Co-design spaces for peace-building in Colombia: A preliminary conceptualization

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Abstract*—The Colombian conflict between the government and the FARC-EP guerrilla affected during 52 years diverse social sectors. In 2016 a peace agreement was signed after 4 years of talks. In 2017, a group of academics, activists, makers, and designers got together to plan a co-design summit at a Territorial Space of Capacitation and Reconciliation (TSCR), in Guaviare, Colombia. The International Development Design Summit (IDDS) is a co-design event created by MIT D-Lab since 2007. The main objective is to design in a collaborative way low cost prototypes that face the priorities (needs, aspirations or dreams) of local communities in the territory. The authors were invited as part of the organization team, and stayed in the camp for three weeks in January 2018. This IDDS allowed to include social sectors that were marginalized and excluded of peace negotiation and their own pathway of life. In this sense, co-design in a peace-building process created a new space for start reconciliation and rebuild the social fabric. In this paper we present some of the challenges and results of the IDDS where 61 participants were trained with the co-design methodology, 9 prototypes were created and a reconciliation community was built. The above elements can be insight to the emergence of a possible peace engineering framework.

Keywords*—co-design, collaboration, peace-building, design space, Colombia, reconciliation.

I. Introduction

We live in a world where every year conflicts constantly emerge for political, environmental and economic reasons. In most of the continents we can find formal wars, conflict between tribals and social sectors and repression and oppression by the State. According to the Department of Peace and Conflicts of the Uppsala University, in 2016 there were 74 conflicts around the globe [1], and the number of refugees is increasing in the last years until 68.5 millions forcibly displaced people worldwide [2]. In America, Europe, Asia and Africa we can find several different events that generate suffering of millions of human beings and environmental damage (Figure 1).

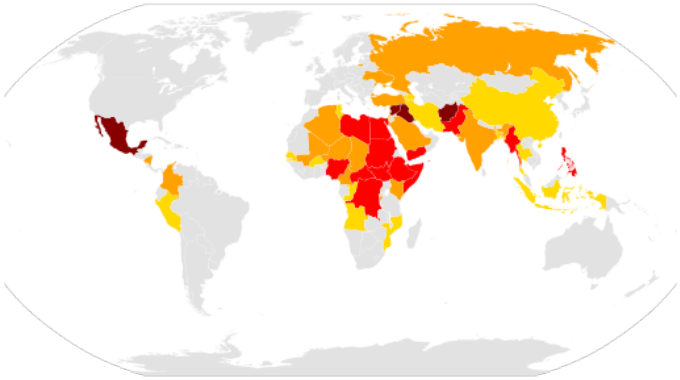

Figure 1: Conflicts around the globe in 2016.
Source: [3] .

In this case, we have to ask critically, what has been the role of engineering as a discipline in those conflicts? This is a deep question. We have to remember that Engineering was formally create by State institutions to complement the armies. In this case the Military Engineering was the first discipline in the field around the XVI century [4]. From this background we have to understand critically the close relationship between this field, their technologies and the conflicts [5]. Nevertheless, nowadays we have to create in a collective and transdisciplinary way new pathways for the Engineering, specially around peace and social justice. A more stronger relationship between engineering and peace building that allow us to find a new role of us in this world. Our societies need a new type of engineering that can be a mediator between expert and tacit knowledge, that can create spaces to design new solutions and alternatives to local opportunities related with sustainability, social justice, equity and resilience, and finally,

that can move forward to a plural idea of science, technology and innovation. We need a peace engineering contextualized to the unique characteristics of the cultures and environments.

The main objective of this paper is to explore the potential of using collaborative design (co-design) and peace-building as a space for generate reconciliation in a post-conflict context through the experience of the International Development Design Summit - Building Peace in January 2018. In the second part we explore the role of the engineering education and the relevance of humanitarian engineering, co-design and participatory design. Then, the third part we share briefly the context of the Colombian conflict, explain the methodology developed in D-Lab at MIT, and describe and reflect upon the International Development Co-Design Summit in San Jose de Guaviare (Colombia), as a novel way to generate a space for building peace through co-design. Finally, we will present the results of monitoring and evaluation of the summit based on qualitative data, in three different times: before, during and after the summit to determinate the awareness and the capabilities gained by the participants in this design space for start the journey of peace building at local level.

II. THEORETICAL FRAMEWORK

The role of engineering education in the world and particularly in the context of peace building is crucial. The social suffering and the crisis during and after the conflicts needs a response from the academia and in this case, from the engineering schools. Previously we seen the relation between engineering, conflict and social responsibility [6]. However, what could be the direct connection with peace? In this area some scholars have been working in the relation of the engineering, social justice and peace. For years those elements seemed incompatible in the traditional engineering education. Nevertheless, the complexity of the issues and opportunities in the context of peace-building creates an accurate scenario for the compatibility of those three element, as an interactive relationship [7, 8]. At the same time, some experiences at curriculum level has been explored [9].

Following the work of Vesilind [10], is clear the space for a new kind of perspective of the engineering discipline, this is the peace engineering. This can be resume as *"engineers that look for alternatives that would allow them to use their skills in a positive and proactive way to promote -positive- peace ..."* (pp. 135). This emerging perspective of the practice of engineers, have the challenge to define what it means *peace* from their praxis, sometimes a misused and a common concept. In this sense, we use the definition of *positive peace* by Johan Galtung [11], to precise the role of this kind of engineers in the society:

"positive peace is more than the absence of violence; it is the presence of social justice through equal opportunity, a fair distribution of power and resources, equal protection and impartial enforcement of law" (cited in 10, pp. 125).

Then this consideration of the positive peace *"is what peace engineering is all about"* (Ibid).

Engineering as a whole has resolved the needs and problems of *"society"* through the history. However, engineering has solved those problems for only some of the world's population; economic, social and technological marginalization has persisted throughout the centuries for large section of humanity, peace is dignity and human rights for all. In the Colombian context the poverty levels according to DANE [12] are 26.9%, while extreme poverty is around 8.5%, ie, 1 of 4 Colombians live in conditions of economic vulnerability. At the level of the tropical region, following the report of the Consortium State for the tropics [13], for 2017, 20% of the population of this region do not have access to a clean water source and 30% of the people in the Tropics do not have access to reliable electricity. Meanwhile, according to the United Nation Development Program – UNDP [14] - 783 million people live below the international poverty line of US$1.90 a day, mostly located in the "Global South". We see that the development of technological solutions alone does not resolve poverty for everyone.

This demonstrates the commitment of Engineering, both in its educational and pedagogical approach, to generate co-design solutions for these communities in terms of survival and post-conflict. Considering the techno-scientific and innovation development conceived as socio-political practices acting under interest established by the government, private companies and universities is necessary work with the communities at a place-based level [15]. Therefore, it is essential to integrate these practices, concepts and tools to build connections with other forms of knowledge and action, as in the case of empirical and traditional knowledge of local communities and ethnic minorities, mostly marginalized (peasant, indigenous, afro-descents and urban). In this sense in a post-conflict context as the Colombian case, after peace talks between the FARC-EP guerrilla and the government of Colombia these commitment of the engineering discipline is crucial.

From this viewpoint, engineering education must introduce new methodologies and concepts according to the cultural, environmental, political and geographical context, their actions relevant for strengthening the relationship with society as a whole and in local places [16], breaking the dichotomy between rational (cartesian) and emotional thinking, towards the *Sentipensar* [17]. In this regard, issues like social justice [18, 19], ethics [20], sustainability [21], resilience and deconstruction of development [22] must be framed within the praxis of engineering as an emergency to meet the challenges of the XXI Century [4]. In the next points we want to summarize central elements for conceptualize a strategy to create spaces for peace-building.

A. Humanitarian Engineering as a foundation for action

The humanitarian engineering as an object of inquiry in academia and professional practice is increasing. However, the conceptual and methodological development of this proposal has been approached recently from countries of the Global North -Europe and North America- [23], with critics of its praxis [24, 25]. In this sense the work of Bernard Amadei [27, 28], should be take in account to move forward a new

conceptualization of the engineer discipline in the context of build positive peace.

The relevance of research around new ways and approaches to engineering education and practice, which involves the strengthening of the role and engineers in the society, particularly, the marginalized peoples. This field has been quite discussed by institutions and individuals in the United States and some contributions from European countries, so here is one of its main weaknesses, which are not a concept or thought and appropriate approach from other latitudes. However, it is important to mention the effort being made to generate new opportunities for reflection through the creation of programs at universities in the Global South and relationships that emerge between institutions and communities to address this challenge [26]. Reflecting from its origin and place to contribute to the solution of priority problems, thus conceiving the Humanitarian Engineering as a disciplinary practice defined by Reina-Rozo & Leon as *"a field of engineering that aims for the co-creation of innovative solutions of priority problems of marginalized communities. Integrating the criteria of social justice and sustainability through processes of teaching, reflection, research, design, manufacturing and construction"* [26, pp. 74].

From above 20 years has been developing a research and academic activity around the Humanitarian Engineering, as trans-disciplinary field, meanwhile, converge in, knowledge and tools of history, politics, anthropology, sociology and economics, generating a comprehensive conception of reality as a socio-political practice. In this case, we have to explore the implications for the Global South and specially in post-agreement context as Colombia [26].

B. Co-design of fair and sustainable solutions

Another possible pillar of a new pathway for engineering should take into account the role of the user of the final product or technology produced in the process. Engineering like design traditionally uses the technological expertise of the expert to produce a solution to a defined problem. This is design for the users. However, two emerging concepts in local innovation in the development field are design with the user (co-design) and design by the user (user-led design). These concepts form part of a new area of practice called by various names, "participatory design", "local innovation", "co-design", "inclusive design" but they all refer to a process in which expertize is not solely defined by technical skills and knowledge and they all include the user in the entire process from problem identification throughout all stages of the design cycle. Below are the conceptualizations of the diverse approach of design in the framework of marginalized communities:

1. "*Design for users"* in which designers or technical experts design an end product for the users. In methodologies such as "human-centered design" or "user-centered design", there is a focus on integrating input and feedback from the users at some or all stages of the design.

2. "*Design with users"* is the process of co-design in which designers respectfully and intentionally invite people experiencing the challenge or opportunity to participate in the entire design process with them.

3. "*Design by users"* is user-led or user-created design, a radically approach to design by themselves. The user in this process identifies the problem and leads the design of the end product or service.

To add to the above conceptualization Cook [29], suggest the idea of co-creation in the development of one educational program to UK. In this sense he assess the IDDS 2012 held in Sao Paulo, Brazil. Some of his insights are the histories of success in the case of a partnership between one professional and a bike mechanic. In the case of Manzini [30], he has been working in the link among the design and the social innovation, specially remarking the traditional and experiencial knowledge of communities and how they can add to the process. He points out some examples of projects around the world (Global North and Global South).

Finally, Escobar [31, 32] adds the reflection of the culture, epistemology and ontology to the design process, the collaborative design. Also, he give us the idea of the pluriverse and the transition design towards a other possible world based on the relacionality instead the indiviluaty.

C. From Local Innovation to Communal Innovation: A plural and collective pathway to the positive peace.

In the field of development side there has been significant development of the concept of end users as innovators and a range of experiments and studies involving people in resource-poor communities as active participants in the innovation process. The final products of local innovation processes tend to be tools, technologies, products and services that solve problems that people in those communities experience in their lives. One researcher at MIT D-Lab [33] defines local innovation as:

"The process and the product of developing and introducing into use new and improved ways of doing things compared to existing practice within a specific local context, which involve local people and resources in addressing challenges and opportunities present within that context" [33, ´pp. 4]

The people in these communities, who are not -experts-, designers, engineers or professionals participate in identifying and framing problems and then contribute their own knowledge, creativity and skills to the process of constructing innovative solutions. In the literature, local innovation is understood as part of the development process towards the goal of self-realization and empowerment; innovation not just as the production of a new product but it's a means to enhance agency. However, those of local innovation looking for individual initiatives, leaving aside the collaborative and collective element of communities and offers no other alternatives to the discourse of development and its consequences. In this sense the concept of communal innovation emerge to generate alternatives from a relational way of shared problems and collective opportunities. This perspective is based in a plurality of ontologies, beyond the

idea of modernism and its homogenization of cultures and effects on the nature. Some of the columns are the autonomy, openness and disruptive futures. Above is given the definition of communal innovation:

"*the process of iterative innovation carried out by marginalized communities in response with contextual factors. This allows the autonomous design and creation of pertinent, contextual and collective solutions to their challenges, opportunities and aspirations in order to generate commons and, therefore, to move towards the communality. In the same way this process is mediated by the collaboration of community members, communities and organizations in the territory" [34, pp. 5].*

D-Lab background

Over the past ten years, D-Lab has organized International Development Design Summits (IDDS) to spread co-design. The two- to four-week summits are organized with a partner on the ground and linked to grassroots communities. Both sector experts and community members work in teams through the curriculum created by D-Lab and its partners in the International Development Innovation Network (IDIN) in an immersive, hands-on design experience. Each multi-cultural and multi-disciplinary team chooses a problem articulated by the community and goes through the design process to produce a prototype, usually a technology or service. Participants work together in the entire design process — including problem framing, idea generation, solution development, testing, feedback and iteration — as equal members of the design team. The process combines the sector specific or technical knowledge of the outside stakeholders and the community members' contextual, cultural and experiential knowledge to create a better solution together.

From 2012-2017, D-Lab led the International Development Innovation Network. Through the IDIN program, D-Lab helped lead 19 co-design summits and trained nearly a thousand individuals from 72 countries to co-design innovative approaches and technologies that reached over 700,000 people around the globe [35]. D-Lab's experience in co-design summits in Colombia included collaborating with the National University of Colombia to hold 3 co-design summits previously; one with waste pickers in 2015, one on education in 2016 and one on climate change adaptation in 2017. Based on the success of these experiences, the National University decided to explore the idea of holding a co-design summit as a potential way to enhance peace-building and reconciliation in Colombia in the wake of the 2016 Peace Accords. The Colombian conflict is more than 50 years old and extraordinarily complex. This paper does not pretend to provide a comprehensive overview of the conflict . Rather the section below endeavors to provide a brief summary of the key points in the conflict and the current tensions in the peace process.

III. COLOMBIAN CIVIL CONFLICT

The Colombian armed conflict has been one of the oldest conflicts in the world. The Colombian conflict has its roots in the historically dramatic economic, racial, social and political inequalities in Colombia since it became a country. There were outbreaks of armed fighting in the 1950s. Popular organizations, the progressive part of the Catholic Church, unions, peasant organizations, indigenous organizations and progressive political parties, had protested inequality and repressive actions from the security forces for decades with increasing resistance. On the other side, large landowners and the conservative business sector had pushed the government to maintain the status quo or took the law into their own hands with vigilante justice against grassroots organizations.

The conflict formally began in 1964 when the Colombian Government bombed a group of peasants who had organized themselves into Independent Republics [36]. Many groups on the political left -wing decided that armed resistance was the only way to achieve social, economic and political change and began guerrilla movements in different parts of the country. Throughout the conflict, there has been a diverse group of international and national actors with several and often-conflicting goals and interests. They include the Colombian Army, popular organizations, business interests, regional organizations, the church, drug traffickers, different left-wing guerrillas organizations, right-wing paramilitaries, and international governments as United States of America, Venezuela, Ecuador and Cuba.

According to the (Observatory for Memory and Conflict) [35], from the Centro Nacional de Memoria Histórica, some of the impacts of the civil conflict were:

- 262,197 fatalities; (where 46,813 were combatants, 215,005 civilians were killed).

- 7,7 million of internal displaced people.

- 37.094 kidnapped

However, since 2012 through 2016 peace negotiations were held in La Habana (Cuba), between the Colombian Government and the largest guerrilla movement, the FARC-EP (Fuerzas Armadas Revolucionarias de Colombia – Ejército del Pueblo). Tension and emotions run high in Colombian society around the peace process and there is still a high degree of division among the population around it. Just before the peace agreement was signed, a public referendum showed that a slight majority was not in agreement with the peace process. People are divided about the different components of the Peace Agreement including accountability or punishment for the FARC-EP and the Colombian Armed forces, reparation for the civilian population, people's right to regain land from which they fled, etc.

After the referendum, the Senate debated the peace agreement and a slim majority voted in favor of it. The peace agreement was signed in November of 2016 by both sides in Bogotá. The post-conflict period began from the signing of the agreement in November 2016. It is also called the post-agreement period because the conflict has changed in both its nature and impacts since the peace agreement was signed. The peace process faces many challenges, drug trafficking, a key economic factor in the conflict continues unabated. The other guerrilla organization, ELN (Ejercito de Liberación Nacional), is still in separate peace talks with the government. Political,

social, racial and economic inequality and injustice are still inherent at all levels in Colombia. The ex-paramilitary forces have disbanded as a formal organization but many of the individuals work for criminal groups, drug traffickers or have formed loose right wing vigilante groups. Massive and horrific human rights violations by the Colombian security forces, the guerrillas and the paramilitaries are not really addressed in the peace agreements and perpetrators will not be held accountable. Finally, the culture of structural violence which has been a part of society for decades has not been addressed by the peace agreements.

To follow up the implementation process The Krok Institute for International Peace Studies at Notre Dame University has been studied this peace agreement in Colombia. According to this think thank, some of the key data points on compliance with the goals of the agreement are below:

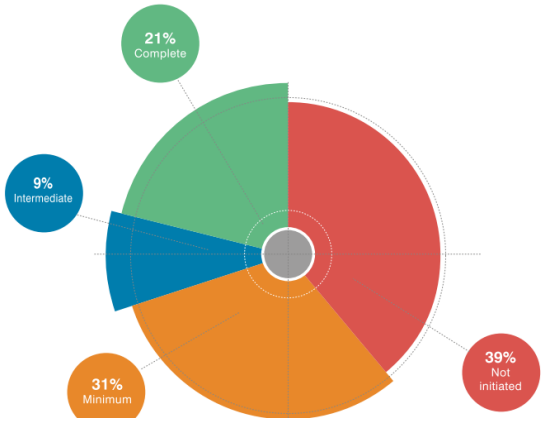

Figure 2: Implementation status of the 578 stipulations
Source: [37, 38] .

The comparative analysis indicates that *"the degree of progress in the Colombia peace process is equivalent to the average pace of implementation in other Comprehensive peace accords"* [38, pp. 7). Some of the main concerns for implementation are:

• Inadequate guarantees of security and community protection.

• The slow processes of long-term political, social, and economic reincorporation for ex-combatants.

• Pending regulatory and institutional adjustments.

A. Territorial Spaces for Training and Reincorporation

No where are the tensions and difficulties of the peace process more evident than in the areas where the ex-guerillas are concentrated in the transition from armed combatants to civilian life. The reincorporation of the FARC into civilian life, disarmament, demobilization and reintegration (DDR) in Colombia has carefully defined stages. The ex-guerillas are concentrated in several sites, see Figure 3, they have given in their arms and remain in the "camps" called Territorial Space for Training and Reincorporation (Espacios Territoriales de Capacitación y Reincorporación - ETCR). These are places that the Colombian government adequate to host the former guerrilla members, there they have to start the process of transition from the conflict to the civil life. The peace agreement created around 24 of those areas for this transit.

These sites are located in the periphery of Colombia from the rainforest in the south to the desserts in the North, from the mountains in the west to the Savannah in the East. One of these areas is called ETCR Jaime Pardo Leal, located in San José del Guaviare in the Guaviare department. This space is around 10 hours from Bogota, the capital city of Colombia.

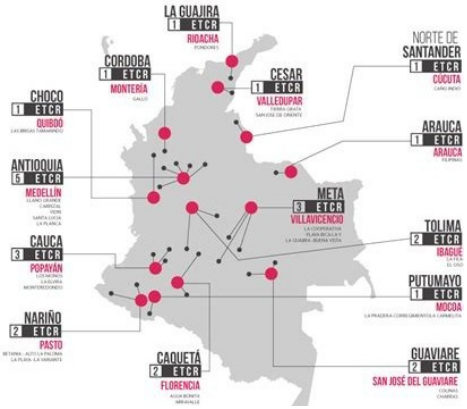

Figure 3: ETCR in Colombia
Source: [39]

B. The Co-design summit in Colombia - creating a space for peace-building.

It is in this ETCR Jaime Pardo Leal in San Jose Guaviare where the National University of Colombia decided to experiment with a co-design summit as a peace-building action. They wanted to see if the summit could create a neutral space for ex-combatants from the FARC and the civilian population could meet, interact on practical projects and begin to develop working relationships that could provide a basis of trust which is the first step towards peace building. In many ways, ETCR Jaime Pardo Leal exemplifies the tensions and difficulties of creating peace in Colombia, particularly in the conflict affected areas of the countryside. For this reason, it is an excellent site for a pilot.

The ETCR is a very vulnerable area which was the site of recurrent conflict and atrocities during the war. Civilians from the area gave testimony about murders carried out against the population by both the guerrillas and the paramilitary organizations during the war. The guerrillas also levied war taxes against the population. Since the peace accords, the tensions in the area have not been markedly reduced. This is a very vulnerable areas where the Government use to doesn't have presence in this territory. The lack of energy, water, sanitation, health services and education are the norm. Each space has to create their own ways to delivery and full those basic needs. Particularly, in the area of the ETCR Jaime Pardo Leal the ecosystem is rainy forest and savanna, this is the connection between the Andes Mountains and the Amazon region. There, the main economic activities are related with agriculture, wood and cattle. In the space they have some crops and fisher pools, but it is not sufficient for the 300 people living there.

Although, some actors started to have a dialogue around the idea of create a space to co-design local solutions from the bottom with the active participation of the local affected communities. The Colombian National University with support from the National Federation of Departments, the Norwegian Council for Refugees and the International Development Innovation Network held the International Development Design Summit (IDDS). The IDDS are intense, hands-on, community-based design experiences that bring together a diverse group of people to teach them the collaborative design process and how to prototype low-cost technological and service solutions to improve livelihoods of people living in poverty [35]. Specially in this summits, as a complementary element, ware conduct a series of “peace activities” to generate a safe space of trust, some of these activities were a role game of the actors involved in a peace process, a puzzles with alternative elements to consider in the peace process from a civil society perspective, insight of successful local innovations in other peace process and the creation of a network of care and commons.

This summit has 11 years of experience around the globe in USA, Latin America, Africa and Asia created in the MIT D-Lab. Colombia was selected to held this summit with the topic of Building Peace, to foster co-design in post-agreement context. In this case the events was carried out the last two weeks of January of 2018, to know a more deeply description about the curriculum and activities of the IDDS see [41]. The main objectives were:

- To see that the FARC-EP guerrilla reintegrates of the ETCR - Jaime Pardo Leal and the people of the neighboring communities strengthen their cooperation ties around common needs and/or problems.
- The reintegrates should be aware of the great potential they have to help consolidate the peace process, as they can now be leaders in the search for solutions to the problems of the communities where they have an impact.
- That the workshop and its tools, where we carry out the IDDS, remain installed in the ETCR (both the physical space and the tools), so IDDS projects can continue working or those that the communities consider relevant in the future. In other words, we hope to create a Center for *Innovation in Social Technologies* in the ETCR - Jaime Pardo Leal, and that this will be a space for reconciliation from co-design perspective.
- May we be able to replicate the IDDS – Building peace, Reconciliation from Co-Creation in other parts of the country and the world; and may some of the organizers and participants of this meeting accompany us in this task.

Months before the summit, the organizing team from National University of Colombia promoted workshops in the ETCR and in the communities around to promote proximity between them. Besides the activities, they investigated possible projects to be developed in the summit. To choose the projects, some factors were considered: "*the extent of the problem in the region; the number of people potentially affected; the viability of building a prototype during the summit and with easily accessed materials within the context; the possibility of escalation to other regions of the country; the interest of the communities"*

The summit convened 61 participants, 24 locals from Colombia, 30 non-locals from Colombia and 7 internationals, where 37 were men and 24 women. This experience was held inside the ETCR and the duration was 15 days.

IV. Methods and data

The main goal of the study is to investigate aspects that should be repeated in the future IDDS, as well as lessons learned to improve for the next ones. We separated the evaluation into three different audiences: participants, organizers, and community partners. In this paper, we will focus on the participant evaluation and in the outcomes for the community partner.

To gather responses of participants, we obtained qualitative data through a survey developed to monitor and evaluate the performance of the co-design summit elaborated by IDIN. Based on previous participants' IDDS surveys, the authors A and B localized and translated to Spanish more than 155 questions. We handed out at separate times during the summit, to take into account the effects of the summit's process on the participants. Those surveys were filled in three moments, at the first day of the summit to know about the expectations and level of knowledge; during the summit to monitor the advance of the methodology and last day of the summit, to assess the achievement of pre-established objectives.

The surveys were printed and distributed to participants. Those who had the ability using digital documents, the form was available on usb drive or on organizers' computer, so they could fill out the surveys. The survey was optional (not required) to take and they could choose to only answer questions they were comfortable with.

A. Surveys data

The participants of the survey were informed that their name would not be revealed to anyone outside the organizing team. They were also aware that "if we use this information in the future, your name will be removed so that your answers are anonymous. These anonymous responses will then be used by IDDS and IDIN staff for program improvement purposes, to report to donor agencies, and possibly to inform future research activities".

- First Survey

The first survey was given after the participants registration. The questions helped us to better understand the diversity of backgrounds, experiences, skills, and aspirations that participants are bringing to the summit. In total, 30 participants filled the survey. One of the authors, together with organizers, drew an infographic (Figure 4) representing the answers collected.

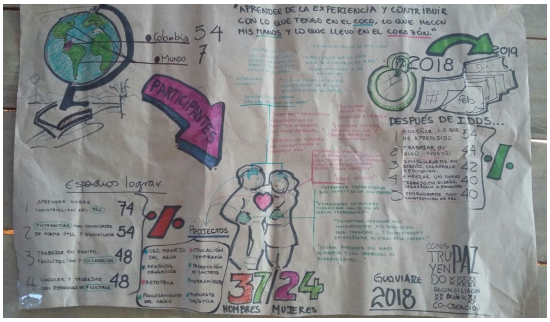

Figure 4: Infographic created after first survey
Source: Authors

From this first survey it was possible to collect information about their expectations, their confidence in doing/making different activities and what they most hope to accomplish. 74% of the participants were interested in learning about the opportunities in building peace in Colombia and 54% would like to interact with local communities in a meaningful way.

Qualitative data was collected in open questions related to participants' goals, and how IDDS can be successful for them. Respondents' goals included:

"Learn from the experience and contribute with what I have in my head, what my hands can make and with what I bring in my heart"

"Find people that compliment my capacities to work and that we develop projects together at the end of the summit"

- Middle Survey

The survey in the middle of the summit is used like a thermometer and give the organizers the opportunity to adjust activities in the coming week to the participants needs. 37 participants filled the survey, where they were asked to share good and not so good moments, how satisfied they were about the housing, food, schedule, the activities and give an overview about the design team and the project development. The first question was about their favorite moment and the answers were put in a cloud to visualize better in the below figure.

Figure 5: Word cloud created after middle survey
Source: Authors

To understand the above figure, *Todos* means *all* and *Comunidad* means *community*. A participant described her/his favorite moment:

"See the peasants arrive at the workshop, help to make his siege, listen to the people's stories, dance, play volleyball with people from the community."

The second question was about their less favorite moment and the answers were put in a cloud to visualize better. *Ninguno* means *none* and *Presión* means *pressure*:

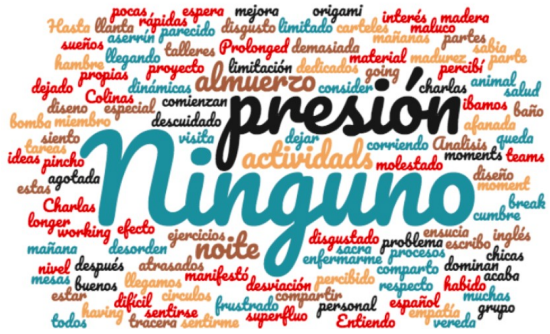

Figure 5: Word cloud created after middle survey
Source: Authors

Another question was what participants were surprised about. One participant answered:

"The wisdom of the peasants and the learning about the design methodology."

Some participants called attention about the need to have *"more free time to be able to think and process [...] ideas."* With that information, organizers could decide between slowing down or not the rhythm of the summit.

- Last Survey

Despite the tiredness of all participants in the last day, 25 participants filled the last survey. The questions were related to lessons participants will take with them, self-assessment, what to do after IDDS and suggestions about IDDS improvement. In most of the answers, participants expressed their excitement about the summit and the wish to go back and keep working in the projects.

One of the most important information is about their confidence in doing some activities before and after the summit. At this IDDS, all the skills increased from somewhat comfortable to very comfortable. The ability that increased from neutral to very comfortable were *"I can design new materials or educational experiences"* and *"I can find solutions through co-creation in a group made up of people with different backgrounds"*.

When asked about their primary goals in the next 12 months, 64% expressed interest in being a facilitator in future workshops.

One of the authors returned to the camp six months later to investigate new ways of collaboration with ex-combatants. During the stay, it was possible to talk to four dwellers of

ETCR about the outcomes of IDDS Building Peace. One of the them said *"UNAL and people from IDDS were the only one to return after gathering information from us. Usually researchers come here, interview and never come back nor contact again."*

At least 10 people (amongst participants and organizers) returned to ETCR to engage into the continuity of projects or to work on new opportunities after 6 months.

V. Conclusions

The conclusions for this ongoing process are preliminaries. It has been an experimentation in the context of the peace accord implementation in Colombia. We consider that the direct impacts will be clear in a medium and long term, in the transformation of relationships between the former FARC-EP members and the communities and the collective work that is starting to emerge. The complexity of the peace agreement make challenging to create new kind of processes from the button-up.

For two weeks, IDDS created a safe space for integration of interdisciplinary teams with different backgrounds to solve issues mapped out by the organizers in collaboration with the local communities. The space also contributed to promote conversations between FARC-EP ex-combatants and peasants of the neighborhood, as the project groups were formed in a way where at least one ex-combatant and one peasants integrated the team. This way, the process of building trust started. However, the neutrality of the space can be questioned, specially in the case of power relations from the coordinators of the FARC's ETCR and organizers.

This experience has been a unique learning scenario to bring people from a diverse pool of backgrounds, in terms of educational, cultural, economical and political. There were people coming from Universities (students and teachers of Design and Engineering), professionals, NGO's workers, peasants and ex-combatants. In this case, the tacit knowledge from members of communities and FARC-EP, were interwoven with the knowledge built in the Academia. Particularly, in the sense of knowledge about environment, resources and skills. This extracurricular and suigeneris space allowed to unlearn ideas, theories and prejudgments, and built together throughout the co-design methodology collective prototypes to face the common issues and dreams in the region.

Learning about the outcomes in terms of design, were built 9 prototypes in the fields of agriculture, education, sanitation, leisure and tourism. They express a variety of areas that the co-design can be use to allow the creation of alternatives from the collaboration of people that used immerse in a conflict and can be change makers working hand in hand with the affected communities, natinoal and internatinoal participants. The list of the solution are the below:

- Abonando la paz – Hakuna bioresiduos (Composting device).

- Bicimolino para concentrado animal – Recolectores nativos (Animal concentrate pedal-powered mill).

- Conexión cacao (Cacao roaster).

- Guavi-aire – Retoteca (Games place for children).

- Herramientas para la agricultura – Arrieros (Agriculture tools).

- Juegos de paz – Educación temprana (Peace games).

- Lactiare – Lacteos del guaviare (Dairy processing).

- Módulos de botellas PET (SODIS) y sombrilla captadora de agua lluvia. (Rainwater collection system).

- PARDO – Turismo para la reconciliación (Tourism for reconciliation).

The Building Peace activities was a space for dialogue, in the middle of a building process. According to the summit topic, this experience generated a set of activities oriented to start to build trust from the open dialogue and then allow to discuss and think together about the key elements that the civil society can provide to the formal peace accords, and specially in the implementation phase. Besides this, the links between engineering, social justice and peace are here explicit and becoming crucial to develop programs to allow the autonomy of communities.

Finally, we feel that humanitarian engineering, co-design and communal innovation should be key components of strategies and actions in processes of peace building, as a complement that can nurture it through methodological strategies that are pluralistic and participatory. This put in focus the key role of the ex-combatants, peasants, indigenous communities, victims, as the people that can create futures that make peace a reality to foster the collective wellbeing in the country.

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