothesline of time, it is important because it is clear that there is a lot of work, there are many brothers, fathers, some mothers who are working and carrying bricks. Even there we can see ourselves a little lighter. Many of our sisters are seen there working, there are many photos that make us nostalgic because we see some students that we already see with other types of daily activities and it is important that they also understand that this is how we have worked. We hope to continue working like this so that the next photos that the other generations that enter come to see, well, they are yours [the new students] and they see that you did work and continue working. That is part of the culture that we have in the school, because from the foundations we have worked like this.

[...] Yekintsin nikan nochin tisenchiuij itech in tekit uan moixnextia kampa kipilojkej in ixtkopimej nochin intekit uan moita poliuok, ixnesi tepipil, tetatmej, sekin temumauan tein tekititokej uan kisakatokej tabique. Nomoita achi tipitaukej. Sekin toikniuan ixnesij tekititokej, ixnesij sekin pipilmomachtiqanij tein aman kichiuj sentamaj tekit uan moneki tein amaj yetokej maj kajsikamatikan yejuan nonikan kichiukej tekit. Moneki maj ijkon mo ojtoka in tekit uan itech oksekin ixtakopimej tein satepan kimouisoskej oksekin tein ualaskej momachtikiuej nikan, kitaskej nochin tein mochiu. Nochi in neskayot tein mochiutu tech ixnextia keni euak in tekit.

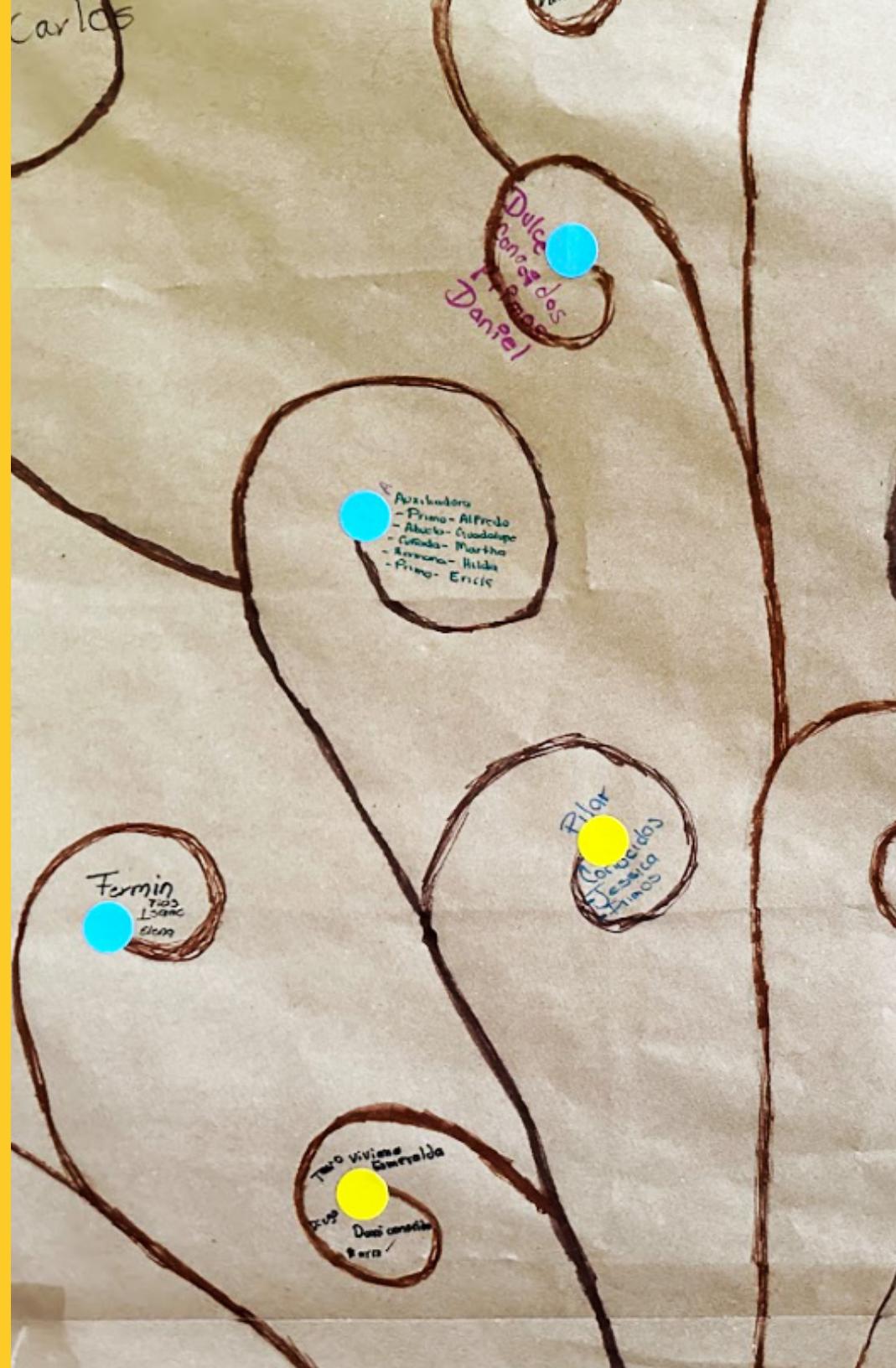
Profesor Pablo

“ ”

## COMMUNITY TREE



The “Community Tree” is a participatory tool that allows people to know, remember and understand the relationships that exist between people in a community that collaborate in a social process. It is represented graphically as an affective mapping of social and family relationships, and is freely constructed through collective memory exercises. This tree should be like a living organism that can change, grow and transform over time according to the ways in which the participants are involved.



# COMMUNITY TREE

Through a space for dialogue with the student and teacher community, **a “living mural” was collectively built where the names of all the people involved in the creation and social production of the first construction phase of the school were written**, such as: family members, friends, students, teachers, local collaborators and external collaborators. In this way, the students graphically designed a community tree based on the **artistic and creative character they collectively chose**, capturing their names and those of their friends and family, their social relationships and their fingerprints, as a representation of the leaves of a tree.

This exercise sought to **recognize the efforts previously made and, at the same time, represent the future of the school** as an open portal to new collaborations and

forms of participation of the new students and their community. In other words, the community tree was developed as **a visual and collective tool of living memory, growing and in the process of transformation**.



Students drawing the community tree. Photo: Comunal.



Students drawing the community tree. Photo: Comunal.



**The community tree represents the living and growing memory of all the people involved in the creation of the Productive Rural School.**

# PARTICIPATORY STRATEGIC PLANNING

03

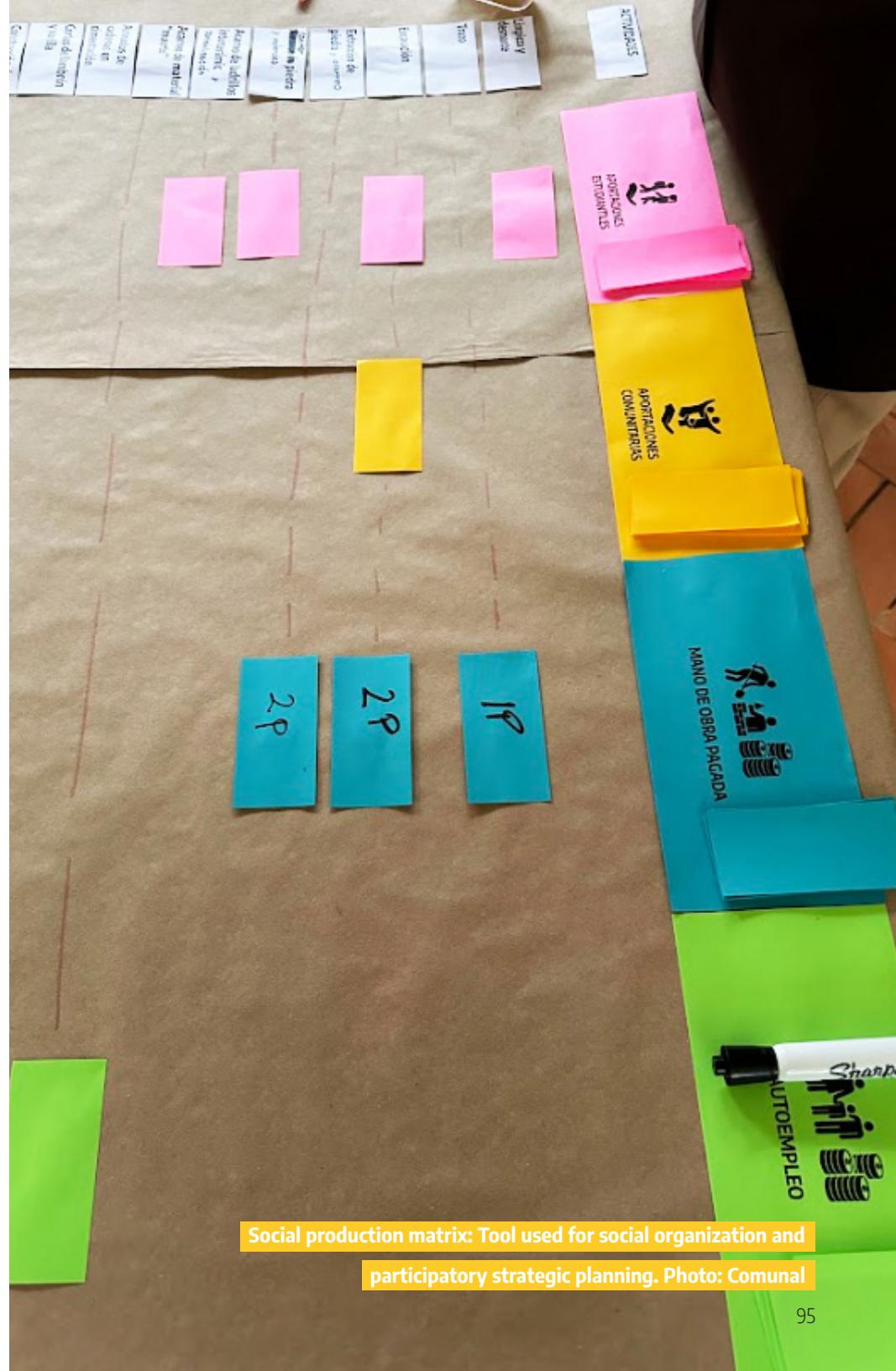
Participatory Strategic Planning consists of a creative analysis of different alternatives for common action that seek to overcome complex and changing obstacles by multiplying the power of collective thought. Planning moments are fundamental, as they allow us to collaboratively decide and design the ways in which we want to relate, (co)live and transform ourselves together as part of the processes of social production and management of the habitat.

# PARTICIPATORY STRATEGIC PLANNING

Based on the processes of remembrance and reflection of the participatory diagnosis, the participatory strategic planning of the project began to collaboratively analyze what the new **roles, activities and forms of social organization would be among the different actors** during the social production of the second stage of the school. Thus, new **moments of dialogue were opened to collectively design:** the premises of the **participatory budget**, the possible **forms of production** of the spaces and the **social strategies of student contributions and monitoring** of the project.

It is important to note that the strategic planning of the project focused on **promoting pedagogical and inter-learning processes through collective action and reinforcing the importance of**

**local construction knowledge and traditional trades.** Likewise, this moment was carried out through various collaborative processes in which the following participated: students, teachers, the project's construction manager and our work team. **The collective agreement-making was made up of face-to-face meetings at the Rural Productive School and media**, such as telephone calls and WhatsApp groups, which facilitated and gave continuity to the deliberative processes.



## Social production matrix: Tool used for social organization and participatory strategic planning. Photo: Comunal

## SOCIAL PRODUCTION MATRIX

✗	✓	✓	✓
✗		✓	✗
✓	✗		
			✓

The “Social Production Matrix” is a tool that promotes the collective analysis and definition of the multiple modalities of social production of spaces. This analysis is carried out according to various important aspects to consider, such as: the forms of social organization of the group, the choice of the construction system, local construction knowledge, the capacity of involvement of the people participating in the construction processes and the strategic exercise of the participatory budget.



# SOCIAL PRODUCTION MATRIX

Through a social process of **critical reflection with the three generations**, teachers, construction foreman and our work team, the **different constructive moments** that would constitute the project were analyzed and identified, as well as the **types of contributions** that both students and teachers could make **and the particular interests of the young people regarding their participation in technical training processes** during the construction of the third classroom. At the same time, the agreements made in relation to the forms of social organization that the students suggested to get involved in the social production processes of the project were identified and systematized.

The above resulted in the combination of **four modalities of social production of the project** that integrated different forms of

contribution. It is important to state that the **implementation of these modalities was dynamic and it was evaluated moment by moment**, depending on various aspects such as: the workload and academic activities that the students were having during the process, the strategic exercise of the participatory budget, as well as the constructive requirements of the project.

**Social production with student contribution:** It includes the participation of students in construction tasks that do not require specialized labor, such as: clearing and clearing land, excavations, accounting for construction materials, and painting ironworks. It also includes their involvement in the management, acquisition, and production of bamboo construction elements for the assembly of the classroom roof, its doors, and windows. This involves the



Participative strategic planning: Social production matrix. Photo: Comunal.

# SOCIAL PRODUCTION MATRIX

collection, preservation, treatment, and varnishing of bamboo (more than 200 pieces), in addition to being integrated into the technical training processes related to the cutting, assembly, and weaving of said natural material.

**Social production with paid labor:** It includes the execution of specialized work (foundation, masonry, installations, ironwork, and construction with bamboo) by local crews and workers, who, by contributing their knowledge, promote moments of technical training for interested young people.

**Social production with self-employment:** This includes work involving the transport of materials (gravel, sand, cement, lime, rods, among others) by students interested in joining paid, non-specialized jobs, with a view to strengthening

their family economy during the construction processes of the project.

## Social production with community contribution:

**This includes contributions proposed by community residents, among which are:** the acquisition of local stone from the school's communal land with the aim of not buying it and earthmoving work with a backhoe. This form of contribution was limited in the project to avoid social conflicts similar to those that occurred in previous stages when community work was called.



Participative strategic planning: Social production matrix. Photo: Comunal.



Participative strategic planning: Social production matrix. Photo: Comunal.

# SOCIAL PRODUCTION MATRIX

Foundation /  
Walls / Floor



## Activities

- Cleaning and clearing
- Mapping
- Excavation
- Donation of local stone
- Stone extraction and hauling
- Counting stones and materials
- Brick hauling Novaceramic bricks and counting
- Hauling of “dead” material
- Leveling with machine
- Chain assemblies in foundations
- Wire rod and rebar cutting
- Construction of baseboards
- Column erection
- Laying of partition walls
- Reinforcement/casting of beams
- Laying of pavement
- Laying of floor finish



Student contribution



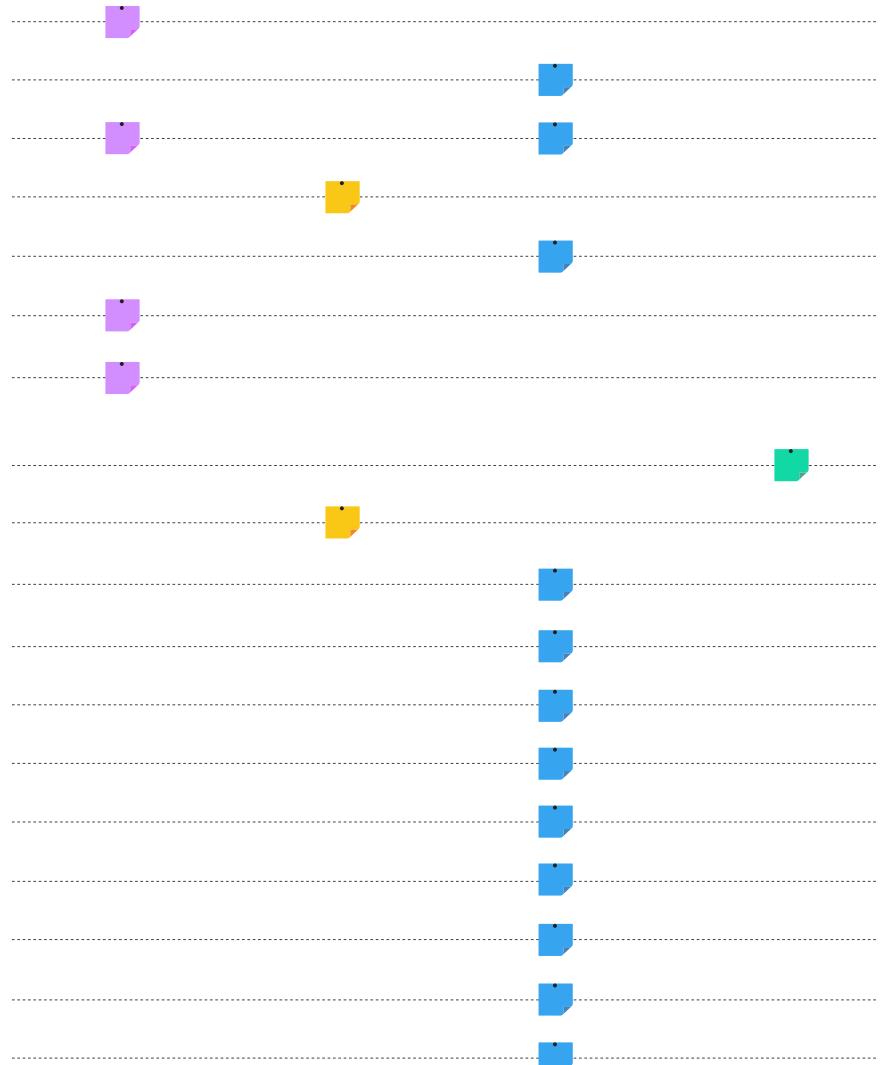
Community contribution



Paid labor



Self-employment



# SOCIAL PRODUCTION MATRIX

	Activities	Student contribution	Community contribution	Paid labor	Self-employment
<b>Bamboo structure and roof</b> 	Bamboo harvesting				
	Bamboo treatment				
	Assembly of bamboo trusses				
	Bamboo structure placement				
	Bamboo varnishing				
	Laying of bamboo sheet				
<b>Doors and windows</b> 	Blacksmith frames				
	Bamboo weaving				
<b>Facilities</b> 	Electrical installation				
<b>Furniture</b> 	Production of tables and chairs				
<b>Administration</b> 	Financial resources				
	Purchase of materials				
	Quotations				
<b>Maintenance</b> 	Doors and windows				
	Bamboo structure				

# PARTICIPATORY BUDGETING



**“Participatory Budgeting” is the collaborative calculation and planning of the expenses necessary for the development of a project. In this work, it is necessary to integrate the knowledge, experiences and skills of the people who will be involved in the construction of the project and those who will inhabit the space in order to find possible efficiencies of the economic resource with respect to the available resources, whether material, social or epistemological.**

\* Lunes 26 de Febrero — ~~Empezamos de Pegar Tabiques por el Frente~~  
Gaudencio — Oficial — \$ 450  
Lorenzo — Medio Oficial — \$ 400

\* Martes 27 de Febrero — Pegada de Tabiques  
Gaudencio — Oficial — \$ 450  
Lorenzo — Medio Oficial — \$ 400  
Jose — Medio Oficial — \$ 400

\* Miércoles 28 de Febrero — Pegada de Tabiques  
Gaudencio — Oficial — \$ 450  
Jose — Medio Oficial — \$ 400  
Lorenzo — Medio Oficial — \$ 400

\* Jueves 29 de Febrero — Pegada de Tabiques  
Gaudencio — Oficial — \$ 450  
Jose — Medio Oficial — \$ 400  
Lorenzo — Medio Oficial — \$ 400

\* Viernes 1 de Marzo — Pegada de Tabique  
Gaudencio — Oficial — \$ 450  
Jose — Medio Oficial — \$ 400  
Lorenzo — Medio Oficial — \$ 400

\* Sábado 2 de Marzo — Pegada de Tabique  
Gaudencio — Oficial — \$ 450  
Jose — Medio Oficial — \$ 400  
Lorenzo — Medio Oficial — \$ 400

\* Domingo 3 de Marzo — Pegada de Tabique  
Gaudencio — Oficial — \$ 450  
Jose — Medio Oficial — \$ 400  
Lorenzo — Medio Oficial — \$ 400

Total \$ 8,350

# PARTICIPATORY BUDGETING

**The definition of the participatory budget** to carry out the second stage of the Rural Productive School **was made up of two key moments:**

**1) During the management of funds**, the necessary expenses were planned and formulated for: the expansion of educational spaces (third classroom), the improvement of the spaces already built (two classrooms and a service module), in addition to giving continuity to the productive, pedagogical, intercultural and technical training processes of the project.

**2) During the first field visit**, the objectives of the initial budget were analyzed and the necessary adjustments proposed by the local builder and the community of teachers were made, knowing that said budget had to be constantly monitored and open to any changes required during

the social process.

The review and definition of the participatory budget was carried out in parallel with the analysis of the different forms of contribution to the project, agreed upon with the student and teacher community:

**1) Contribution of labor:** The mutual aid schemes in which the students would contribute their time and labor at different times during the construction (specified in the "Matrix of social production modalities") were collectively analyzed.

**2) Contribution of materials:** The viability of the possible economic efficiencies of the budget in relation to the contribution of local and natural materials such as stone and bamboo was reviewed in a participatory manner.

Presupuesto de Baños		
Material		"Mano de Obra"
Tendida de piso	">\$ 3,500	
15 Bultos de Cemento		
Pegada de piso	\$ 4,050	
6 Bultos de Cemento		
* Tres muros de ladrillo para divisiones de las faenas	$800 \times 3 =$ \$ 2,400	
4 Bultos de Cemento		
* Una Barra para lavabo	\$ 2,500	
2 Bultos de Cemento		
		TOTAL DE MATERIALES
2 mts de Arena	\$ 1,000	
2 mts de Grava	\$ 1,600	
27 Bultos de Cemento	\$ 5,724	
1 Rollo de malla electro soldada	\$ 2,450	
		TOTAL DE MATERIALES
Alarreos		
		TOTAL DE ALARREOS

Participatory budget for the improvement of the bathrooms. Photo: Gaudencio.

## 3) Epistemological contributions:

It was agreed with the local workers (construction foreman, local crew and team specialized in bamboo construction) the possibility of opening technical training spaces for the students during their participation in the social production processes of the project (masonry, ironwork, bamboo construction, etc.).

**FERRO MATERIALES "EL CENTRO"**  
**CUETZALAN**  
 CARRETERA CUETZALAN - SAN ANTONIO  
 RAYON KM 2, NAHUIO PAN.

**NOMBRE:** Bachiller Tepatitlán

**COMUNIDAD:** \_\_\_\_\_

**LUKER DE ENTREGA:**

CANTIDAD	CONCEPTO	PRECIO	IMPORTE
80	Varillas 3/8		
8	Varillas 1/2		
90	Alambres		
15	Recodo		
44	Armas		
3 kg	Clavo		
<i>firmar</i>			
<i>RECIBIDO</i>			TOTAL \$
Precios sujetos a cambios sin previo aviso PEDIDOS AL TEL. 233 153 1149			

Participative budget of materials to be purchased. Photo: Gaudencio.

**Aportación Estudiantil de EXCAVACIÓN para el aimiento**

5 Días =  $350 \times 5 = 1750$   
 6 Días =  $350 \times 6 = 2100$   
 Total =  $\$3,850$

Posting of student contributions. Photo: Gaudencio.

**Aportación Estudiantil última semana de Febrero de Esta Semana**  
**+ Emparejar Dentro del Aula.**  
**Que se está trabajando**

6. Días  $350 \times 6 = \$2,100$   
**Limpiar dentro de la bodega y carro de tabiques**  
 2. Días  $350 \times 2 = 700$   
**Total =  $\$2,800$**

Posting of student contributions. Photo: Gaudencio.

# SOCIAL PRODUCTION OF THE EDUCATIONAL SPACE

## 04 [PHASE I]

The social production of habitat refers to the participatory moment that integrates various collective processes (management, planning, construction, organization, administration, supervision, etc.) in which people, families or organized groups collaborate integrally and in a coordinated manner with actors such as technicians, professionals, cooperatives, civil associations, social organizations or unions, among others. Unlike production carried out by third parties, the social production of habitat is carried out under the direct control of the people or organized groups that manage it, with the aim of generating collective strategies that enhance their strength and capacity for action.

# SOCIAL PRODUCTION OF THE EDUCATIONAL SPACE [PART I]

**The social production of the second stage** of the Rural Productive School **took up the experiences and lessons learned in the first stage** regarding collaborative processes, local construction knowledge and the use of natural materials from the community (bamboo and stone). **The student and teacher community has participated directly in the management, planning and**

**construction** of the third classroom and the improvement of the spaces already in use. This has been achieved in **collaboration with a local construction foreman** (Gaudencio Francisco de Jesús) and his team of workers, with the bamboo builder (Isauro Edgar Manzano) and his work team, as well as with the **inhabitants of Tepetzintan** who have wished to participate in the process.



We are starting over. The third-year students who are leaving are teaching the others who are currently in their first and second years; and so they rotate

**Sepa tipeuatij. In momchtianij tein yetokej itech in expatika xiuit tein kiskiatijya kin nextiliaj tein momachtiaj itech in ojpatika uan yekinika xiuit; uan ijkon mopatiouej.**

Professor Pablo



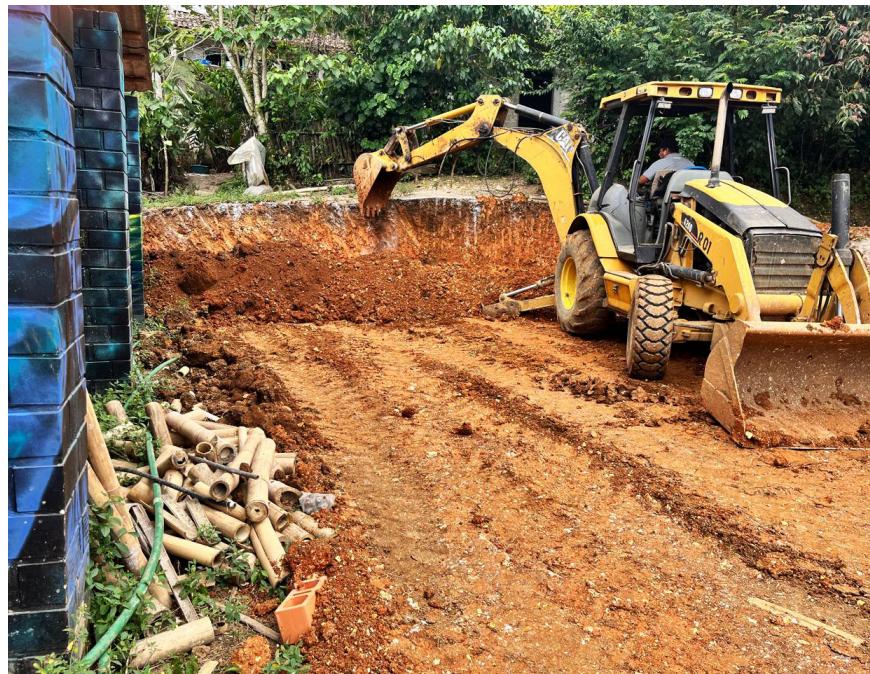
View of classroom 3: Completion of part 1 of the social production.



**Student contribution: Drying bamboo after treatment.**  
**Photo: Community of students and teachers.**

The first collaborative works of this moment of participation were devoted to **excavating, laying foundations, walls and the structure** of the third classroom, as well as starting the **technical training workshops for the construction of the bamboo roof**. **These workshops have been held around local construction knowledge** and have included topics such as the selection, cutting, treatment, preservation and ironing of bamboo. Likewise, the social

production of the educational space began under the modalities of social production agreed upon during the participatory diagnosis and strategic planning sessions. That is, **mixed schemes of social production were carried out that integrated moments of student and community contribution, self-employment and paid labor** (see schemes of social production modalities of the project).



**Community contribution: Leveling with machine.**  
**Photo: Community of students and teachers.**

For example, as part of the student contributions, young people have been actively participating in land clearing and clearing work, excavation, transporting construction materials, as well as in the selection, collection and treatment of bamboo, always accompanied by local construction teams. This process has involved **self-management by the students, who have organized themselves socially through group leaders to equitably distribute the work and record their contributions.**

During these collective processes, **the tools they have used most to self-organize are: communication, mutual respect and constant dialogue**, which has allowed them to discuss and make agreements to carry out the student contributions from empathy and solidarity.



Paid labor: Gaudencio, master builder. Photo: Comunal.



Self-employment: Students who participated in hauling material. Photo: Community of students and teachers.



Student contribution: Human chain to carry partitions. Photo: Community of students



Paid labor: Bamboo construction equipment. Photo: Comunal.



Paid labor: Local crew excavating. Photo: Local crew.

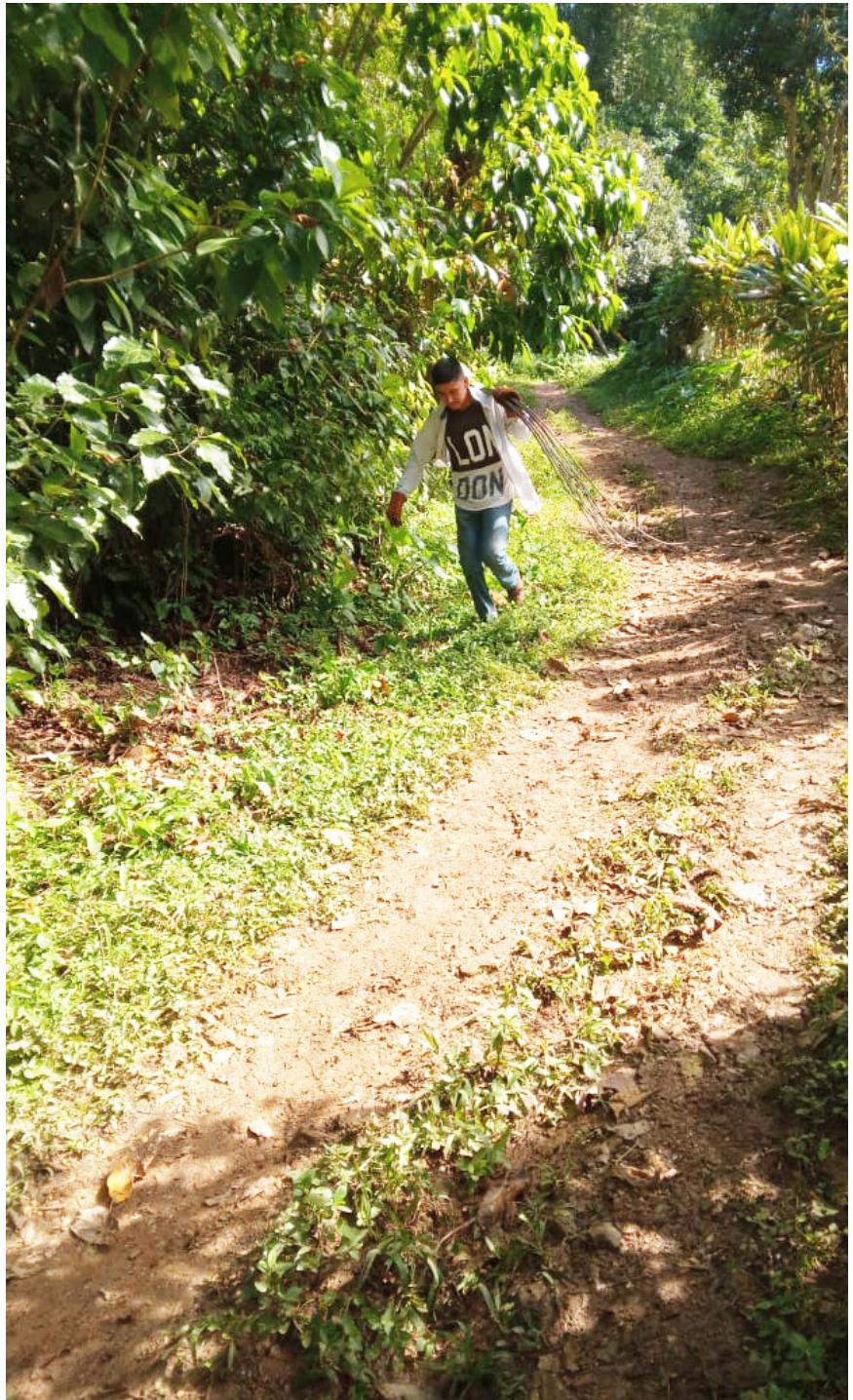
“

I think when you feel tired, you feel good because you know it's for a good cause.

**Nimoluia keman se momachilia se sioutok kuali, ijkon tikaj sikamatij in tekit tein mochiutokej mochiua ika sekuali tanemililis**

”

Students



Self-employment: Hauling rebar. Photo: Local crew.



**The stone used for the foundation, retaining wall, baseboards and pedestals was donated by the community.**



Self-employment: Construction of stone foundations. Photo: Local crew.



Self-employment: Construction of stone foundations. Photo: Local crew.



Reinforcement of a chain slab on stone retaining wall.



Community contribution: Leveling with machine. Photo: Community of students and teachers.



Community contribution: Leveling with machine. Photo: Community of students and teachers.



Community contribution: Leveling with machine. Photo: Community of students and teachers.



Level ground. Photo: Community of students and teachers.



Paid labor: Casting of enclosure chain. Photo: Local crew.



Paid labor: Construction of brick walls and columns. Photo: Local crew.



Paid labor: assembly of chain link enclosure. Photo: Local crew.



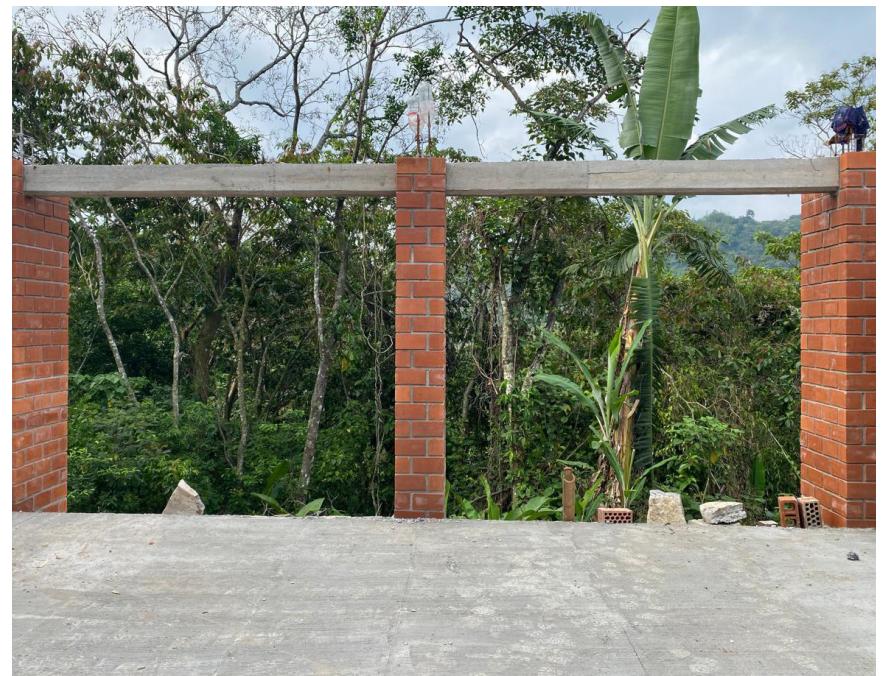
Paid labor: Construction of brick walls and columns. Photo: Local crew.



Gaudencio pouring the slab in classroom 3.



Paid labor: Slab construction. Photo: Comunal.



Classroom 3 slab completed. Photo: Comunal



Paid labor: Construction of pedestals with flagstone. Photo: Local crew.



Mano de obra pagada: Construcción de rodapiés con piedra laja. Foto: Cuadrilla local.



Paid labor: Construction of baseboards with flagstone. Photo: Local crew.



Mano de obra pagada: Construcción de rodapiés con piedra laja. Foto: Cuadrilla local.



Room 3: Bases ready to receive bamboo structure.

# MOMENTS OF STUDENT CONTRIBUTION

**The student contributions** made during the first months of social production of the third classroom **have contributed positively to the budget exercise.** However, the planning of these contributions has required significant management in order to **mediate between school times and the times of social production of the project**, thus seeking to prevent the academic performance of the students from being affected by their participation in the following construction processes:

## 1) Cleaning and clearing:

The students shared the work of cleaning and clearing the area selected for the construction of the third classroom through collaborative work.

## 2) Excavation:

For the excavation work, it was decided to divide the cubic meters among all the students and divide the

tasks equally, so that everyone would contribute to this work.

## 3) Levelling and earthworks:

The students were involved in the earthworks process to level the ground, because the ground outside the classroom was slightly higher than the level inside. On the other hand, the work of levelling and compacting the ground has meant a great effort in terms of work and time on their part, which is why it was collectively decided to finish the levelling of the area of the future court with a machine.

## 4) Hauling:

Hauling has been an activity that has been divided into two forms of participation:

### A) Student contribution:

In addition to the collection and hauling of bamboo, a great example of the



Student contribution: Cleaning and clearing. Photo: Community of students and teachers.

collective work that the students have carried out was the human chain they made to move the partitions donated by Novaceramic to the construction area of the third classroom. This meant an important contribution to streamlining construction times and clearing an area of the service module that will later be improved.

### B) Self-employment:

Self-employment has been reflected in heavier jobs such as hauling bags of gravel, sand, cement and stone.



Student contribution: Cleaning and clearing. Photo: Community of students and teachers.



Student contribution: Cleaning and clearing. Photo: Community of students and teachers.



Student contribution: Excavation. Photo: Community of students and teachers.



Student contribution: Excavation. Photo: Community of students and teachers.

“

Teamwork and communication are important, we are going to go for it. [...] We motivate each other when we are tired, for this and for that.

**Semi moneki in sepantekit, uan sepan tajtolis, titekitij. [...] timosenyolchikauaj keman tisiutokej itech tataman tekit.**

”

Students



**Student contributions were carried out with empathy and solidarity through constant dialogue.**



Self-employment: Hauling sand, gravel and cement. Photo: Community of students and teachers.



Self-employment: Rod hauling. Photo: Community of students and teachers.



Self-employment: Hauling sand, gravel and cement. Photo: Community of students and teachers.

**Students organized a human chain to  
bring the partitions closer to classroom  
3 as a team.**

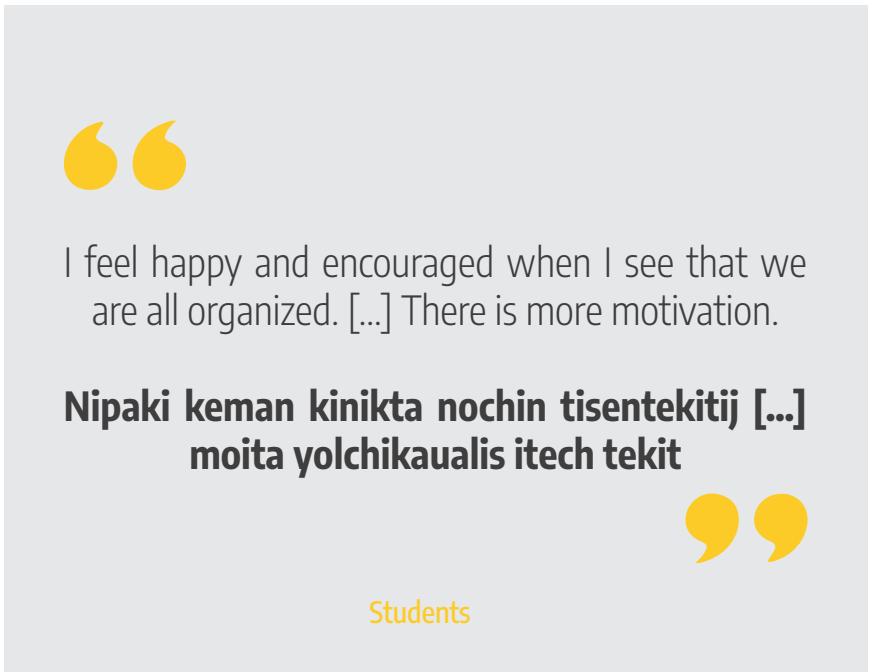




Student contribution: Levelling and earthworks. Photo: Community of students and teachers.



Student contribution: Levelling and earthworks. Photo: Community of students and teachers.



Student contribution: Levelling and earthworks. Photo: Community of students and teachers. 147



Human chain: Septum hauling.



Student contribution: Carrying partition walls. Photo: Community of students and teachers.

“

It's really nice to work as a team because we share a lot of ideas and we can improve! [...] we all collaborate on the same activity.

**Semi kuali keman nochin tisentekitij [...] ijkon timosenyolmelauej ika se tanemilil tein se kichiuas**

Alumnxs

”



Student contribution: Carrying partition walls. Photo: Community of students and teachers.



Student contribution: Carrying partition walls. Photo: Community of students and teachers.

# PARTICIPATORY CONSTRUCTION MONITORING



**“Participatory Monitoring of Work” refers to those actions that are carried out collectively to monitor the social production process. Its main objectives include ensuring the structural quality of the project, replanning based on the social process, efficiently managing the budget, reflecting on the social relationships that are emerging, considering the affective and emotional dimension of the process and identifying common learnings, responding creatively to change.**



# PARTICIPATORY CONSTRUCTION MONITORING

The participatory monitoring of the second stage of the project was carried out through visits to the community of Tepetzintan with the aim of having a **face-to-face dialogue with the different local actors (students, teachers and construction teams) about progress made, current challenges, lessons learned, needs analysis, resolution of doubts and rethinking of strategies and forms of social organization, among other topics.** Without a doubt, the most appropriate thing for a social process is to carry out the participatory monitoring of the work mostly in person. **However, when the actors who collaborate in a project reside in distant communities, and the monitoring of the work cannot always be carried out in this way, it becomes necessary to find other techniques or tools that allow for constant**

**communication between the parties.**

For this reason, the project was monitored using two approaches with the aim of providing continuity and strengthening the deliberative and resolution processes of the project through dialogue, the exchange of ideas, co-responsibility, collaborative analysis, strategic planning and the adoption of collective agreements.

**1) Field visits:** in which various spaces for collective dialogue and moments of work supervision were carried out.

**2) Remote communication:** consisting of telephone calls and three virtual WhatsApp groups that integrated the different actors involved in the process.



# SEGUIMIENTO DE OBRA Y PROCESOS SOCIALES PARTICIPATIVO

## A) Group to monitor the social and technical-constructive processes:

Continued supervision of the construction was provided through plans and photos shared with the construction manager. Likewise, material quotes, budgets, payments, weekly progress, as well as the record of student contributions and moments of self-employment were shared. On the other hand, the social process was monitored by discussing self-management by the students, hand in hand with the school teachers, who shared the experiences and progress of the students' collective activities. In addition, through this group, field visits were agreed upon and organized and part of the experiences of the young people during the construction were documented.

## B) Group to monitor the student narratives of the project:

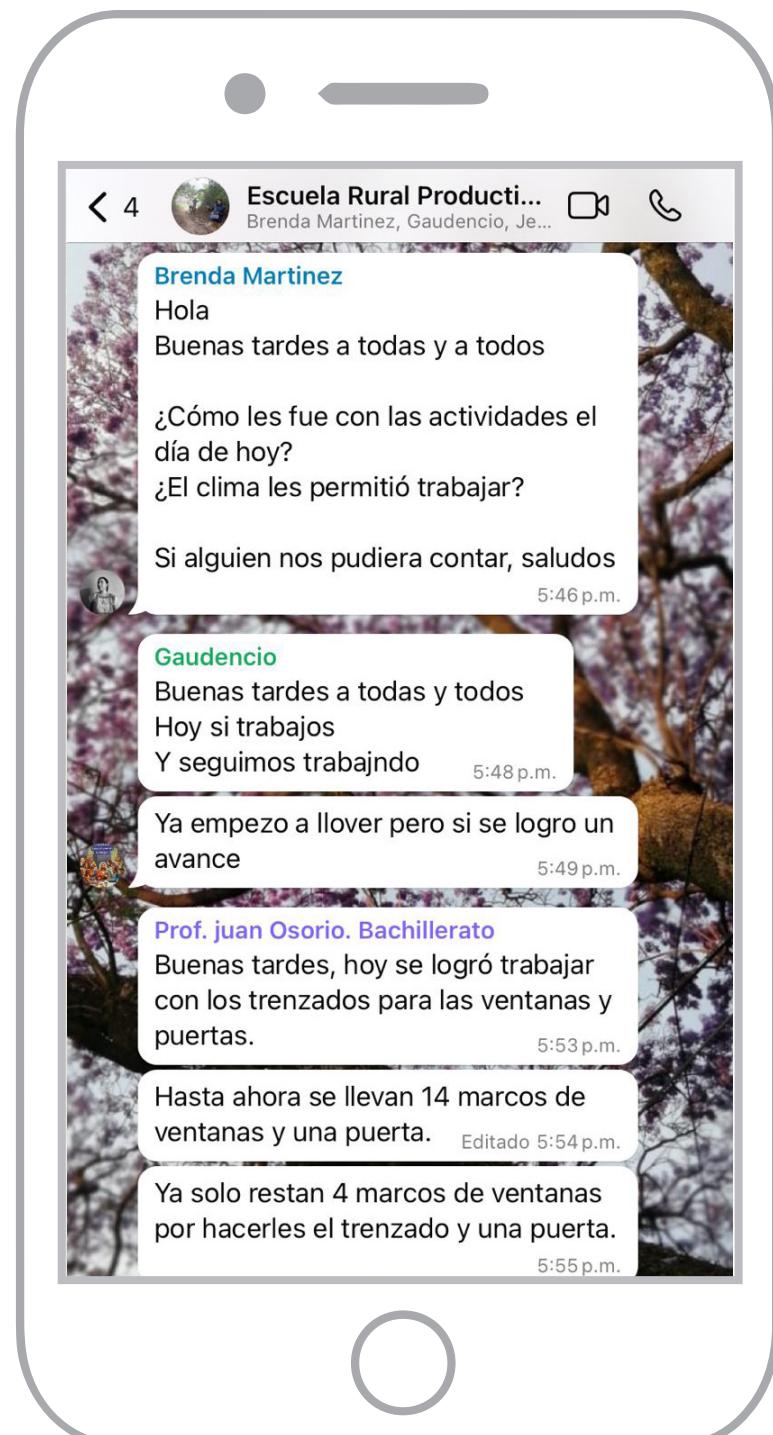
This virtual group was created with a

group of students in order to monitor the written, audiovisual and graphic materials produced by the students of the three generations. These materials integrated the different ways in which they decided to narrate and communicate their participation and collective efforts during the process.

## C) Bamboo construction monitoring group:

A virtual group was formed that included the team of local bamboo builders and the community of teachers to carry out participatory monitoring of activities related to bamboo construction, such as: treatment and preservation of the material, purchase of supplies, structural analysis and design, weekly progress, technical training, inter-learning processes and student contributions, among others.

Even though these means of remote



A) Follow-up group for social and technical-constructive processes.

# SEGUIMIENTO DE OBRA Y PROCESOS SOCIALES PARTICIPATIVO

communication allowed for continuity of the participatory monitoring of the project, trying to maintain an open and close dialogue to make decisions, addressing possible changes or challenges and evaluating alternatives for action in the process, **important challenges were identified in the continuity of communications.** The above led to reflecting on the importance of not losing sight of the fact that **face-to-face activities are essential to:**

**1) Create moments of emotional connection** and strengthen trust with students and teachers.

**2) Reflect on the co-responsibility of the actors** involved in achieving the objectives set collectively.

**On the other hand, the participatory monitoring of the construction was supported**

**by tools that were generated** in participatory moments and workshops prior to construction, such as the following:

## 1) Matrix of social production

**modalities:** this tool allowed monitoring the moments of student contribution, self-employment and local paid labor based on the collective agreements initially made.

**2) Participatory calendar:** the completion dates of the different stages of construction of classroom 3 were jointly defined, as well as the appropriate moments to begin technical training related to bamboo construction. This calendar was proposed as a living tool with a view to guiding the sequence of activities, that is, open to any change that could arise due to possible meteorological, budgetary, organizational, material changes, among others.



B) Follow-up group to the student narratives of the project.

# PARTICIPATORY EVALUATION

## 05 [PART I]

**Participatory evaluation is a creative analysis whose purpose is to collaboratively produce information to improve a social process or project. The evaluation process focuses, on the one hand, on how to optimize and reformulate future actions within a social process and, on the other hand, seeks to understand the reasons for the results obtained (whether favorable or not). This moment of participation refers to a co-responsible evaluation that, beyond issuing judgments or pointing out, seeks to collectively build creative alternatives to learn from past conflicts, resolve current difficulties and have better tools to replan the course of the project if necessary.**

# PARTICIPATORY EVALUATION

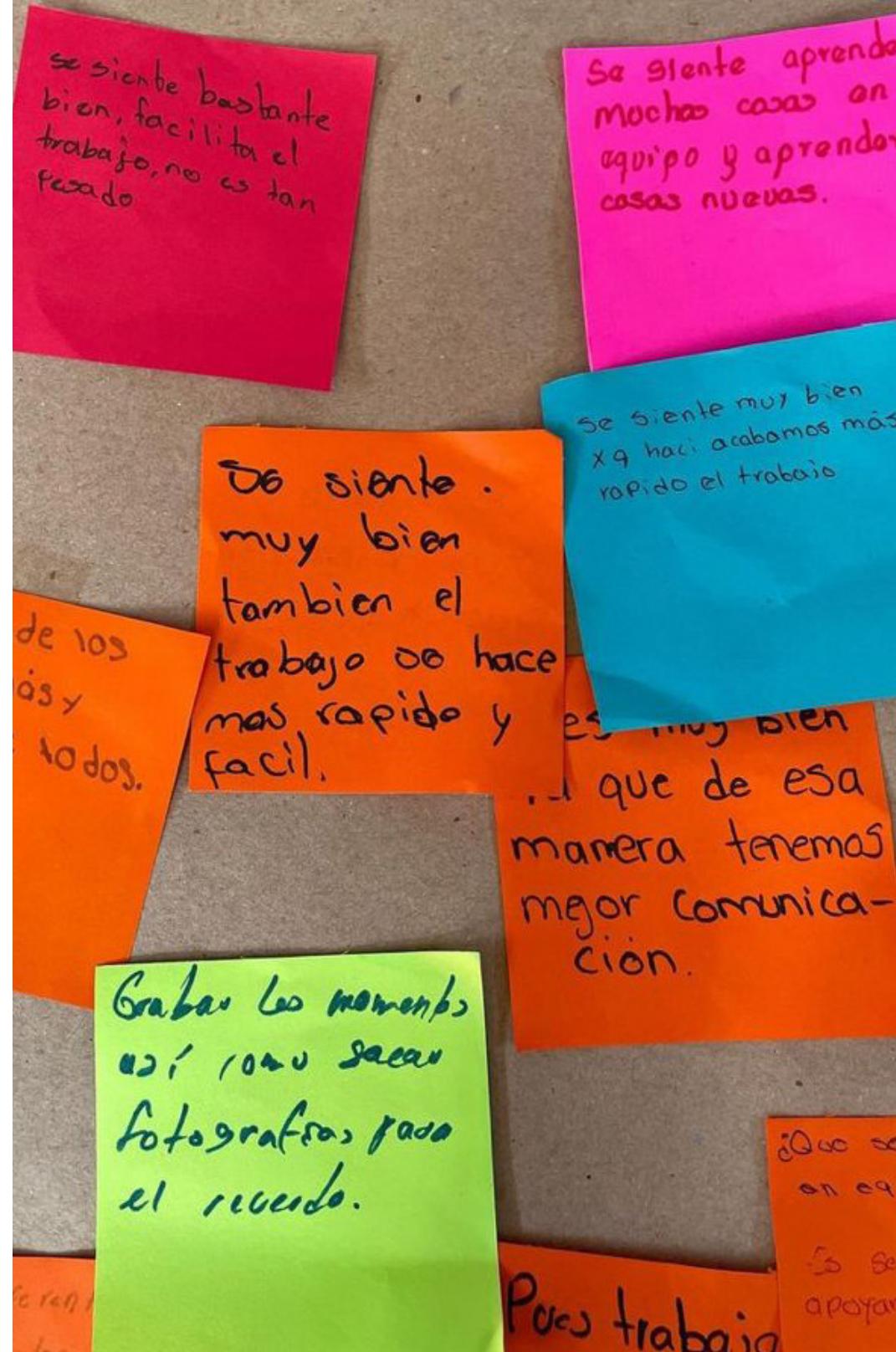
The first moment of participatory evaluation of the second stage of the project consisted of opening a space for face-to-face dialogue with the aim of allowing the student community to **share their experiences, emotions and organizational processes around the project**. During this session, two important aspects were addressed:

**1) the feelings of the young people** in relation to their social organization and their contributions during the social production of the third classroom

**2) the forms and formats** under which the young people wanted to share their story in the process.

The above was done by linking the evaluation process with the objectives set collectively during the first moment of participatory diagnosis.

Likewise, the space for dialogue was proposed as a pedagogical process focused on **strengthening the students' power of action and promoting the making of new decisions based on reflective, horizontal, consensual and conscious action**.



## AFFECTIVE MAPPING



**“Affective Mapping”** is a participatory evaluation technique that allows us to understand the feelings, emotions and experiences of the people involved in relation to the socio-ecological transformations produced by a project. This technique is based on the complex relationship between feeling, thinking and doing, and therefore recognises the importance of feelings in producing common knowledge, promoting reflective thinking and putting into practice other ways of being and living.



# AFFECTIVE MAPPING



Affective mapping workshop. Photo: Comunal.

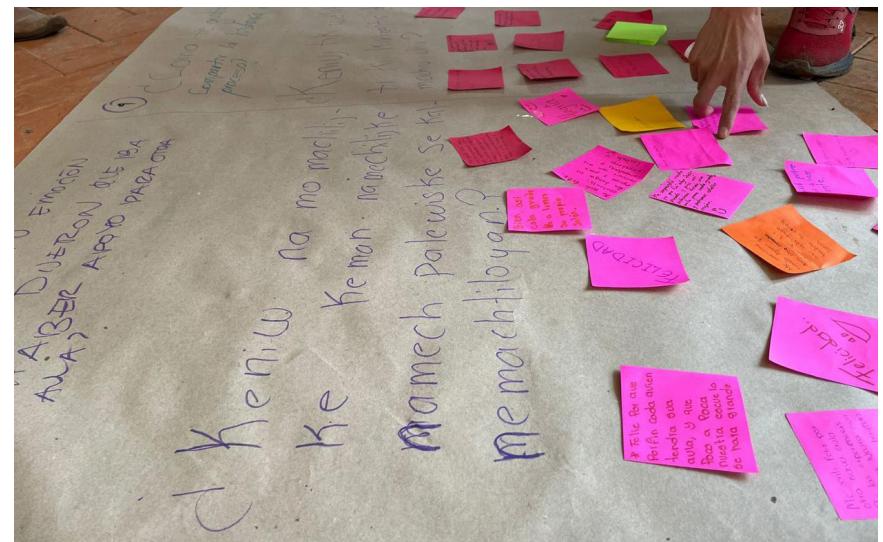
**The affective mapping session began with three questions that the student community posed to reflect on their emotions around their organizational processes and the first collective activities they carried out in the social production process of the third classroom.**

**1) What was your emotion when they said that there was going to be support for another classroom?**

**2) What does it feel like to work as a team?**

**3) How do we organize ourselves to work as a team?**

The questions were **written in both Spanish and Nahuatl** and each of the students contributed to answering them. This led to the generation of an affective mapping composed of **reflections on the advantages, challenges and tools required to put mutual support into practice**,



Affective mapping workshop. Photo: Comunal.

such as: dialogue, respect, constant communication, time to organize, acceptance of difference and solidarity. On the other hand, the students narrated that the organization of the tasks or **collective works was achieved through the formation of teams where each group chose their work scheme and their group leader**. In this sense, they explained that the group leader had to rotate and that his job was not to command, but to motivate the organization and be a mediator in the resolution of the

challenges that might arise.

The answers to the questions reflected the feelings of the students (**happiness, excitement and joy**) when they learned that there would be the possibility of building a new classroom, since this space means an important improvement for the Rural Digital High School No. 186: **now each group will have its own workspace**.

What was your emotion when they said that there was going to be support for another classroom?

**¿Keniu tikajskamatik keman tanauatijkej onkas in nepaleuil tein ika se kichiuas okse kalnemachtil?**

I felt happy for the new classroom and for the new experiences that we will have to live during this journey [...] I felt happy to work as a team and live with my classmates.

**Niyolpaki ika in yankuik kalnemachtil uan ika noch i in chiualismej tien timopaleuitij tinochimej [...] kuali nimomachilij ika in tekit tein tiksenchiukej.**

Students



Affective mapping workshop. Photo: Comunal.



Affective mapping workshop. Photo: Comunal.

“ ”

I felt happy for my classmates because we will be able to be in a classroom each. Since my classmates in first and second grade share a classroom, it feels bad in hot weather. [...] it was something exciting because the students will have more access to be able to work.

**tisenpakij in ti pipil momachtianij tasejsemaj tikpiati tokalnemachtil. Iniuán tiyetokej yekinika uan ojpatika xiuit tik senkuij se kalnemachtil, amo kuali se momachilia keman takauani [...] kuali eski ijkon keman tiknekiskej tikchiuaskej se tekit tapataukan eski.**

” ”

Students

“ ”

Very happy because I believe that the school's effort is growing each time and based on our effort.

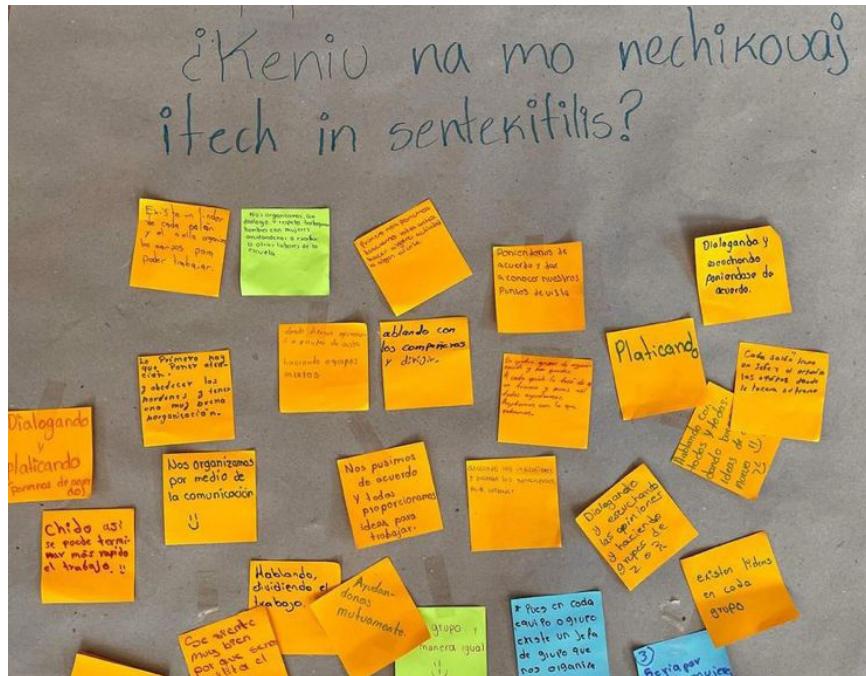
**Nipaki ika in tekit tein tik sen chiutokej in kalnemachtiloyan**

” ”

Students



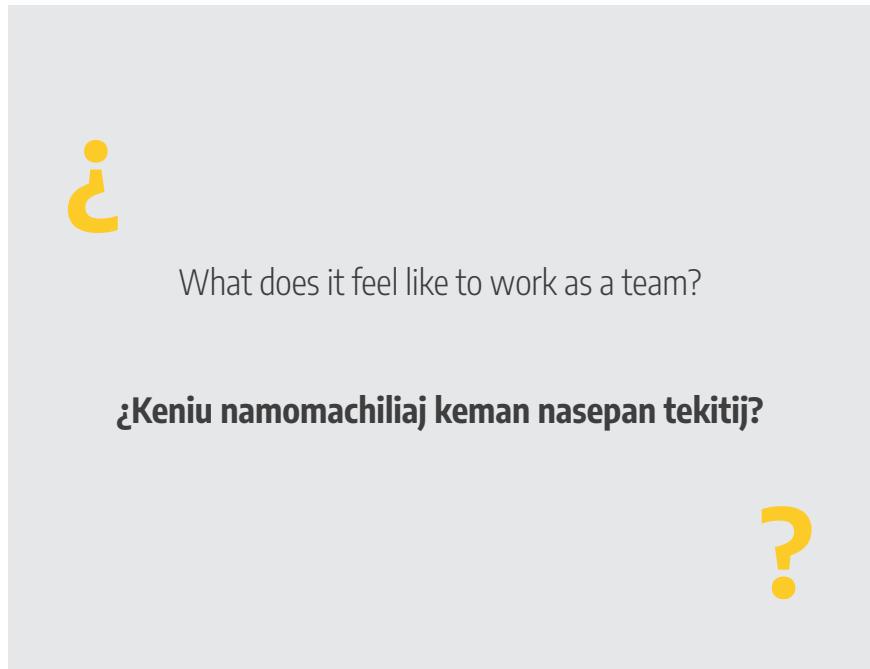
**In the affective mapping, students chose the questions they wanted to explore about their feelings in the social production of their educational space.**



Affective mapping workshop: "How does it feel to work in a team" in Nahuatl. Photo: Comunal.

For the young people, teamwork has involved reaching common agreements, sharing work and, above all, learning to overcome differences to achieve the goal they have as a group. **Teamwork has strengthened the ties between the student community, as it generates moments of coexistence and exchanges** that have allowed

them to get to know each other even better. The active participation of the students has also made it possible to **achieve goals in less time and motivate them to achieve the objectives** they set for the project, which has an **impact on the self-esteem and joy they experience when working together**.



**¿Keniu namomachiliaj keman nasepan tekijij?**





Affective mapping workshop. Photo: Comunal.

“

I feel happy because we spend more time together and socialize more; these are fun times.

**Kuali nimomachila, tisentekitij uan kuali timouikaj; nochin tipakij**

”

Students

”

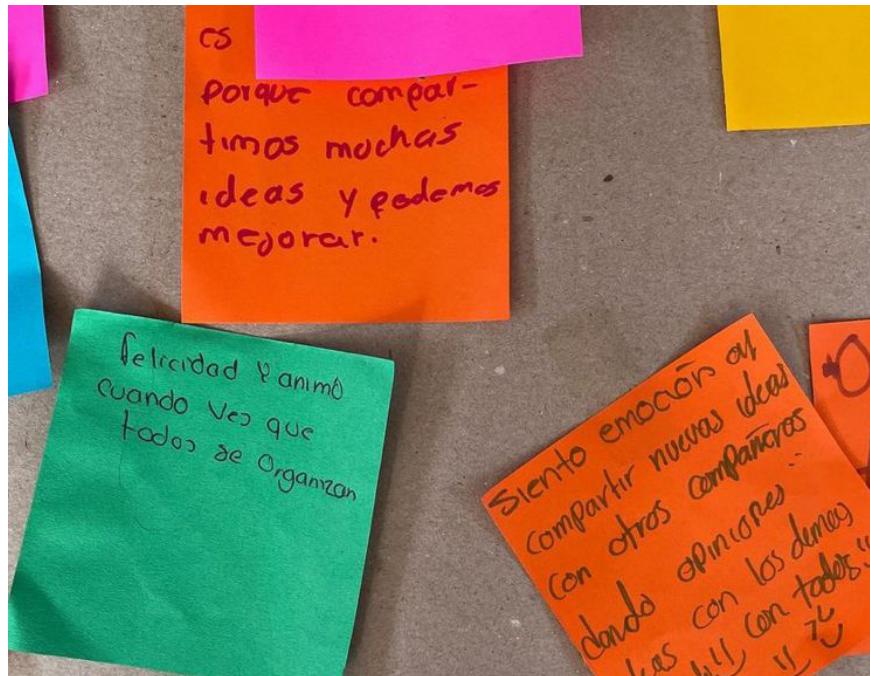
It feels great, work is done faster and easier [...]. We help each other [...]. We motivate colleagues when they are tired.

**Nochi kuali, in tekit ijsiuka mochiua uan nenken; se paki.**

”

Students

**The social production process of the third classroom has involved the self-management of student contributions to the project by the students, who coordinate through group leaders to distribute the work equitably.** For example: each group divided the excavation equally, so that everyone contributed to this work. Likewise, the students used the group leader scheme to receive and count the first bamboo contributions from the young people.



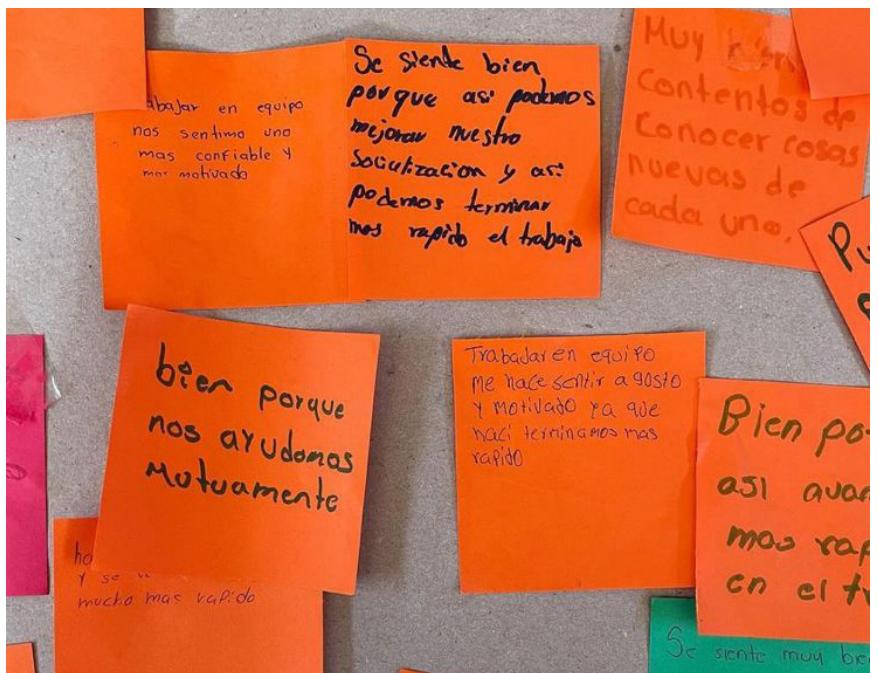
Affective mapping workshop: Answers to “what does it feel like to work in a team”. Photo: Comunal.



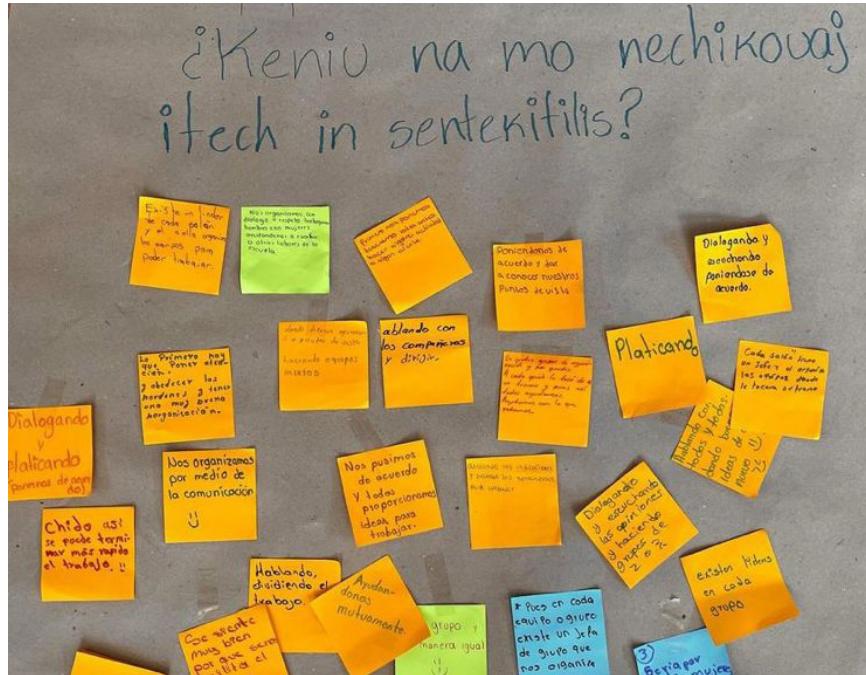
Affective mapping workshop. Photo: Comunal.



Affective mapping workshop. Photo: Comunal.



Affective mapping workshop: Answers to “what does it feel like to work in a team”. Photo: Comunal. 181



Affective mapping workshop: "How do we organize ourselves to work as a team" in Nahuatl.  
Photo: Comunal.

How do we organize ourselves to work as a team?

¿keniu timonechikojkej ijuak tisentekitikej?

?



There is a leader for each classroom and he or she organizes the teams to be able to work" [...] "We organize ourselves with dialogue and respect; men and women work together.

**Itech se kaltamachtil yetok se tayekankej uan yejuan tech tanauatiliaj keniu tisepantekititij" [...] Timonechikouaj ikamiak mouiskayot; tisentekitij takamej uan siuamej.**



Students



First we all agree before doing any activity or event, [...] and assign what each team is going to do. [...] We all work equally. [...] We help each other.

**Keman tik chiualtitij se tekit acharto timosepan nojnotsaj, [...] uan tiki 'ijxekouaj toni uan keniu mochiutni, [...]tik sen ojistikaj yon tekit [...] Timosenpaleuiaj.**

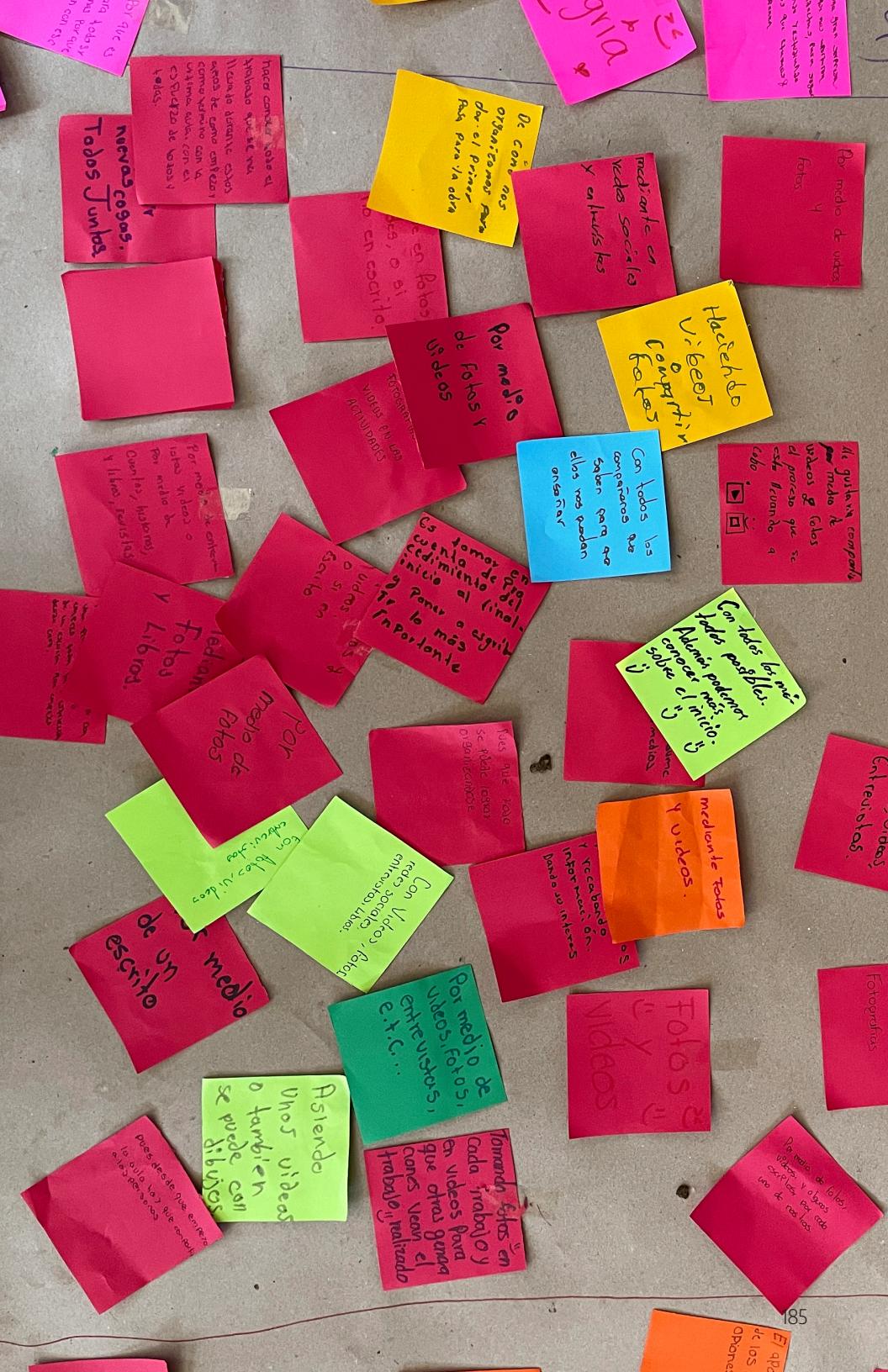


Students

# COLLECTIVE NARRATIVES



**“Collective narratives” are a tool used to build local historical memories based on the lived experiences and emotions of people involved in social processes, thus avoiding vertical narratives. That is, collective narratives seek to collect and systematize the most symbolic moments for the people or organized social groups that convene and manage the social production process.**



# COLLECTIVE NARRATIVES

Based on the reflections shared by the students during the participatory session of "Affective Mapping" (processes of social organization and collective work), **a fourth question was raised that gave rise to the creation of the students' collective narratives: How would you like to tell the story of the process?**

The answers to this question revealed that the students considered it very important to make known the history of the Rural Productive School from its beginnings so that:

**1) The work and collective effort that other generations have made is honored.**

**2) Other members of the community know how the project came about**

**3) New generations know this**

**history and feel motivated to continue participating in the improvement and expansion of the school.**

Based on the above, the students suggested making a record of the current process with photographs, videos, interviews, writings and drawings, through which they could capture their experiences and organizational processes. In addition, they suggested that, once all the material was collected, a magazine, a book or a video could be made to continue sharing the progress of the Rural Productive School with the community.

In this way, a diversity of ideas emerged to participatively design the social communication strategy of the project through the making of common agreements. **Thus, they proposed creating 7 teams led**



Modalities of systematization of the student narrative. Photo: Comunal.

by the youth and focused on the systematization of:

- 1) Writings**
- 2) Videos**
- 3) Photos**
- 4) Drawings**
- 5) Interviews**
- 6) Stories**
- 7) Social networks**



How would you like to tell the story of the process?

**¿Kenui tikueltaskia maj moixnexti in tekit tein mochiutok?**



That it started with just a conversation and from there began the construction of a school that started from scratch.

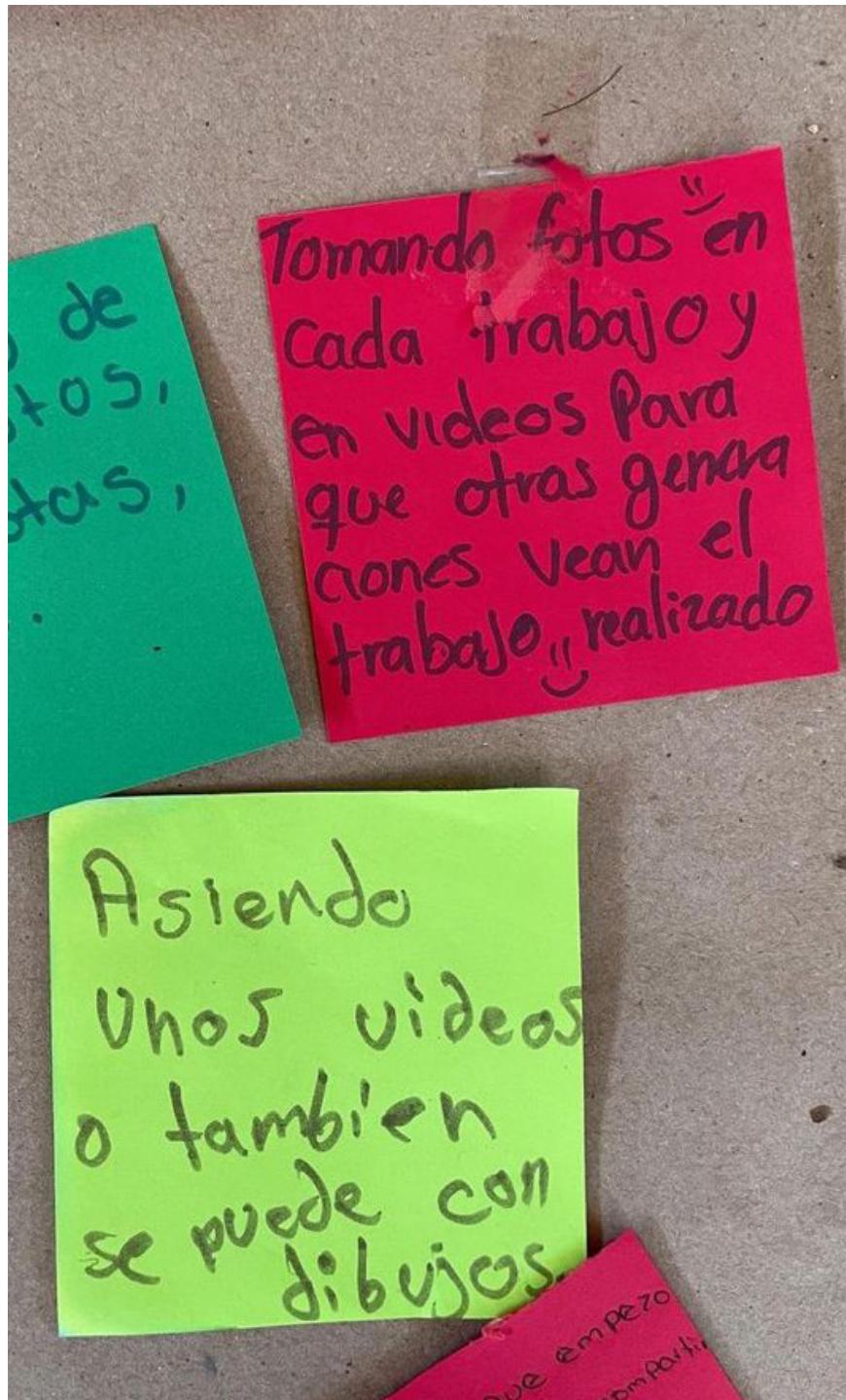
**In kalnemachtilyan yekinika peuak ika se tanemililis uan satepan ika miak tekit peuak se kichiua.**



Alumnxs



Student narratives: Symbolic drawings about the creation of their school.  
Photo: Community of students and teachers.



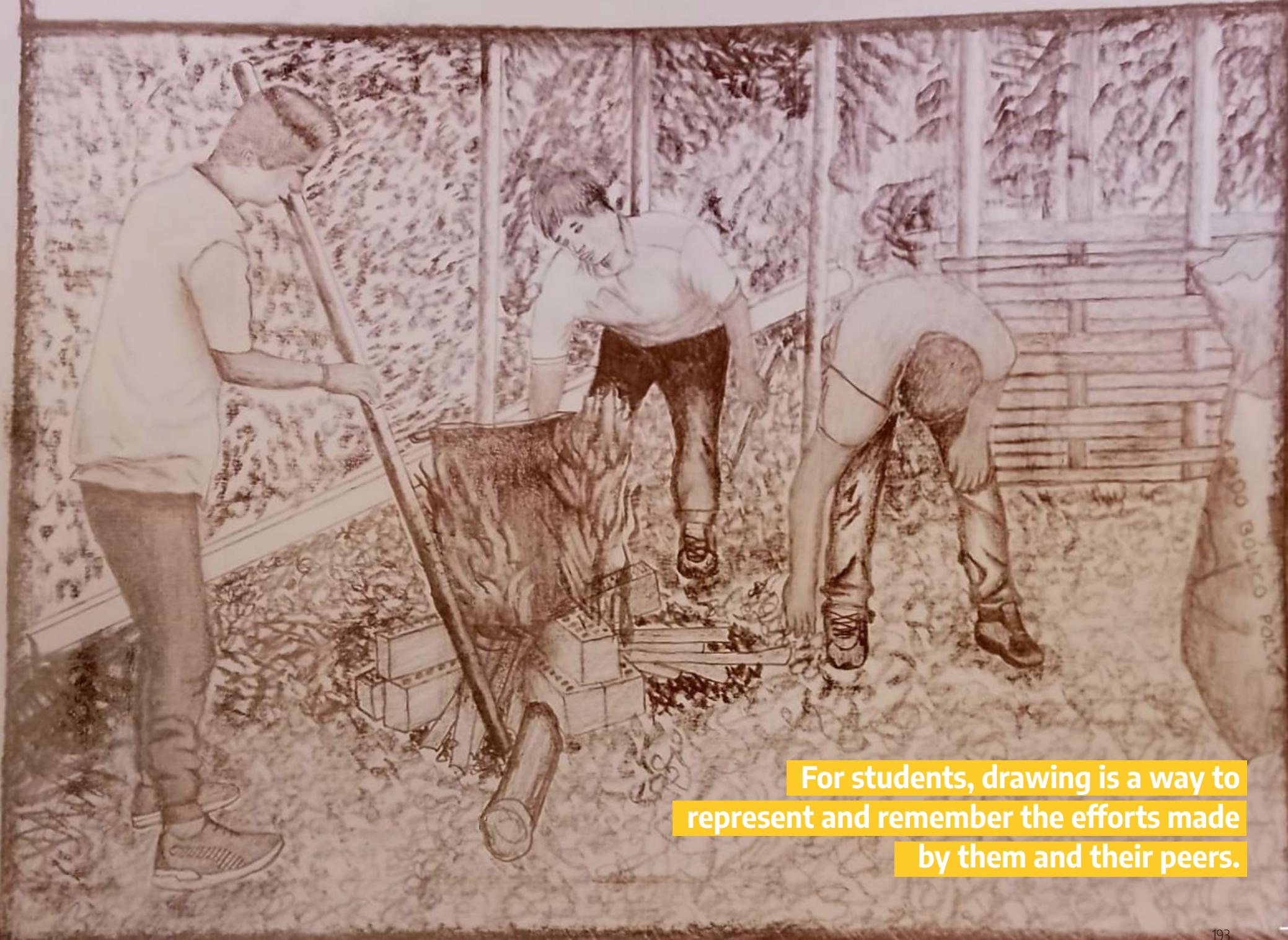
Student narratives: Answers to "how would you like to tell the story of the process?  
Photo: Comunal.



Student narratives: Answers to "how would you like to tell the story of the process?  
Photo: Comunal.



Student storytelling workshop. Photo: Comunal.



For students, drawing is a way to represent and remember the efforts made by them and their peers.



“

Making videos and photos of the process that is taking place [...]. To make known all the work that has been carried out during these years; how it began and how the effort of everyone was carried out in the completion of the classrooms.

**Kuali se kixtis ixtakopin uan keniu se teixnextis in tekit tein mochiutiu [...] maj se teixnexti in tekit tein kemaniaya mochiutok; keniu peuak uan keniu timosepan paleuijkej itech in tekit keman mochiu in kalnemachtilyan.**

Students

”

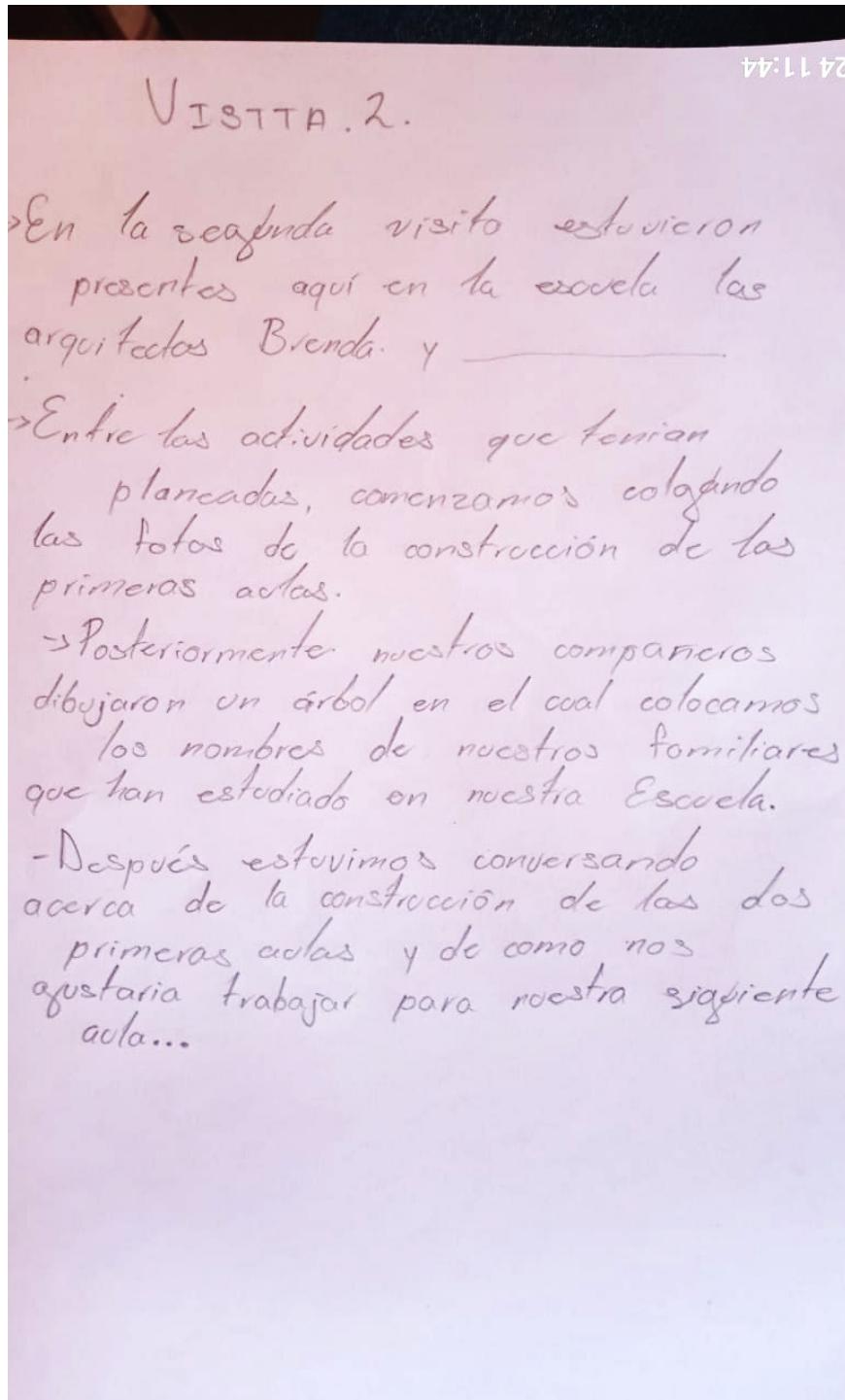
“

Social networks / interviews / some writings by each one of us / drawings / making a book / making a film / stories / magazines.

**Tatsintokalis/ intajkuilol in pipil momachtianij/ tapalmej/maj se kichiua se amaix/sanilmej.**

Students

”



Student Narratives: First text on the moments that students consider important during the social production of their school. Photo: Students.

Student narratives: Symbolic drawings about the creation of their school. Photo: Community of students and teachers.

# SOCIAL

# PRODUCTION OF THE EDUCATIONAL SPACE (PART II)

06

## SOCIAL PRODUCTION OF THE EDUCATIONAL SPACE: Bamboo: Technical Training + Student Contribution

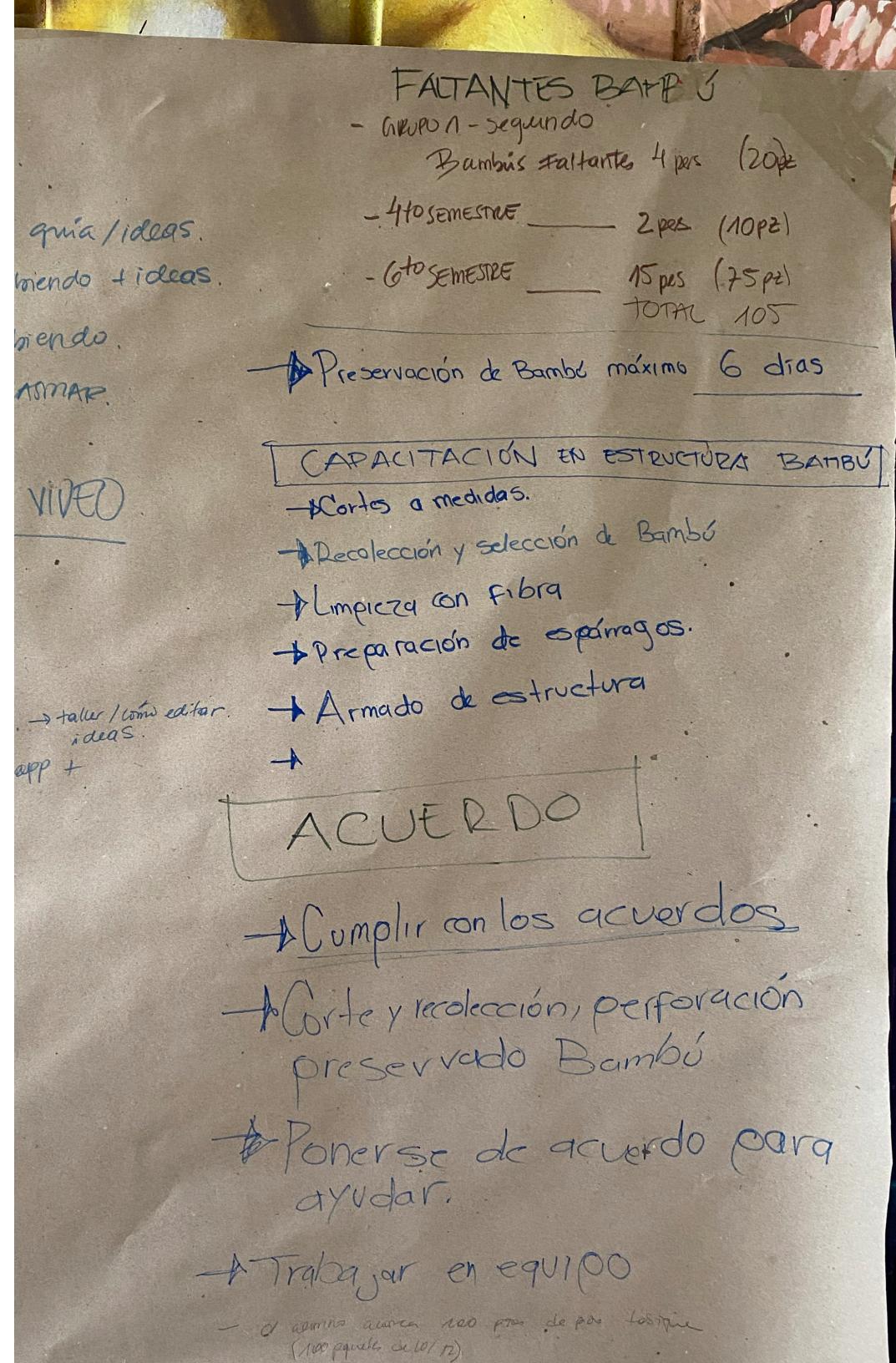
It is important that participatory moments of social production of habitat integrate pedagogical processes made up of teaching-learning activities and under the motto of “learning by doing”. That is, the construction process must be in itself a school-work that serves as an experience for learning and the exchange of knowledge between multiple actors, with a view to putting into practice situated, community-based and horizontal pedagogies. The above opens the way to reflect on the various forms of involvement that participants can choose during social production processes.

# SOCIAL PRODUCTION OF THE EDUCATIONAL SPACE (PART II)

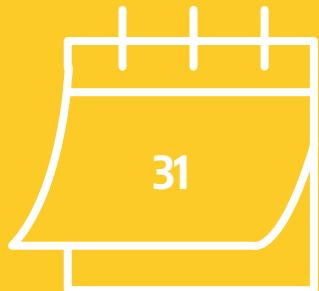
At the same time that the main structure (walls, columns and chains) of the third classroom of the Rural Productive School was being built, the bamboo builder (Isauro Edgar Manzano) and his team began to teach **technical training workshops on bamboo construction**. During the social processes of the Rural Productive School, **this was one of the most emblematic and important moments in terms of collective work, exchange of local construction knowledge and participation of the student community**.

Thanks to the technical training provided, the students were able to make significant contributions to the project in relation to the social production of the bamboo roof of the third classroom. This required **collaborative work between all the actors involved**.

**(students + teachers + Isauro and his team + Communal) to make consensual decisions on technical-constructive definitions, strategic planning and social organization.** At the same time, the collaborative work included **moments of reflection on the collective responsibilities and roles of each actor**, with a view to completing the construction in a participatory manner and within the desired time frame. Thus, it was decided to generate **a new intersectoral process of strategic planning**, in which the construction times of the project, the biocultural and school times, as well as the forms of social organization necessary to achieve the objective of building the bamboo structure of the roof were interrelated.



# STRATEGIC PLANNING CALENDAR



The “Strategic Planning Calendar” is a living tool that helps to graphically visualize the various tasks to be developed for a project, including temporalities and forms of social organization among the people involved. It seeks to strengthen the processes of collective reflection on the commitments and responsibilities of the different actors, analyze consecutive and interdependent activities, in addition to considering the important biocultural and school times in the strategic planning of the project.



# STRATEGIC PLANNING CALENDAR

**One of the common goals** set by the community of teachers and the student community **was to finish the roof of the third classroom before the closing ceremony of the last grade.** For this reason, the need arose to collectively build **a new moment of participatory strategic planning around the work and training related to bamboo construction, masonry and ironwork** in order to achieve the proposed goal.

**The organization process had a moment of reflection and collective dialogue** between the students, teachers, Isauro (bamboo builder) and the Communal team in relation to the objectives and the current state of the bamboo contributions to achieve the proposed goal. In this way, **the activities, roles and times related to the collaborative work to complete**

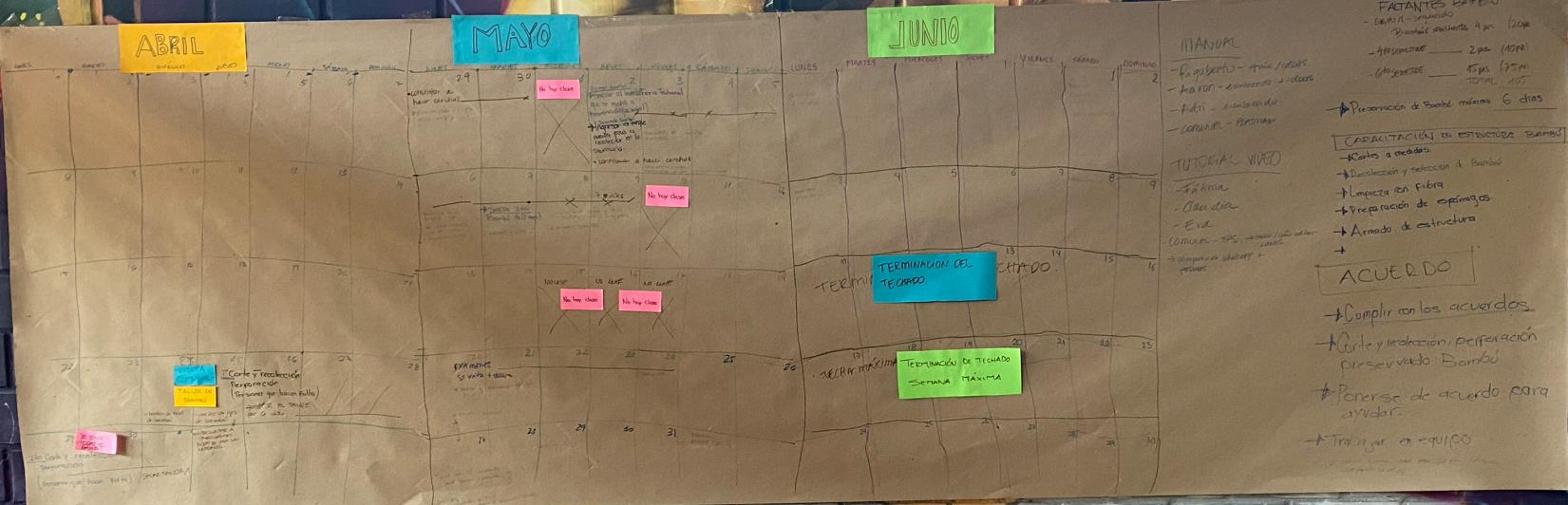
**the third classroom were defined. Both the student contributions and the desired scopes during the training processes for bamboo construction** were collectively defined, which was decided to begin to systematize through various instruments that allow the transmission of knowledge to future student generations.



Collective construction of the strategic planning calendar. Photo: Community of students and teachers.



Collective construction of the strategic planning calendar. Photo: Community of students and teachers.



For the construction of strategic planning calendars, it is important to consider the biocultural timelines of the communities.

## TECHNICAL TRAINING



The “Technical training workshops” are designed so that people involved in the social production of a project can reinforce their knowledge of the construction systems and materials that were collectively chosen during participatory design and strategic planning. The objective is to promote greater agency and involvement of people during the social production process, as well as to guarantee the tools and knowledge necessary for the evolutionary growth of the project to be carried out.



# TECHNICAL TRAINING

The collaborative work of the student community and teachers in relation to bamboo construction was put into practice from the beginning of the technical training workshops. These were carried out with the

**main objective of guiding situated pedagogical processes (practical and theoretical)** from which the young people could: **learn the technical-constructive qualities of bamboo, lead collective organization processes for the collection and treatment of bamboo, get involved in the construction of the classroom roof and, finally, strengthen the inter-learning processes in relation to the uses of bamboo among the different student generations.**

## The first training workshops addressed the following topics:

how and when to select and cut bamboo, the use of different sizes and

parts of the material, the preparation and use of chemicals for preserving, cutting and ironing bamboo and the realization of a practical exercise to build the roof of the preservation tank (with the purpose of protecting it from the weather and taking care of the use of chemicals).

To carry out the roofing of the tank, the students were trained on **topics that they would later take up again in the construction of the roof of the third classroom**, such as: types of bamboo cuts and assembly, preparation of studs, drilling and assembly, laying of bamboo, etc.



Technical training and student contribution: management of the electric fence for bamboo cutting. Photo: Community of students and teachers.

“

At first, cutting bamboo was difficult because I didn't understand it, but the time has passed and I had to practice. I used to be afraid of the jar cutting machine, but then I got used to it and I wasn't afraid of it anymore.

**Yekinika amo nikajskamatia keniu monekia maj se kixtapana in ojta uan satepan kemej nikciutiaj niuelik. Noijkon nikmouiliaya in tebos tatekiloni yekinika, aun kemej peuak niktatekiutia nimomatik uan niuelik keniu nikuis.**

Students

“



Technical training and student contribution: cutting bamboo with machete for window weaving. Photo: Community of students and teachers.

“ ”

Well, I was interested in this training workshop for bamboo construction because I literally didn't know that bamboo could be used to build furniture, a structure or a house. When I started my new school at the Rural Digital High School No. 186, they told me: we invite you to go to a bamboo workshop where you can practice and make furniture.

**Nej nik uelmatik in nemachtil tein tech makakej, acharto amonikmatia oxuel se kitatekiutis in ojtat ika miak tataman tachijchiu kemej se kali. Keman nikalak itech in kaltamachitiloyan Bachillerato Digital No. 186 nech yoleukej maj niteuanti inuan inpipilmomachtianj tein kitatekuitiaj in ojtat.**

“ ”

Students

“

[...] I call my classmates who are interested in working with bamboo and show them how to do it. For example, about the types of bamboo, some are thin, large, yellow, green. So, I show the students which ones are useful and which ones are not; and from that selection we can make furniture, chairs, benches and tables.

[...] akon nikita kiyolnota in tekit ika ojtat nik yoleua uan niknextilia keni ika se tekiti. Nikinilijtiu keni in ojtat, seki kanaktik, uejueyi, kostik uan xoxoktik. Ijkon tikijitaj uan nikinilijtiu katini uel se kitatekiutis kemej seikpal, takualoni uanmiak tatamanok.

”

Students



Technical training and student contribution: drying and hauling bamboo after chemical treatment. Photo: Community of students and teachers.



Structure of the gable roof. Photo: Community of students and teachers.



Bamboo can be used to make an armchair, even a structure. We are making the structure of the school. It has cost us a lot of work, but we have made it possible in collaboration with Comunal, with Isauro and his team and also with the other colleagues and teachers. We have made it possible in these months to be able to install the roof and continue with the activities that follow. I tell my colleagues and the younger generations: I will gladly help you make a piece of furniture, a chair, because if it is made of bamboo it will not be damaged.

In ojtat uel sekitatekuitia itech miak taman chiualis kemej se ikpal uan no uel se kikui kemej kuoukali, tejuan tik salojtokej in ojtaj tein kimamati ikuatsak 'ka in yankuik kalnemachtin, in tikchiukej ika inepaleuil in nechikol Comunal, in tekitikej Isauro uan inechikol, inmomachitianij uan tamachtianij. Nochi intekit chiuik uan tikojtokatiouej itech in metsti tein tipanokej, uan kemej timatantiouej tikojtokaj okseki chiualismej. Nikintapouia in pipilmomachtianij uel nikinpaleuis maj nikinimachti keniu se kitatekiutis ika miak tataman in ojtat.



Students



Bamboo pile contributed by the student community. Photo: Comunal.

#### **Moments of student contribution:**

During the first technical training processes, the student community and teachers actively participated in the **social organization and planning of contributions to the project**, thus contributing to the following activities:

##### **1) Selection and collection of bamboo:**

At the beginning of November 2023, the processes of **selection and collection of bamboo** began in a

**self-managed manner between students and teachers**, where each student was in charge of contributing 5 pieces of said material upon returning to classes (January 2024).

On the other hand, **the training for students integrated from the beginning information related to:** selection and collection of bamboo, **how and in which lunar phase to cut it, the different diameters that would be used for the roof structure, weaving and ironing, in addition to the parts of bamboo**



Technical training and student contribution: drying and hauling bamboo after chemical treatment. Photo: Community of students and teachers.

**that are necessary for the structure** (base, half base and tip).

One of the first challenges that arose in the following months was the lack of bamboo pieces, since by April the students had 130 pieces, but at least 200 pieces were required to be able to begin the roofing and meet the goal initially set (to roof the third classroom before July 16). **The organization and collective efforts of the student community and teachers were key elements to**

**achieve the minimum number of pieces required and to begin on time with the construction of the first trusses of the roof.**

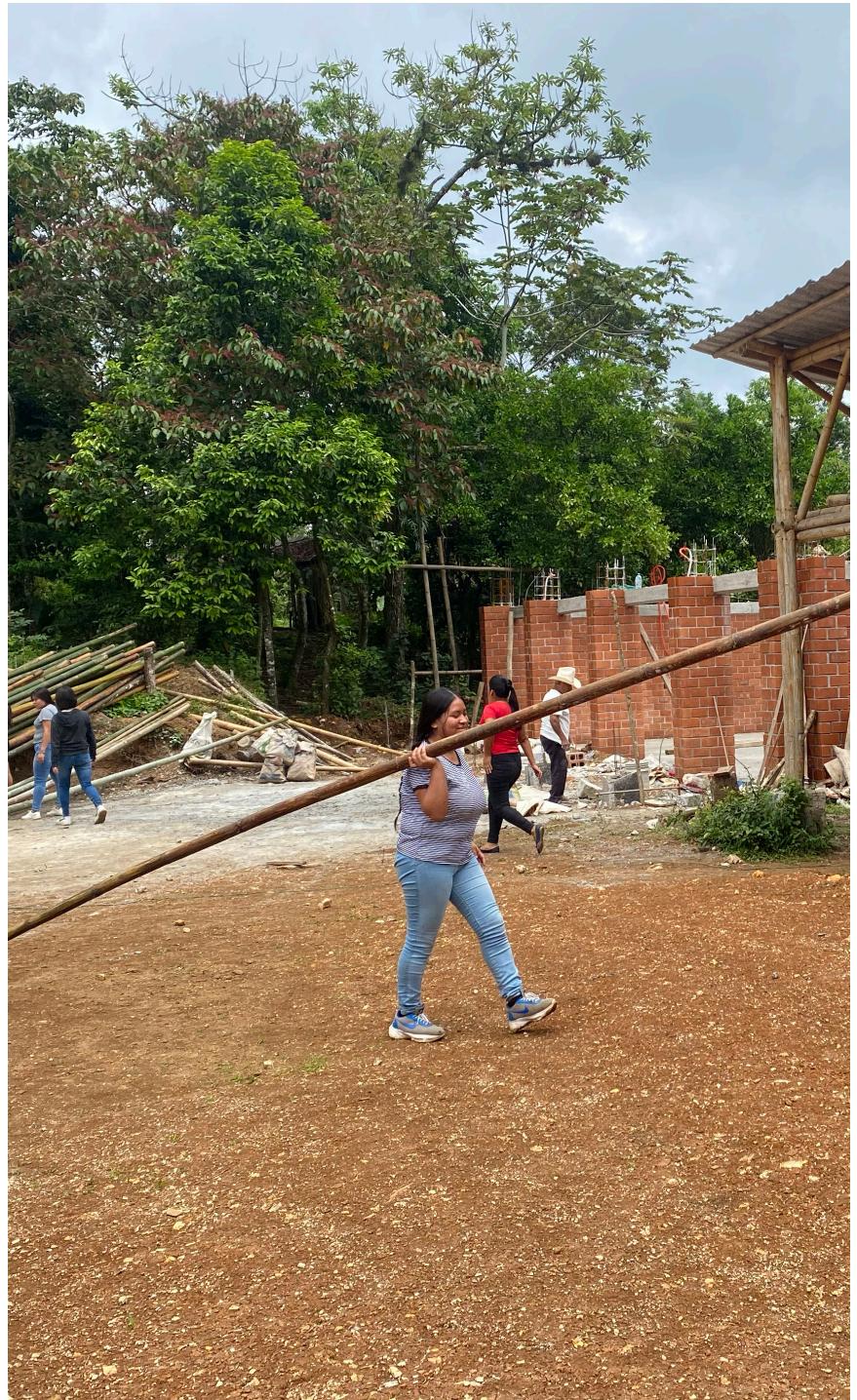
“

First, the bamboo is cut during the full moon. Why the full moon? Because we know that no worms or bugs can get inside it. After cutting the bamboo, we take it to the school and put it in the treatment (preserving) tank. We have a tank that is 6 meters long and one meter wide. Before taking it to the preservation tank, we first wash the bamboo well so that it does not carry any impurities, since thanks to that we can use the bamboo for chairs and different furniture.

“

**In ojat se kiteki itech chikauak metsti, ¿Keyej itech chikauak metsti? Tech tapouianij ijkon amo okuiloua. Satepan keman tiktekij tikuikaj kalmachtiloyan kampa tikapachotij itech se at teinpajyoj. Tikpiaj se aequaloni tein itamachiu chikuasen metro de ueyak uan se metro de patauak. Achtapa keman sekiapachoua in ojat de kipaka kuali, ijkon amose kiapachos taloj.**

Students



Technical training and student contribution: drying and hauling bamboo after chemical treatment. Photo: Community of students and teachers.



Technical training and student contribution: drying and hauling bamboo after chemical treatment. Photo: Community of students and teachers.



I had to bring 10 bamboos of 6 m length, but if I want to bring more I can bring 20, 30.

**Nej nikualkuik majtak ojtat tein kipia chikuasen metro de ueyak, takan niknekiok nikualkuisok uelis nikitkis sempoual o sempouluan majtak**

Students



“

I bring them from Ayotzinapa, where I live. What I do is hire a truck to take them to the highway and then I take them to the school.

**Nej nikitki ne Ayotzinapaj, ompa nichanchiui, niktoktia in ojtat itech setepos teinkinalkauati ojtenoj uan satepan niksaka inkalmachtiloyan.**

Students

“



Student contribution: hauling bamboo to the school. Photo: Comunal.



Student contribution: hauling bamboo to the school. Photo: Comunal.

“

Yes, it was complicated because from where we took them it was a downhill, then an uphill and then I had to leave them on a street to get them on the transport and all that.

**Tatekoch kampa titasakakej, yejika timo ouijtilijkej keman tikuikakej ojtenoj uan satepan tiktalijkej paniaj itech se tepos tein no tech sakilij.**

Students

“



Student contribution: cleaning of the treatment tank. Photo: Community of students and teachers.

## 2) Cleaning the tank and the bamboo pieces:

The students organized themselves to clean the tank (tank size 6 x 1 meters), which was used for the treatment of bamboo. In addition, they pruned the branches of the trees that are nearby in order to prevent the tank from filling with leaves and contaminating the chemical for the preservation. To carry out the cleaning of the tank, it was important to remove impurities, such as moss and leaves,

and thus ensure good efficiency of the chemical. Also, the students cleaned the bamboo with a fiber prior to its preservation, removing dirt, moss and impurities. Once the collection, selection and cleaning of the bamboo was done, a rod was introduced, along its entire length, until it came out through the tip of the bamboo and finished removing the residue. This was important so that all the preservation penetrated the internal area of the bamboo.



Student contribution: cleaning of the treatment tank. Photo: Community of students and teachers.



Student contribution: cleaning of the treatment tank. Photo: Community of students and teachers.



Student contribution: tank capping to avoid chemical impurification. Photo: Community of students and teachers.



Student contribution: cleaning of the treatment tank. Photo: Community of students and teachers.



We enjoyed cleaning the bamboo and washing it. It was fun because we spent time there with our classmates; we really enjoyed it. And it's great that we work as a team. In fact, there's an atmosphere that makes us want to do it with enthusiasm.

**Timo paktijkej keman tikchipaukej uan tik pajpak 'kej in ojtat. Kemej in tisentekiikej kichi maj achi timosepan uikakan.**

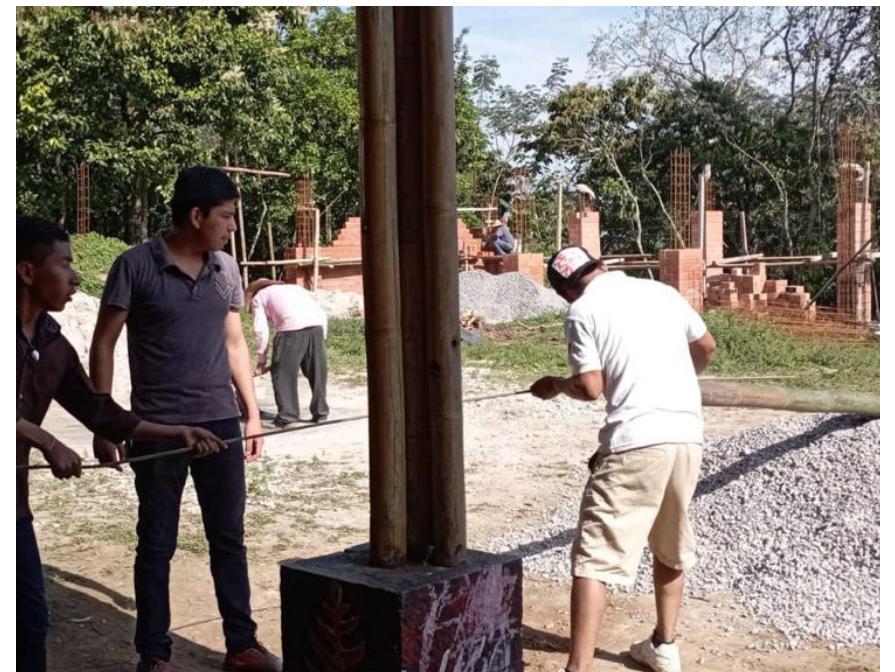
Students







Student contribution: Cleaning of bamboo before treatment. Photo: Community of students and teachers.





Technical training and student input: Cleaning bamboo before treatment. Photo: Community of students and teachers.



Student contribution: Cleaning of branches. Photo: Community of students and teachers.



Technical training and student input: Mixing chemicals for bamboo preservation. Photo: Community of students and teachers.

### 3) Preservation of bamboo:

Accompanied by the Ika Bambú team, **the students selected the best pieces of bamboo to begin their treatment with boric acid** and it was collectively agreed that the first batch of bamboo preservation that came out **would be used for the roof of the tank, since the priority was to have the tank covered and to be able to properly protect the chemical** from the elements and to be able to reuse the mixture for the entire preservation of the bamboo.

**In this process, the students learned to mix the chemicals for the preservation of the bamboo,** which consists of heating the water containers to the boiling point to pour the chemical and make the mixture with boric acid and borax and, later, empty it into the tank.

The preservation was carried out every time between 50 and 60 pieces of bamboo were collected, since that is the current capacity of the school's tank. The preservation time is 6 days. After this time, the bamboo is



Technical training and student contribution: Introduction of bamboo in preservation tank. Photo: Community of students and teachers.

removed from the tank and placed in an inclined position so that it can dry completely; once dry, it is protected from the sun and rain.



Technical training and student input: Bamboo preservation. Photo: Community of students and teachers.



Technical training and student input: Bamboo preservation. Photo: Community of students and teachers.

“ ”

[...] about the chemical treatment, it is so that the bamboo has more durability and it has to be covered because, if the rain gets in, the chemical no longer works the same way.

[...] in at kampa tik pankalakijkej in ojtat pajyo, in kichiua maj amo nimam palani uan moneki maj se kitsompacho.”

Students

“ ”

“

We have learned to light fires to boil the water to put it in the tank and then put the bamboo in.” [...] “When it is hot, yes, it is very difficult. But when it is cloudy, the weather is good to make the chemicals.

“

Students

“

I think it was very cool. More than anything, the process was fun, good experiences. We had fun. There were things we had never done. Now we have solved it and we did it.

“

**Nochi in tekit ika miak yolchikaualis tikchiukej, timo paktijkeuan timosenpaleuikej. Seki tekit amo keman tikchiuayaj uan in tonalmej tik tekitiltijtiouej.**

Students



“

It takes time, because you have to have large containers and at school we do not have them. We are boiling the preserved food in pots that are for tamales, which have to be like 30-liter pots, so it does take a bit of work. Besides, you get burned, there is the sun, so we all get, even the students, their sunbathing, right? [...] We have already got another pot from Doña Mica, which is what she makes her tamales with, and it needs to be replaced. The teacher will see how to replace it with the kids, through cooperation.

**Nochi yolik, itechin kalnemachtilyan amo kipiaj ajpas tein achi ueyi keman se tamolontia in at. Titamolontijokey itech yon kikuij tein ika kiokxitaij tamaj tein kiaki majya cempoal uan majtak litro, iikon ouij. Se chichinoui uan kemej in tona no se tonalchichinoui, ¿kanaj? [...] in siuatsin Mica tik taneuilijkej sekaxit kampa tik molontijkej in at tein tik pajtijkej, yejuaya in tamachtijkej uan pipil momachtianij kitaskej keni kikepatij.**

“

Eng. Isauro



Technical training and student input: Mixing chemicals for bamboo preservation. Photo: Community of students and teachers.



Technical training and student input: Bamboo preservation. Photo: Community of students and teachers.



Technical training and student input: Bamboo preservation. Photo: Community of students and teachers.



Technical training and student input: Bamboo drying. Photo: Community of students and teachers.



Technical training and student input: Bamboo drying. Photo: Community of students and teachers.



Technical training and student input: Bamboo drying. Photo: Community of students and teachers.



Technical training and student input: Bamboo drying. Photo: Community of students and teachers.





Technical training and student input: Bamboo drilling. Photo: Community of students and teachers.

**4) Ironing and perforating the bamboo for the tank roof:**  
The students began the collaborative work of perforating the bamboo and ironing it to create the roof of the treatment tank, so that it would be curved and cantilevered. In this way, the chemicals could be protected from the elements. **As this activity was carried out on March 8,** the students were participating in a workshop on Women's Day.

However, **at the end of their**

**celebration, they decided to help the students clean the bamboo to do the teamwork.**

**This process of training and collaboration** for the roof, between the student community and the teachers, **has encouraged the students to make their own creations and want to be part of new learning processes.**

**The ironing process is as follows:**  
the bamboo is cut with the help of a



Technical training and student input: Tank roof assembly. Photo: Community of students and teachers.

machete or a sharp knife. It is done little by little, at the same time that the piece is turned until reaching the opposite end, making the opening. Once the openings are made, another one is made to open the bamboo and, at the same time, remove the knots inside the piece to be able to level the bamboo and iron it. It is recommended to use the straightest pieces.

“

I always had doubts about how to iron bamboo, but now with the training they taught me the whole process [...] Well, the truth is I didn't know anything about this.

**Nej amo nik matia keni se kixmelaua in ojtat, uan aman kemej tech nextilijkej niuelika [...] amo tej nik niuelia**

Students

“



Technical training: Isauro teaching how to iron bamboo. Photo: Community of students and teachers.



Technical training and student contribution: Student ironing bamboo. Photo: Community of students and teachers.

“

What do you need to do it? Ah, well, a machete that is very sharp and a mallet to be able to hit it well [...] and you have to hit it at the knot.

**¿Toni tiktatekiutia keman tik chiu in tekit? Ah, monekimaj kualitenej in lapo uan sekauuit tein ika se ki majma [...] moneki maj se kimakampa nonamiktia in ojtat**

Students

“



Technical training and student contribution: Bamboo ironing. Photo: Community of students and teachers.



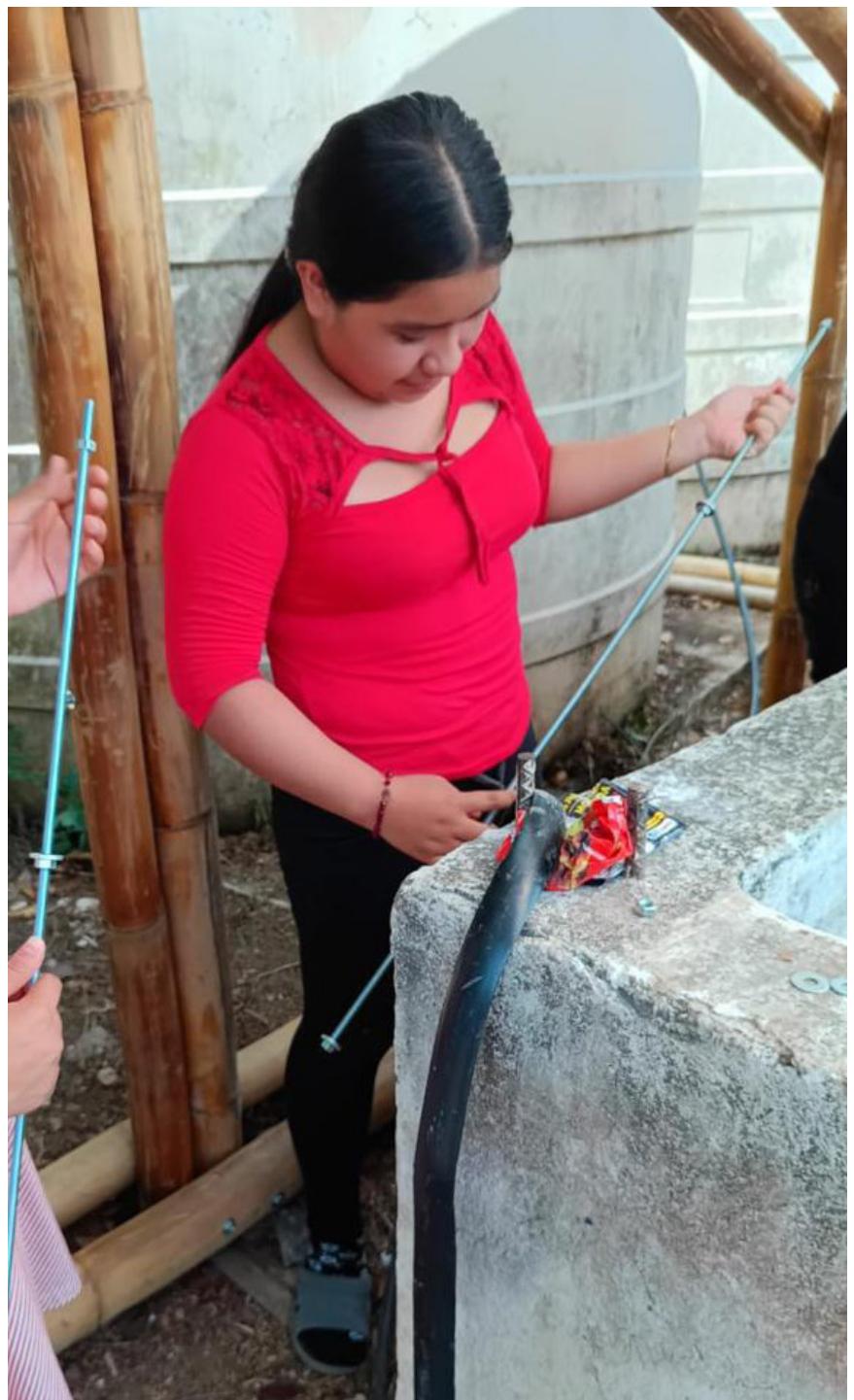
Ironed bamboo. Photo: Community of students and teachers.



Technical training and student input: Tank roof assembly. Photo: Community of students and teachers.



Technical training and student contribution: Bamboo cutting. Photo: Community of students and teachers.





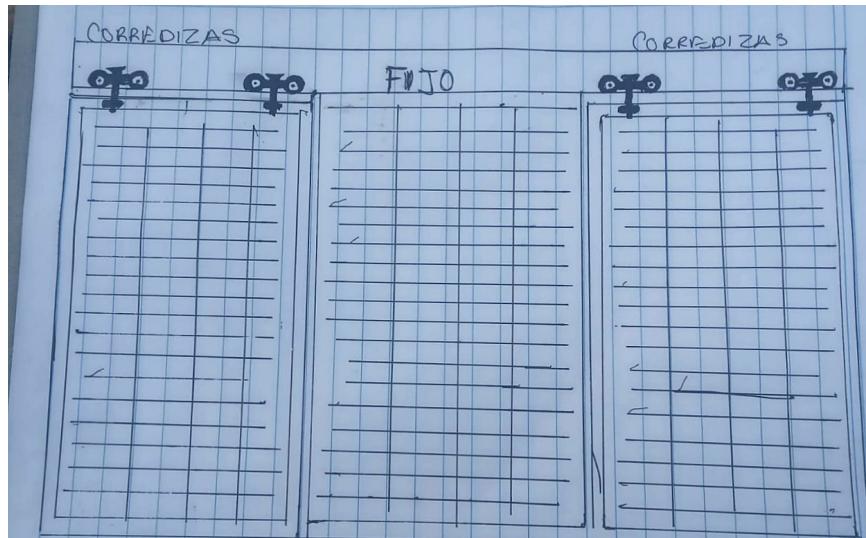
# PARTICIPATORY DESIGN

07

## PARTICIPATORY DESIGN:

Unlike “conventional design” – which is based on the “power of the expert” and responds to the needs of the capitalist mode of production – participatory design proposes alternative ways to socially produce our habitat, placing the common welfare and mutual liberation at the centre of the process. To achieve this, it relies on the development of anti-patriarchal participatory practices based on horizontal dialogue, the exchange of knowledge, collective creativity and the making of common agreements.

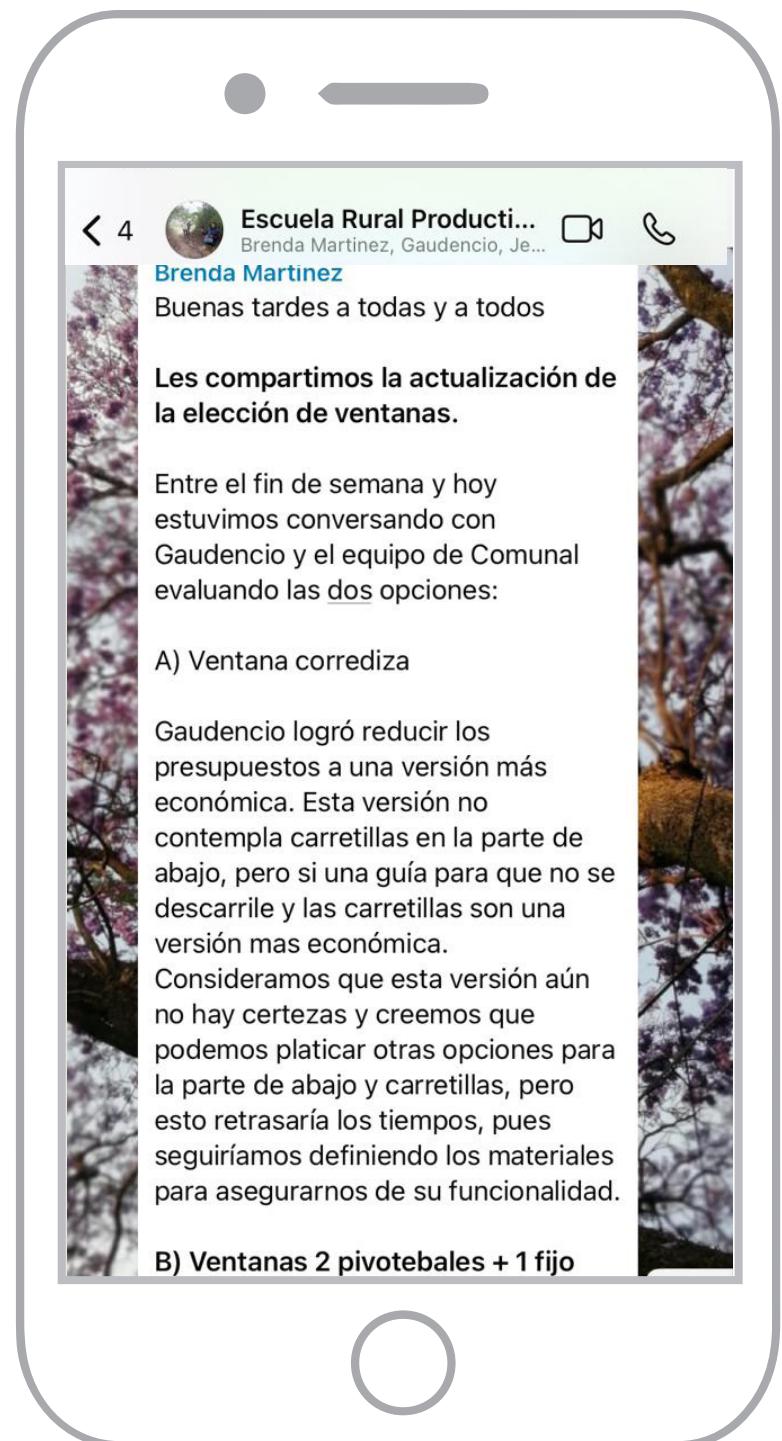
# PARTICIPATORY DESIGN

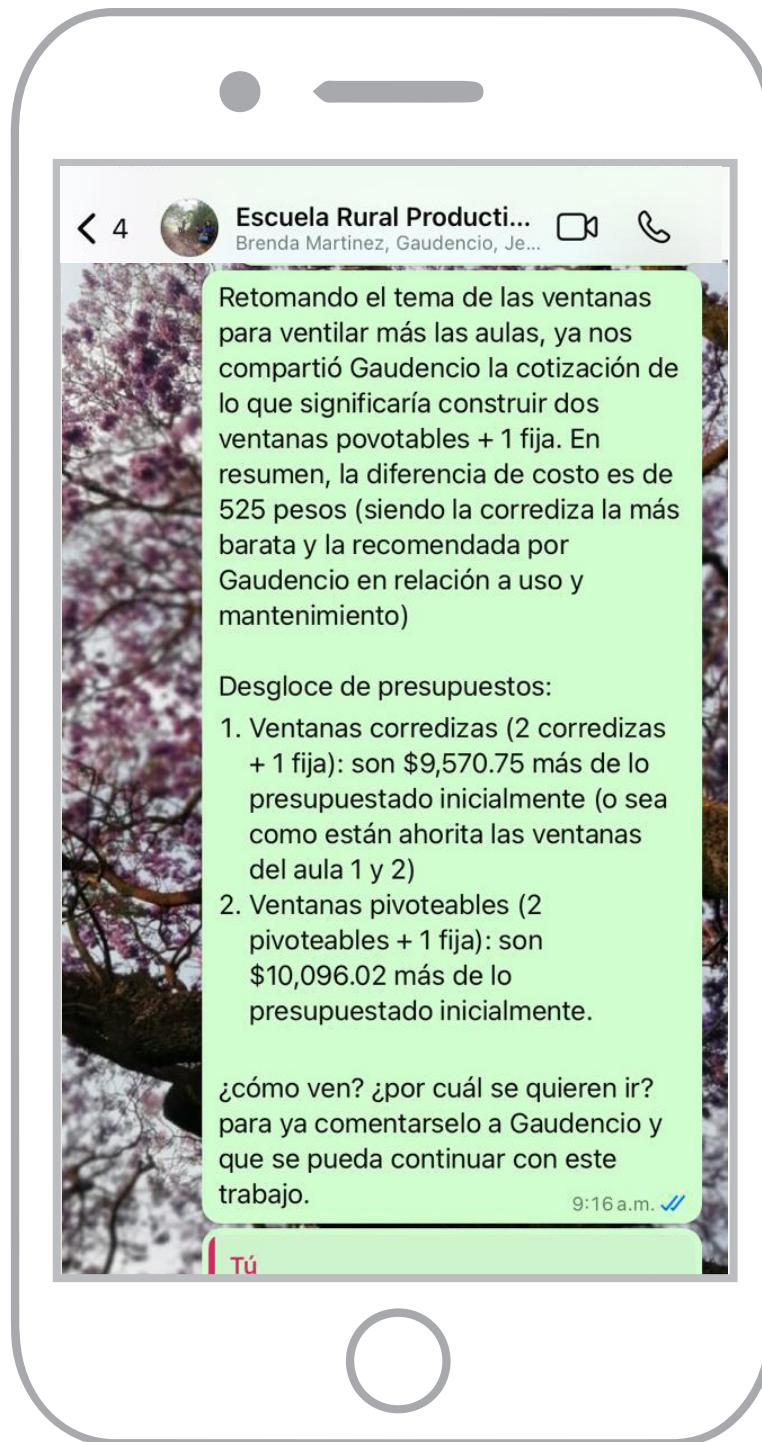


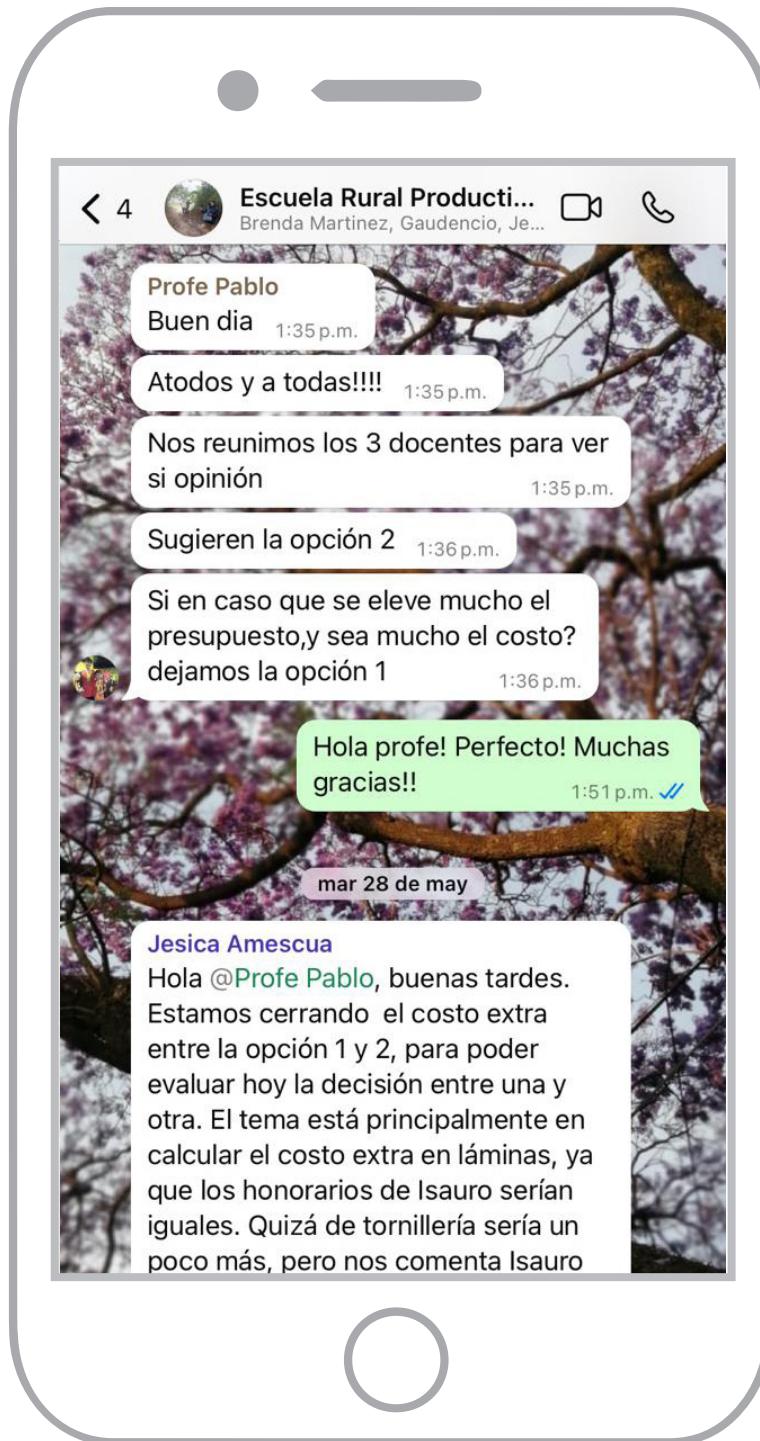
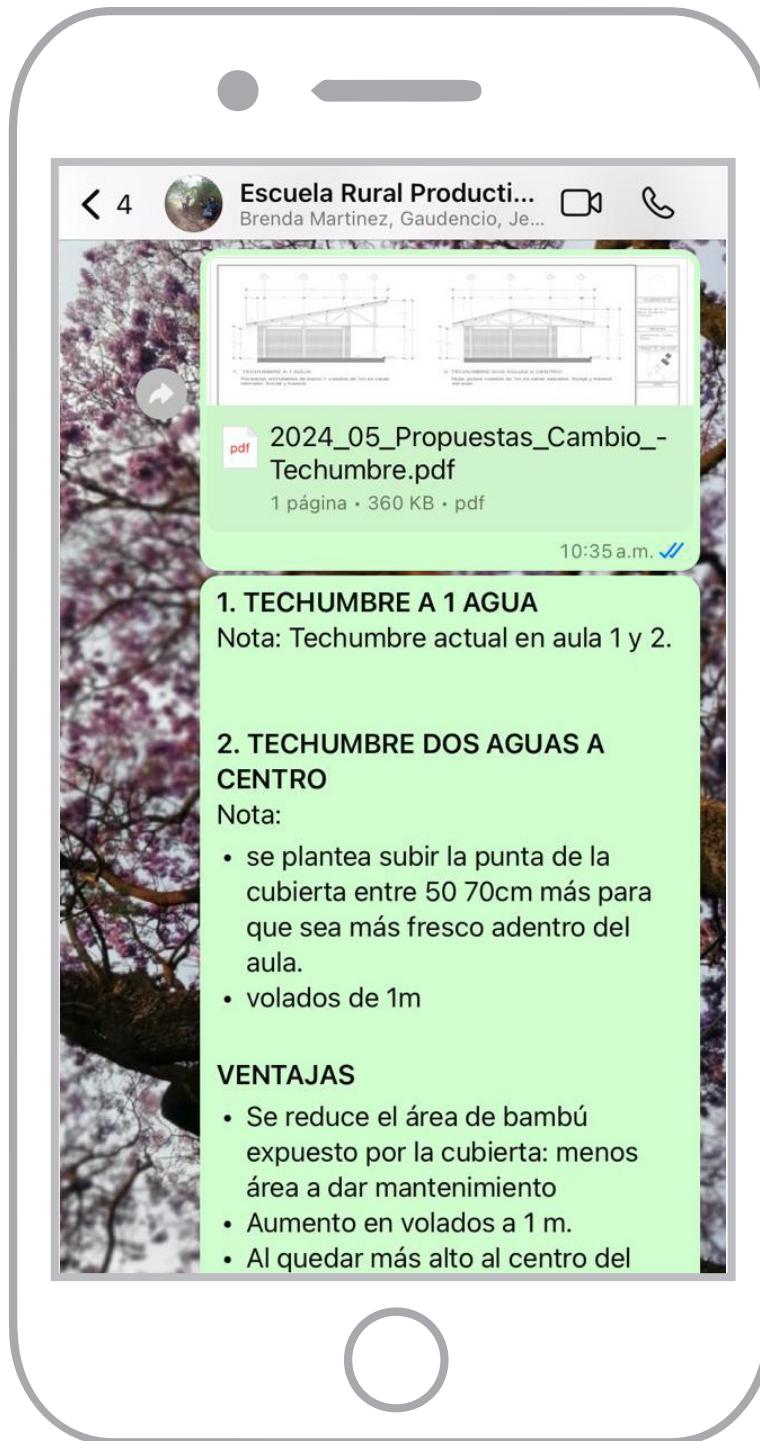
Gaudencio's proposal for the design of sliding windows. Photo: Gaudencio.

During the construction process, **the need arose to carry out a new participatory design phase for the classroom 3 project**, which had not initially been contemplated for the second phase of the project. This was because, during the visit to the school in April 2024, **the teachers made evident the relevance of carrying out a reflective evaluation of the spaces already built in the school**. The process consisted of an assessment of the first and second classrooms, taking into account

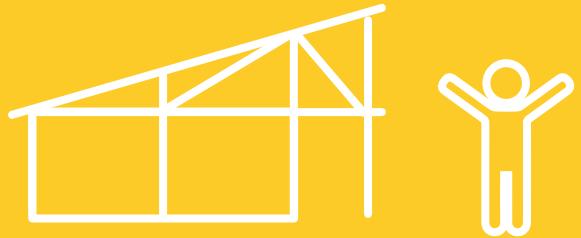
the considerations of the student community and teachers on the living conditions in said spaces, as well as the virtues and challenges regarding their use and maintenance. **This led to the generation of design alternatives for certain elements of the classroom** and, at the same time, to the **participatory analysis of the budget due to the effects of possible changes** to the project design.







## HABITABILITY ASSESSMENT



The “Habitability assessment” serves to record, assess and analyse the habitability conditions of spaces and their construction status. It is carried out through collaborative processes between the people who inhabit the project, construction masters who have participated in the construction, local people with extensive experience in the construction system or professionals who collaborate through the exchange of knowledge. This technique should conclude with a series of recommendations and action guides to be taken in the short, medium and long term.



# HABITABILITY ASSESSMENT

The reflections expressed by the teachers on the habitability assessment of the first two classrooms built in the school reflected the importance of **reducing the areas of the bamboo structure exposed to sunlight and rain, with a view to better preserving the construction** over time and facilitating the maintenance of classroom 3 in the medium and long term. Likewise, students and teachers expressed the **need to improve the ventilation of the classrooms**, since, in times of heat, the thermal sensation is very high inside. This led to the **participatory exploration of various design and budget options to modify the shape of the roof of classroom 3, its windows and the material of the final roof**.

Likewise, as a result of the habitability assessment, the teachers listed a series of transformations and

**improvements to the school project that they saw as pertinent to consider in the medium term, such as:**

**1) Relocating the bamboo treatment tank and the water tanks** with the intention of having more space for outdoor activities between the classrooms.

**2) Change the windows of classrooms 1 and 2**, replicating the same characteristics of the classroom and with a view to improving the thermal sensation inside the spaces.

**3) Design and build curtains made of bamboo** to protect the structures of the first two classrooms or change their roof with the same characteristics as the roof of classroom 3.



Entrance road to the school that is planned to be paved. Photo: Comunal.

**4) Pave the entrance path to the school.**

**5) Build a storage room and an office** between classroom 2 and the new classroom 3.

**6) Design a play area and library** built with bamboo.

**7) Acquire or create movable blackboards** so as not to damage the murals.

**8) Build a soccer field** for students in the free areas of the school.



Space where the soccer field is planned to be built. Photo: Comunal



Current location of the water and treatment tank. Photo: Comunal.



Bamboo is worn out due to exposure to the elements. Photo: Comunal

## GENERATION OF OPTIONS

- A \_\_\_\_\_
- B \_\_\_\_\_
- C \_\_\_\_\_

The “Generation of Options” technique allows the analysis and evaluation of multiple design possibilities in a comprehensive and participatory manner. That is to say, considering aspects related to: budget, time, construction know-how, climatic conditions, access to materials, design, etc. In general, this technique is applied after a first participatory design exercise that serves as a basis for the selection of variables and options to be compared.



# GENERATION OF OPTIONS

Based on the results of the “habitability assessment” exercise, the participatory design process began for the modification of the roof and windows of classroom 3, taking as a basis the generation of options and variables to be analyzed in order to jointly choose the final design of the classroom. The previous work included the **comparison of advantages and disadvantages of the different design options** in terms of: the results of the quotations, budget increases in the project, construction times, thermal comfort and maintenance. In other words, the comparative analysis integrated aspects related to the **short, medium and long term**.

## 1) Roofing:

In collaboration with the group of professors, the Ika Bamboo team and the Comunal team, **four roof design**

**options were analyzed** based on variables related to: structural efficiency, available budget, thermal comfort, maintenance, design and access to available bamboo material. After performing the comparative analysis, it was **concluded by consensus that option 2 “Gable roof in the center”** was the most appropriate for the project because:

**A) The area of bamboo exposed to the sun and weather is reduced**, meaning less maintenance in the long term.

**B) By having its highest point at the center of the classroom, the space feels cooler.**

**C) The corridor becomes habitable due to the shadow** generated by the new design.

**D) The gable roof dialogues with**



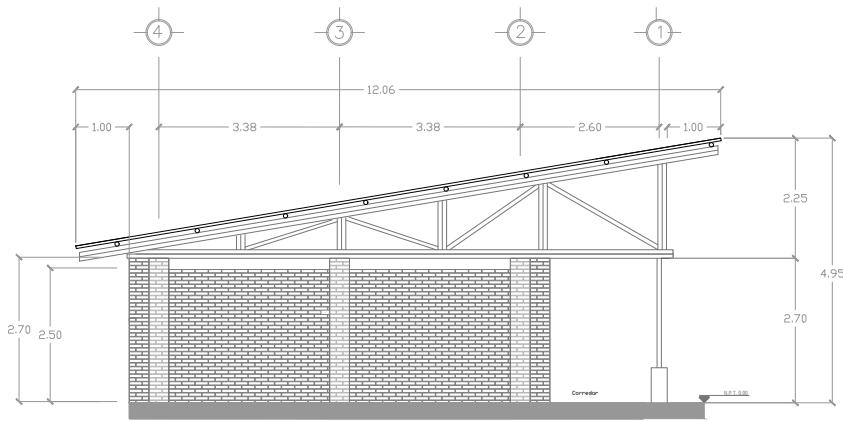
**The truth is that I really liked it [...] because it looks different from the others, it gives a more touch to the school. [...] One evening when the workers left, I came here and I realized that it was different because it was gabled and it looked very pretty, maybe because here we are used to a house having a gable roof. My house and my kitchen are small, but they are gabled.**

Mrs. Mica



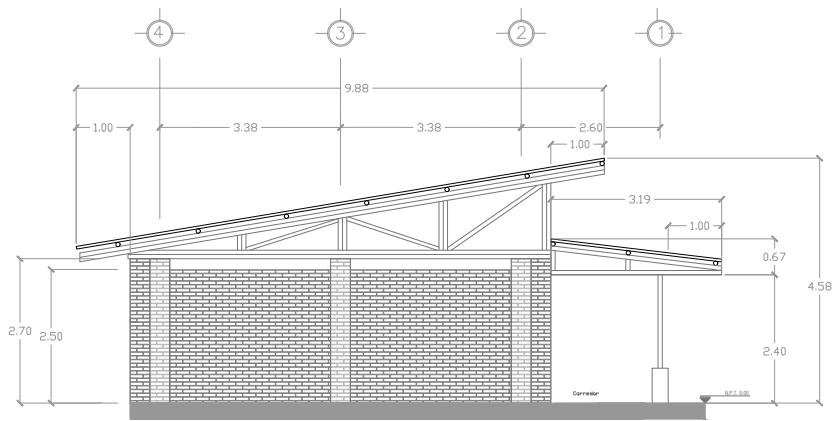
**the design of the traditional Tepetzintan house.**

**Even though the modification of the roof design meant an increase in the original budget and in the construction time of the project, it was collectively decided to make the change** and, in addition, to increase the front and side overhangs of classroom 3.



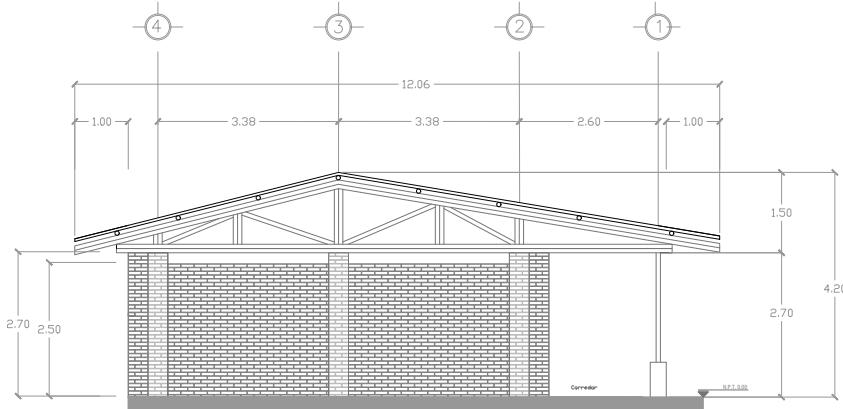
#### 1. TECHUMBRE A 1 AGUA

Persianas enrollables de bambú + volados de 1m en caras laterales, frontal y trasera



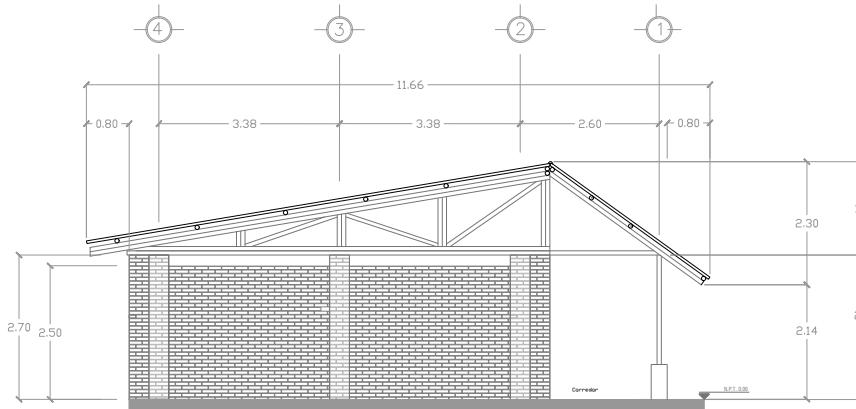
#### 3. TECHUMBRE DOS AGUAS QUEBRADAS EN CORREDOR

Nota: posee volados de 1m en caras laterales, frontal y trasera del aula.



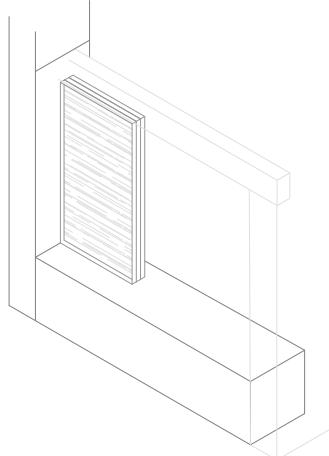
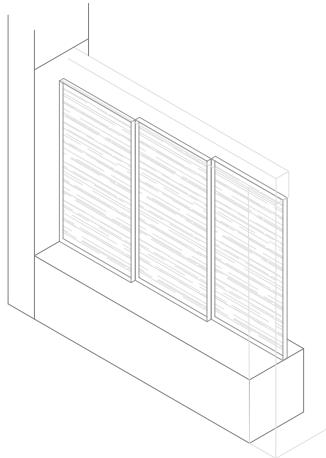
#### 2. TECHUMBRE DOS AGUAS A CENTRO

Nota: posee volados de 1m en caras laterales, frontal y trasera del aula.

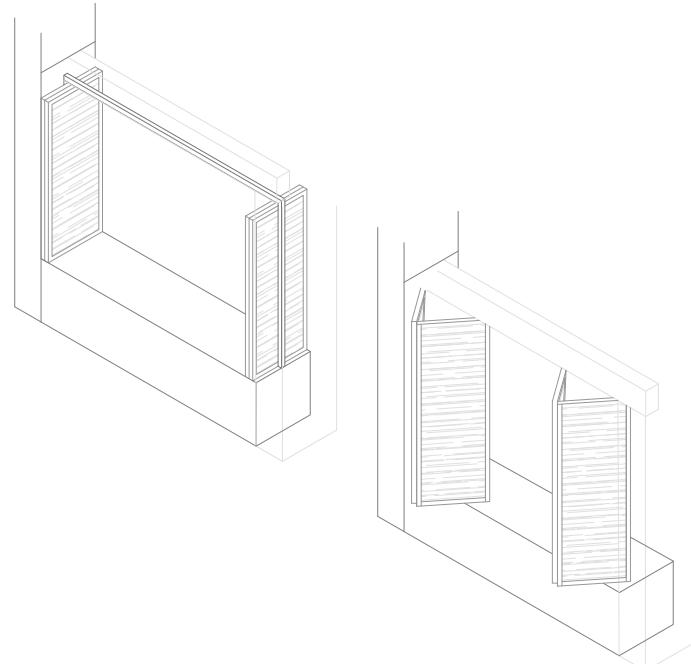


#### 4. TECHUMBRE A DOS AGUAS EN CORREDOR

Nota: posee volados de 80cm en caras laterales, frontal y trasera del aula.



Option B: Sliding windows. Drawing: Comunal



Option C: Accordion windows. Drawing: Comunal

### Windows:

In collaboration with the faculty group, the master builder and the Comunal team, **three window design options for the third classroom were analyzed**, which were:

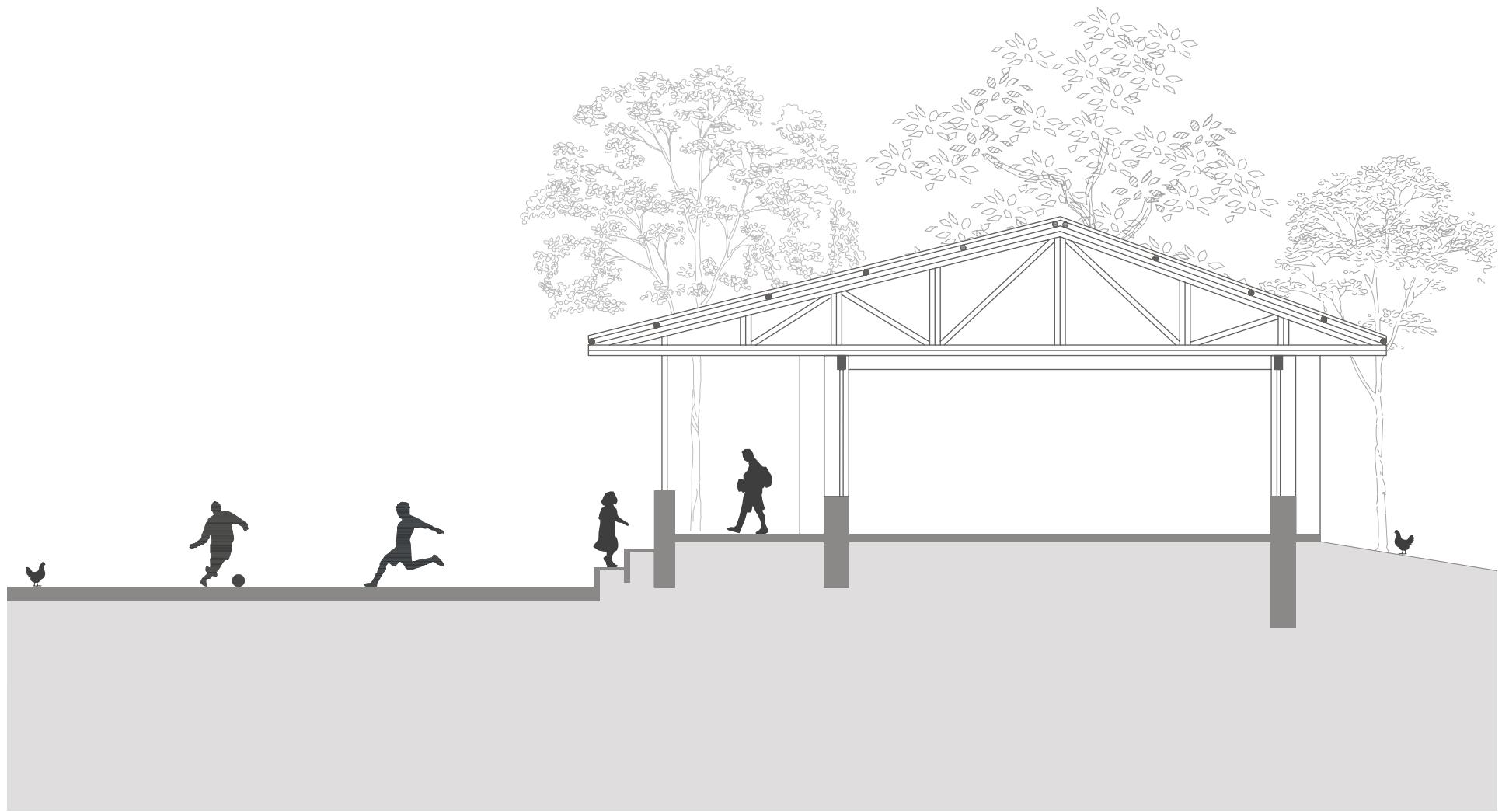
### C) to place accordion windows.

These proposals were also analyzed in a comprehensive manner based on the following variables: **budget, thermal comfort, spatial efficiency and maintenance.**

**A) change the windows conceived as fixed to pivotable windows.**

**B) to place sliding windows** instead of pivoting windows.

# OPTION CHOSEN BY THE COMMUNITY



## PARTICIPATORY BUDGETING



It is important to consider that “Participatory budgets” are adaptive and their updates are necessary at key moments: economic crises, price increases, shortages of materials, changes in the project design, among other factors. Therefore, their constant monitoring is essential and must be carried out in collaboration with all the people and actors involved throughout the project.

de obra de herramientas \$ 15,000 - (6) PZ  
tas \$ 7,000 - (2) PZ  
L. \$ 22,000 - MANO DE OBRA

TRABAJOS EXTRAS.  
MATERIAL \* MODIFICACIÓN  
EDIZAS.

$7 \times 6 = \$4,242$  — MATERIAL.

$6 = \$3,600$  — MANO DE OBRA

$1.57 \times 6 = \$12,609.42$  — MATERIAL

$6 = \$6000$  — MANO DE OBRA

$6.76 \times 6 = \$8,260.56$  — MATERIAL

$6 = \$4,200$  — MANO DE OBRA

# PARTICIPATORY BUDGETING

**The collective decision to modify the design of the roof and windows of classroom 3 was carried out in conjunction with a participatory budget monitoring process for the project.**

In May 2024, a second monitoring session was held by reviewing the **project's income and expenditure balance**.

Likewise, it was necessary to generate a new update of the quotes for the activities still pending to be carried out in collaboration with the construction manager and the Ika Bambú team.

The results of **this exercise showed that the additional and essential expenses incurred in the first half of the project represented a total of 10% of the original budget** and that this meant that the remaining **financial resources would be insufficient to cover all the scopes initially agreed upon**.

Added to this challenge was a significant increase

in the costs of construction materials, as well as the additional cost that the modification of the design of the roof and windows would entail. Thus, **the importance of generating a new moment of making agreements on how to prioritize the following actions in the project with the remaining budget was collectively identified**.

It was necessary to analyze the above from the generation of **two new participatory budgets**, one of which would contemplate the **priority actions** to be carried out considered by the community of teachers in the short term and the other would contemplate those **actions that could wait** and be carried out in the medium and long term.

These two budgets served as participatory tools to discuss and collectively reformulate the next

expenses to be made in a reasoned manner, as well as define adjustments in the collaborative actions of each of the actors. In this way, strategies were designed that could reduce the missing amount, such as:

## **1) Strengthening and expanding student contributions in the project:**

A) Changing the haulage that was planned as self-employment for student contribution.

B) self-producing the doors of the interiors of the bathrooms and the classroom furniture with the collected bamboo, instead of hiring labor to do these jobs.

## **2) Exchange the surplus stone**

(resulting from the extraction of slabs for the pedestals) for labor, as a barter with the local construction team.

**3) Generate a new funding moment** by Communal to cover part of the missing amount.

# SOCIAL

# PRODUCTION OF THE EDUCATIONAL SPACE (PART III)

08

## SOCIAL PRODUCTION: Completion of construction work

One of the main objectives of PyGSH is to generate collective strategies that boost people's strength and capacity for action. Among its main advantages are:

**Self-management + contribution (individual, family or community):** People manage the acquisition of materials and contribute their labor force. This results in co-responsibility for social and construction processes, as well as economic efficiencies.

**Integral collaboration + participation:** integral collaboration allows the participatory construction of planned and organized actions, since it recognizes the importance of people's involvement in the analysis and decision making on how to produce the habitat from the strategic and affective aspects.

# SOCIAL PRODUCTION OF THE EDUCATIONAL SPACE (PART III)



Training and student contribution: Bamboo window weaving. Photo: Community of students and teachers.

Once the new budgetary path and the type of modifications to be made to the initial design of classroom 3 were defined, the third part of the social production moment of the project focused on: **participatory processes of work follow-up, new technical training workshops for bamboo construction and new collaborative-organized actions that enhanced the involvement of the student community and**



# PARTICIPATORY CONSTRUCTION MONITORING



**“Participatory Monitoring of Work”** refers to those actions that are carried out collectively to monitor the social production process. Its main objectives include ensuring the structural quality of the project, replanning based on the social process, efficiently managing the budget, reflecting on the social relationships that are emerging, considering the affective and emotional dimension of the process and identifying common learnings, responding creatively to change.



# PARTICIPATORY CONSTRUCTION MONITORING

The last construction stage of the project included **collaborative monitoring of the work (between the teaching community, the Ika Bambú team, the local construction team and the Communal team)**, which included the review and monitoring of the construction of the bamboo structure and its assembly, the manufacture and completion of the bamboo panels for doors and windows, the placement of the PVC acoustic-thermal sheet to finish the roof, the completion of the final finishes and the placement of gutters in classroom 3.

**The main challenges faced in this construction stage were the tropical storms and depressions that occurred on site.** Due to the bad weather, the completion of the work was delayed for more than a month, which delayed the

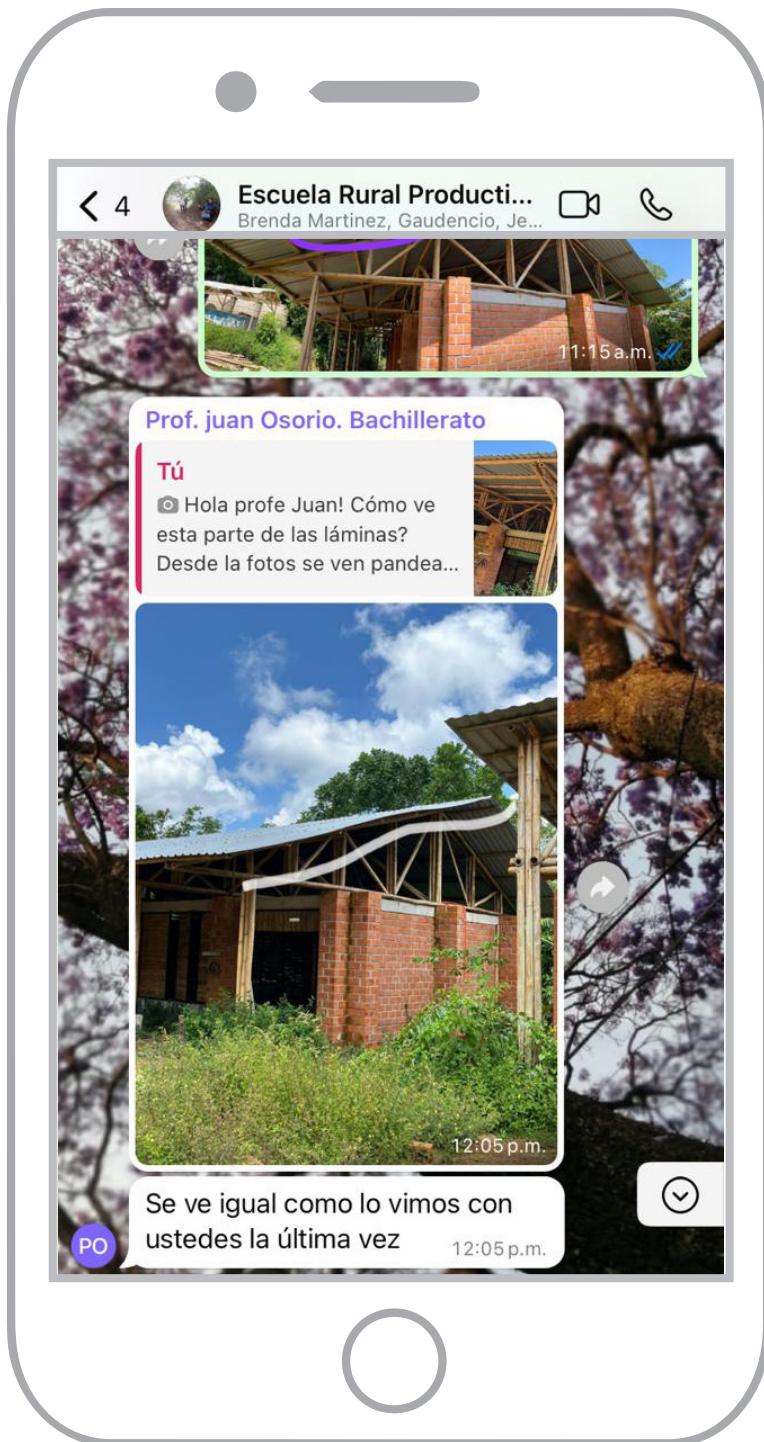
inauguration of the classroom and greatly **limited the time required for the social organization between the student community and the teachers regarding the preparation of the bamboo door and window panels.** Likewise, the bad weather conditions in the area delayed the scheduled times for the in-person visit to supervise the roof; However, **remote monitoring of the work and continuous communication with the teachers** were able to temporarily replace the review of the construction work.



On-site participatory construction monitoring. Photo: Comunal



On-site participatory construction monitoring. Photo: Comunal





## TECHNICAL TRAINING



The “Technical training workshops” are designed so that people involved in the social production of a project can reinforce their knowledge about the construction systems and materials that were collectively chosen during participatory design and strategic planning. The objective is to promote greater agency and involvement of people during the social production process, as well as to guarantee the tools and knowledge necessary for the evolutionary growth of the project to be carried out.



# TECHNICAL TRAINING

The second part of the technical training workshops for bamboo construction focused on the **implementation of “school-work” construction processes, in which the construction elements of the bamboo structure, such as trusses, columns and bracing, were collectively produced.** This included activities related to: the types of cuts, the use of tools for them, assembly, drilling and assembly of bamboo elements, preparation of studs and the final assembly of the structure. In addition, the workshops included the activities of laying bamboo for the weaves of the **window panels (18 pieces) and doors (2 pieces)**, as well as the braiding for its final placement.

**Moments of student contribution:**  
The student community and the community of teachers actively participated in the **planning and social organization required for**

**the construction activities** of the classroom roof structure and the **collective production of bamboo doors and windows (ironing, weaving and assembly)**; all of this as part of the technical training processes. Thus, students and teachers contributed significantly to the construction of five bamboo trusses for the roof structure, as well as to their **hauling and assembly on classroom 3.**

On the other hand, **the students joined in the work of unloading and hauling of 128 pieces of PVC thermal-acoustic sheeting** as part of the student contributions to the project.



Assembly of trusses for classroom 3. Photo: Community of students and teachers



Student contribution: truss hauling. Photo: Community of students and teachers.







Student Contribution: Placement of trusses. Photo: Community of students and teachers.



Student Contribution: Placement of trusses. Photo: Community of students and teachers.



Student Contribution: Placement of trusses. Photo: Community of students and teachers.





Bamboo structure of classroom 3. Photo: Community of students and teachers.



Bamboo structure of classroom 3. Photo: Community of students and teachers.



Bamboo structure of classroom 3. Photo: Community of students and teachers.



Student contribution: Ironing bamboo for the windows. Photo: Community of students and teachers.



Student contribution: Ironing bamboo for the windows. Photo: Community of students and teachers. 313



Student contribution: Ironing bamboo for the windows. Photo: Community of students and teachers.



Student contribution: Ironing bamboo for the windows. Photo: Community of students and teachers. 315



Student contribution: Ironing bamboo for the windows. Photo: Community of students and teachers.



Student contribution: Ironing bamboo for the windows. Photo: Community of students and teachers.





Student contribution: Cleaning and painting of metal frames. Photo: Community of students and teachers.



Student contribution: Cleaning and painting of metal frames. Photo: Community of students and teachers.



Student contribution: Cleaning and painting of metal frames. Photo: Community of students and teachers.



Student contribution: Cleaning and painting of metal frames. Photo: Community of students and teachers.



Student contribution: Bamboo weaving. Photo: Community of students and teachers.



We had to measure the cm so that they were all the same size and not too far off. [...] Our colleagues measured it and cut it and then we gave it the shape so that it would be like that.

Moneki maj kuali se kitamachiua, in kon amo se kichikotektiás. [...] in pipil tein iniuán timomachtiaj kitamachiua yaj uan kitakiaj tejuán sayoj tikiék taliayaj.

Students





Student contribution: Cleaning and painting of metal frames. Photo: Community of students and teachers.



Student contribution: Cleaning and painting of metal frames. Photo: Community of students and teachers.



Student contribution: Cleaning and painting of metal frames. Photo: Community of students and teachers.



Student contribution: Cleaning and painting of metal frames. Photo: Community of students and teachers.

Our hands hurt because it was so short. We were there for a while until we went out to lunch, we came back and the same thing happened again. [...] it took us approximately 1 week to make the windows.

**Tech makokouaya ta tech tekia. Ompa tiyetoyaj uan tatepan ti onalmasalouayaj un timokepayaj sepa ika in tekit.**



Student contribution: Cleaning and painting of metal frames. Photo: Community of students and teachers.





Student contribution: Cleaning and painting of metal frames. Photo: Community of students and teachers.



Student contribution: Cleaning and painting of metal frames. Photo: Community of students and teachers.



We split up: For example, the third graders made 6 windows and we did too, but with the first graders so that we could support each other.

**Timo xelouilijkej: in ppil tein momachtaj itech in expatika xiuit kichiuke chikuasen tatsakualoni uan tejuan no sayoj timo paleuijkej ika in tein yekinika xiuit kalak 'kej**

Students





Do you feel that with what they have learned about bamboo and how they have organized themselves with the tools available, they can make classroom furniture?  
Would they like to?

¿Timoluia ika noch i in tekit tein nanki sepan chiukej ika in ojtat, kuai uel nan kitatekiutiskej okseki tataman tekin tein uel nan kikuiskej itech in kalmachtiloyan? ¿nan kuelitaskiaj?



Sí, nada más que nos enseñen cómo hacerlo, el procedimiento. Más para las chicas que no tanto hemos hecho eso, pero sí ayudado en lo más fácil. Sí podríamos hacerlo.

**Yes. They just teach us how to do it, the procedure. More for the girls who haven't done that so much, but they have helped with the easiest part. Yes, we could do it.**

Students



Student contribution: Cleaning and painting of metal frames. Photo: Community of students a329 teachers.



Student contribution: Hauling roofing sheets. Photo: Community of students and teachers.



Student contribution: Hauling roofing sheets. Photo: Community of students and teachers.



Student contribution: Hauling roofing sheets. Photo: Community of students and teachers.



# INAUGURATION OF THE THIRD CLASSROOM

[2024]





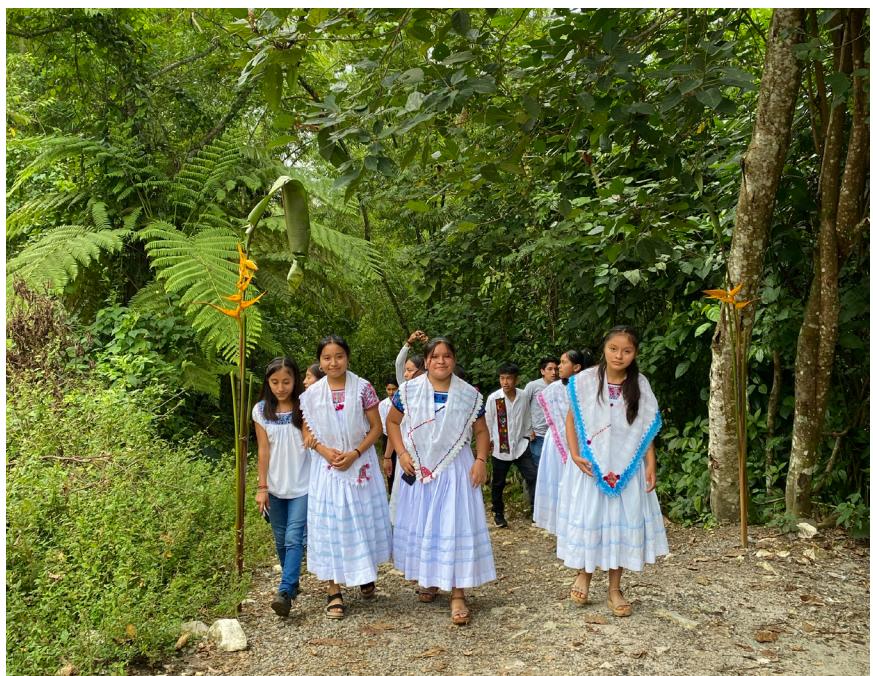




Inauguration day: Students in traditional costumes. Photo: Comunal.



Inauguration day: Donor welcome. Photo: Comunal.



Inauguration day: Students in traditional costumes. Photo: Comunal.



Inauguration day: Donor welcome. Photo: Comunal.



Inauguration of the classroom. Photo: Acronis and VirtualTeach



Inauguration day. Photo: Comunal.







Inauguration day: Presentation of student achievements and efforts. Photo: Comunal.



Inauguration day: Presentation of student achievements and efforts. Photo: Acronis and VirtualTeach.



Inauguration day: Presentation of student achievements and efforts. Photo: Acronis and VirtualTeach.



IN SEARCH OF  
INCREDIBLE



Inauguration day. Photo: Comunal.



Inauguration day. Photo: Acronis and VirtualTeach.







Inauguration day. Photo: Comunal



Inauguration day. Photo: Acronis and VirtualTeach



Inauguration day. Photo: Comunal.



Inauguration day. Photo: Acronis and VirtualTeach









Classes in the classroom. Photo: Community of students and teachers.



Classes in the classroom. Photo: Community of students and teachers.

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Acronis Cyber Foundation Program

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