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Mapping Development in Cameroon: Challenging Dominant Narratives

Hannah Skutt

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Challenging Dominant Narratives

By
Hannah Lynnea Skutt

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Professor Harmony O'Rourke
Professor Susan Phillips
Professor Marie-Denise Shelton
Professor Nathalie Rachlin

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Abstract

In this thesis I reflect upon a digital mapping project I did in the rural agricultural villages of Bangoua and Batoufam in the Grassfields region of Cameroon. This thesis considers digital mapping as a possible strategy for addressing a current dichotomy in these villages. On the one hand community members express concern over observed shifts in local weather patterns, which they attribute to climate change, and on the other hand community members express desperation for "development." Of over 130 mapped points, I use this thesis to look at three case studies of community centered development initiatives that address both development and sustainability. In the Water is Life well-building training program, locals are empowered to build water wells, reducing village dependency on foreign teams of experts, which in turn reduces the environmental impact of displacement of these foreign teams and imported materials, and also generally increases the longevity of the water infrastructure by ensuring that local people are able to maintain and repair the system. In the case study of the reforestation project at College Evangélique de Bangoua, reforestation is used as a method for teaching adolescents about the importance of protecting the environment, as well as commerce skills, since the school director has plans to let the students sell the fruits from the trees once they have grown big enough and keep the profits. In the solar panel water system in Batoufam, the local water council challenged the dominant development model for water infrastructure (single-point, manual pump) and designed an extensive network of 10 faucets throughout the village connected to a solar powered electrically pumped well and reservoir. These three examples give hope to the possibility of addressing both climate change and development needs with the same initiatives; however, this process also illuminated the shortcomings of grassroots development. This project uses the mapping process to complicate dominant narratives about top-down and grassroots development. Ultimately, I will propose that this method of digital mapping itself carries potential for addressing the sometimes-polarized desires for sustainability and development.

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• Part 1 •

Introduction

While some papers begin with quotes or anecdotes, it seems only fitting to open this one with maps.

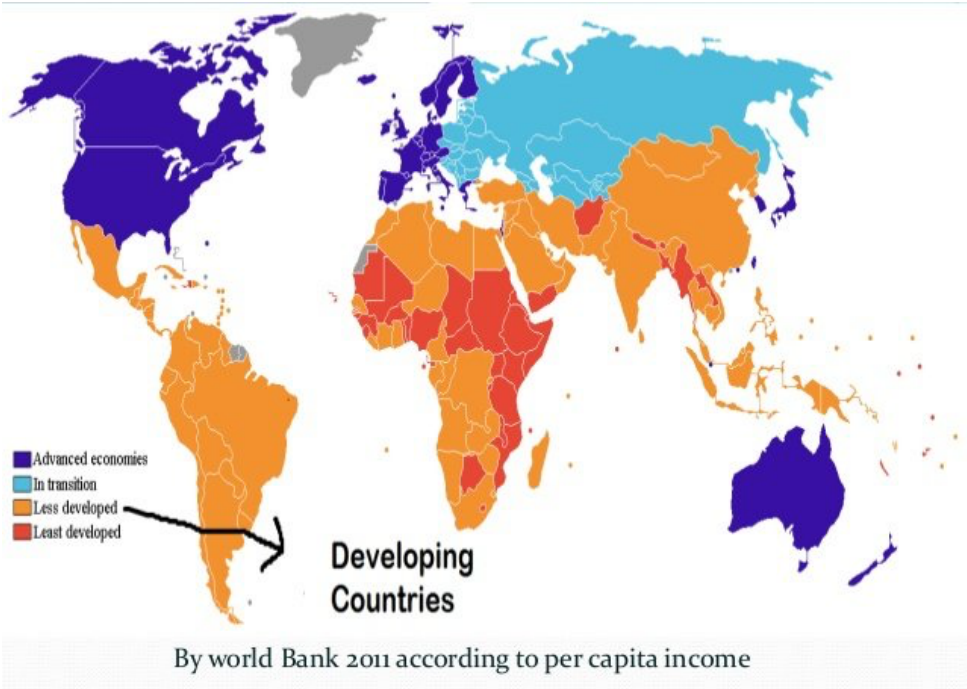


Figure 1 - Map of Developing Countries made by the World Bank using 2011 data on per capita income. Retrieved from https://www.researchgate.net/post/What_are_the_basic_problems_of_a_developing_country_Political_instability_Crime_in_the_administration_Bureaucracy_of_the_donors_or_Mismanagement

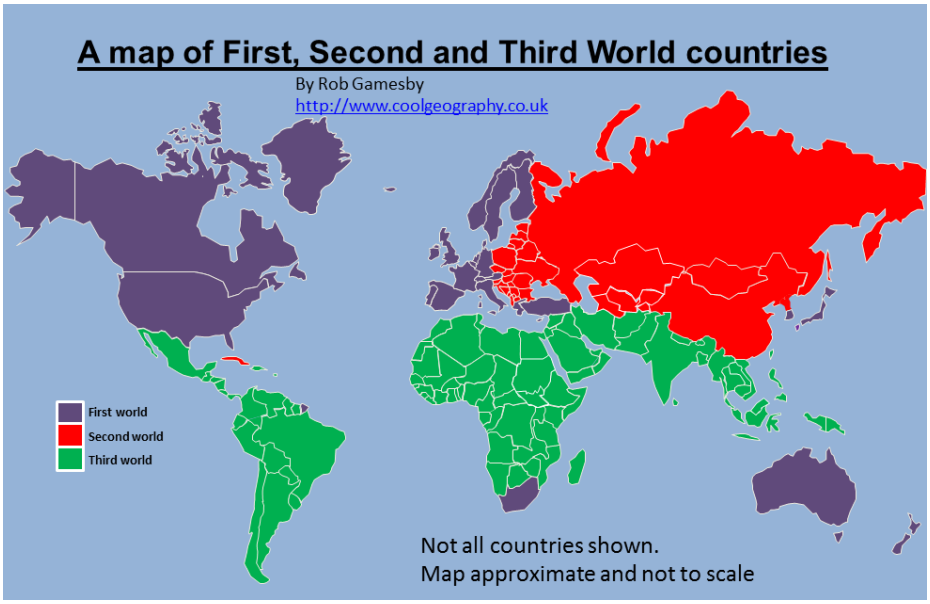


Figure 2 - "A map of First, Second and Third World Countries" by Rob Gamesby. Retrieved from http://www.coolgeography.co.uk

From the title to the symbols to the legend, maps tell stories. Each of these maps conveys a carefully crafted message about global power dynamics and development. The top map, from the World Bank, color codes and hierarchizes the countries of the world according to their development which the map also indicates was measured according to a single factor: per capita income. The second map shows the way in which classifications into First, Second and Third World nations does not reflect per capita income, but rather, as explained by Arturo Escobar, reflects a combination of whiteness and capitalism (First World—including areas that were seen as dominated by whiteness such as South Africa), non-capitalism (Second World), and non-Whiteness, though varying in economic situation.[1] These are just two examples of the ways in which maps reflect values, and I believe that they also have a power to inform values because they serve as a quick point of reference. This paper will discuss the mapping project I took on in the Grassfields of Cameroon as part of an attempt to make the kind of map that I want to see—something that reflects my values and considers questions like global power dynamics, empowerment of rural and marginalized groups, environmental and cultural sustainability, and development as defined by the people whose lives are being affected by these questions, not from the top down.

When I imagine such a map it is not something akin to an environmental justice treasure map that plots the path to arriving at a perfect world, but rather, a way to tell a different story about development. In 2006 Nigerian author Chimamanda Ngozi Adichie gave a TED talk called "The Danger of a Single Story" in which she describes several instances in her life where she encountered the danger of a single story: her mother telling her of the poverty of their houseboy leading her to never imagine that his family was capable of creating something; her

[1] Escobar, "Beyond the Third World: Imperial Globality, Global Coloniality, and Anti-Globalisation Social Movements."

U.S. college roommate's severely skewed notion of what Africa was like; and her own subscription to a dominant single story about harsh conditions in Mexico driving immigration that she found to starkly contrast with many aspects of life she witnessed while visiting. Towards the end of her talk, Ngozi Adichie opens several stories of Africa that defy the single story of catastrophe saying,

> Now, what if my roommate knew about my friend Funmi Iyanda, a fearless woman who hosts a TV show in Lagos, and is determined to tell the stories that we prefer to forget? What if my roommate knew about the heart procedure that was performed in the Lagos hospital last week? What if my roommate knew about contemporary Nigerian music, talented people singing in English and Pidgin, and Igbo and Yoruba and Ijo, mixing influences from Jay-Z to Fela to Bob Marley to their grandfathers.
>
> What if my roommate knew about the female lawyer who recently went to court in Nigeria to challenge a ridiculous law that required women to get their husband's consent before renewing their passports? What if my roommate knew about Nollywood, full of innovative people making films despite great technical odds, films so popular that they really are the best example of Nigerians consuming what they produce? What if my roommate knew about my wonderfully ambitious hair braider, who has just started her own business selling hair extensions? Or about the millions of other Nigerians who start businesses and sometimes fail, but continue to nurse ambition?[2]

When you have several stories, like the ones Adichie describes, you also have relatability, humanity, and most importantly, you have nuanced characters with diverse and authentic personalities and goals. In a sense, you have an ecosystem.

I got a taste of what the effects of having a single story of development could look like on the multiple occasions that I've been to Africa, but especially when I was living in Batoufam for an extended period of time. My host mothers tell me how the late rains killed everyone's crops, *oui, mais, plus pressant, les forages sont gâtés et on n'a rien à boire—et autre chose*, adds Judith, each time she sits down at the bucket to expertly wash 10 people's clothes for the

[2] Adichie, *The Danger of a Single Story*.

week—*j'avais vu que vous avez des machines à laver—nous avons besoin d'une machine à laver.*[3] According to village members it is increasingly difficult to live off of subsistence patterns and live sustainably. From my interviews and total of 8 weeks of field experience I gathered that there is a huge desire for development—for any improvement of quality of life such as water pumps for drinking water; and ability to meet the demands of capitalist way of life—farm equipment (despite the fact that it will degrade the soil), chemical fertilizers (despite the ways that it will pollute the water), donations from any wealthy community member or outsider that can be put towards water systems, schools, health centers and churches.

At the December 2015 21st annual Conference of the Parties (COP21) in Paris, developing countries seemed to form their own cohort apart from industrialized nations in a move that baffled some who thought that such divisions were a thing of the past. At the same time the cohort filled others, who knew that inequality and climate crisis alike had been perpetuated by industrialized nations, with hope for progress. The outcome of this solidarity had a powerful effect over the trajectory of the Conference, Paris Climate Agreement, and 2018 IPCC report that followed:

> LDCs [least developed countries] and SIDS' [small island developing states] ambitious call for a long term goal limiting temperature change to 1.5 rather than 2 degrees Celsius appears to be gaining widespread traction with Germany, France, US, Canada and now the EU. Even India, which plans to continue investing heavily in coal, has stated that it has no problem with a 1.5 degree target if developed countries make the required cuts. Similarly, the US and EU are engaging in discussions on how they can support climate vulnerable states to manage the damaging and irreversible impacts of climate change.[4]

[3] Translation: but more importantly the water pumps are broken, we don't have anything to drink—and also, adds Judith,—I have seen that you have washing machines—we need a washing machine.
[4] "FEATURE: Vulnerable Countries' Concerns Come to the Fore."

Following COP21, the 2018 IPCC report made an extensive, well-researched case for limiting temperature rise to 1.5 degrees, and also included emphasis on the vulnerability of poor (i.e. developing), rural, and small island states to climate change—no doubt a result of the organizing done by Third World conference attendees. An argument also emerged during COP21 that developing nations should be under less of a burden—or should receive greater assistance—to respond to climate change given that it was mostly caused by industrialized nations, whose economies have profited from such activities and who now have the financial capacity to make changes. On the other hand, Graça Machel—known as the wife of President Nelson Mandela, who is heavily involved in African development initiatives—made the following statement nearly half a year before COP21 regarding African development in the context of global climate crisis: "We are the continent which has contributed much less emissions, so we didn't cause the problem. I think Africa has the responsibility of taking the lead to prove that, yes, you can develop on the basis of clean and renewable energy. Because we have the opportunity of making those choices."[5] Machel paints a beautiful picture of Africa potentially leapfrogging the industrialized world through sustainable development in the face of climate crisis; however, on the ground in Batoufam in Bangoua—where many families have electricity and TV's but not drinking water, and where dozens of government development projects are started but never finished—the focus on renewable energy that she calls for seems out of touch with people's desires and needs.

Machel advocates for top-down shifts in dealing with African development. She has dedicated much of her life to African development and serves on several advisories including The Elders and the African Progress Panel. Wangari Maathai, leader of the Green Belt

[5] AfricaProgressPanel1, *Africa Did Not Cause the Problem of Global Warming, Says Graça Machel.*

movement, fulfilled a similar professional role, and advocated for better leadership in Africa as the most important step towards resolving climate change. Both of these women were right—the work they have done is incredibly important, and there is room for top-down sustainable development in Africa and improved leadership, but there are also other stories of what development already looks like on the continent and they deserve to be heard.

There are plenty of stories of government development projects that get started in Batoufam and Bangoua and the surrounding rural villages and never get finished so that the state project leader can pocket the funds. There are plenty of stories that illustrate the problematic nature of foreign teams of volunteers or professions inserting themselves into contexts they are not familiar with. There are plenty of stories of such teams overlooking and displacing local workers and failing to train local people to manage and repair the systems/infrastructure they establish and leave behind. There are also dozens of stories of local development initiatives taken on by the community to improve their own quality of life, because they see that they are in the best position to understand their needs and assure that they are met. Still, there are so few accessible stories of grassroots development initiatives, and there needs to be a way to communicate information quickly between individuals and communities about such ideas, successes, difficulties, and failures so as to empower people to respond to the imminent threats of climate crisis without having to wait for top-down change. This paper suggests free digital mapping as a tool; not a panacea, but one extra tool in the toolbox for ordinary people—and especially marginalized people, and people of the Global South whose knowledge has often been dismissed, lands and resources exploited, capitalist economy imposed—to tell another story about development.

Background

Brief history of Cameroonian colonization

There is a story believed by many Cameroonians of the Carthaginian (modern day Tunisia) explorer Hanno's 'discovery' of Cameroon some 2000 years before the arrival of the Portuguese in the fifteenth century. However, as Mbuagbaw, Brian and Palmer write, Hanno's description is quite generic—it could describe Guinea, and there are some scholars who doubt that Hanno and his men ever even made it as far as Spanish Morocco, enshrouding this history in doubt.[6] Cameroon (particularly the northern region) engaged in extensive contact and trade with western Sudan and the Mediterranean throughout the first 1500 years of the Christian era.[7] In the fifteenth century, the Portuguese begin to have a presence in Cameroon, and their dominance over the country endured through to the sixteenth century and was followed by Dutch presence. Most notably, the Portuguese encountered the Wouri estuary, which they noticed was full of a variety of prawns and thus named it Rio dos Camarões (River of Prawns), giving the name that the country is now called by.[8] Details on the various slave trades out of Cameroon are out of the scope of this paper; however, it bears mentioning that for several centuries, slaves were considered the most valuable resource exiting Cameroon and French, British, Swedish, Danish and Northern German slave traders had a presence in the country. Despite the heavy presence of foreigners, Mbuagbaw et al. note that local chiefs took quick actions to remain in power and prevented Europeans from building forts or operating in groups and required European traders to pay

[6] Mbuagbaw, Brian, and Palmer, *A History of the Cameroon.*
[7] Mbuagbaw, Brian, and Palmer.
[8] Mbuagbaw, Brian, and Palmer. (p.42)

duties on trades conducted.[9] By the nineteenth century, Dutch and Portuguese presence fell by the wayside as British and German influence grew in Cameroon. In the 1884-5 Berlin Conference—coined the 'Scramble for Africa,'—Germany claimed 'Kamerun'. One of the earliest areas to be connected to the coast under German colonial rule was the Grassfield region, the region where this project takes place. There was considerable resistance to German colonization, though Germans were careful to keep most firearms from passing into African hands, and thus frequently emerged victorious. German colonial rule over Cameroon lasted from 1884-1916 and during this time heavy plantation labor was implemented and trade centered around palm products and rubber.[10] During the First World War, French, British, and German forces decided to do combat in and over their colonies, bringing the war to Africa. Cameroon was used like a pawn in several violent conflicts over 16 months of the war. Following German defeat, its colonies were redistributed at the League of Nations, which partitioned Cameroon, giving 4/5 of the colony to the French and 1/5 to the British. This history is significant to the scope of this project as it establishes why there was European hesitancy to relinquish six centuries of control over resources in Africa come independence of African colonies, and how development entered the scene as an alternative model of controlling the African continent.

Defining Development

Most people understand development as improving quality of life. The ambiguity arises in defining quality of life: does that mean quality of life while sustaining all other ecosystems and environments as many environmentalists would argue? Does it mean the most material comfort? Does it mean spiritual quality of life? Proponents of what is now known as the

[9] Mbuagbaw, Brian, and Palmer. (p.44)
[10] Mbuagbaw, Brian, and Palmer. (p.76)

Western development model, took it upon themselves to define things like "quality of life" and "poverty" based on their own societies, and impose those standards—as well as their economies—onto the Third World. Vandana Shiva writes that "the paradox and crisis of development results from mistakenly identifying culturally perceived poverty with real material poverty and mistaking the growth of commodity production as better satisfying basic needs".[11] Poverty is perhaps as subjective as beauty, depending almost entirely on what one deems …and like beauty, one standard cannot encompass all, and yet the Western definition of both have been exported all around the world. Arturo Escobar argues that one of the earliest cases for Western development was made by Harry Truman during his 1949 inaugural address as President of the United States in which he said the following:

> More than half the people of the world are living in conditions approaching misery. Their food is inadequate, they are victims of disease. Their economic life is primitive and stagnant. Their poverty is a handicap and a threat both to them and to more prosperous areas. For the first time in history humanity possesses the knowledge and the skill to relieve the suffering of these people. . . . I believe that we should make available to peace-loving peoples the benefits of our store of technical knowledge in order to help them realize their aspirations for a better life. . . . What we envisage is a program of development based on the concepts of democratic fair dealing. . . . Greater production is the key to prosperity and peace. And the key to greater production is a wider and more vigorous application of modern scientific and technical knowledge.[12]

The last two sentences of Truman's above statement offer insight into where development began as a concept and how, for nearly 70 years the dominant focus of development initiatives (mostly coming from the West) has been on production and technology. Though Truman's remarks primarily affected affairs with Latin America, the statement indicated a global shift in power and management, with "developed" nations taking pity and management responsibility

[11] Mies and Shiva, *Ecofeminism*. Section by Shiva, "The Impoverishment of the Environment: Women and Children Last" (p.72).
[12] Escobar, *Encountering Development*.

over "underdeveloped" nations, with an erasure of the power dynamics that created the inequality.[13]Concerning the rise of development in Africa, Frederick Cooper argues that this phenomenon occurred as a highly strategic response on the part of European nations following the loss of colonies during African independence movements in an effort to maintain control over the continent in some capacity.

From there, two other factors arguably contributed to the rise of Western development. Firstly, the independence of colonies in the Third World created a sudden need in the eyes of imperial nations to continue justifying superiority over former colonies—best done so by keeping a universal understanding of the 'good life' and framing the Third World as the poor within it. Secondly, the Cold war and the concern that the economies of these newly independent nations were in limbo and could swing communist or capitalist. It is worth noting that very little room was given for any other economic model to be considered for these countries, and once capitalism won the cold war, there was a need to spread it to the East and then to the rest of the world so that could claim the place it had just proven as the only worthy economy of the world.[14,15]

Under Western development the meaning of development becomes "to have clean water, decent schools and health facilities; to produce larger harvest and more manufactured goods; to have the access to consumer goods which people elsewhere consider a normal part of life"[16] Arturo Escobar argues that development was pushed as an equal counterpart to Truman's villainization of poverty and efforts to eradicate it: "Not only poverty but health, education, hygiene, employment, and the poor quality of life in towns and cities were constructed as social

[13] Escobar.
[14] Escobar.
[15] Cooper, *Africa Since 1940: The Past of the Present*.
[16] Cooper. (p.91).

problems, requiring extensive knowledge about the population and appropriate modes of social planning".[17]At the turn of the century, the United Nations established eight Millennium Development Goals to be met by 2015: 1) eradicate extreme poverty and hunger; 2) achieve universal primary education; 3) promote gender equality and empower women; 4) reduce child mortality; 5) improve maternal health; 6) combat HIV/AIDS, malaria, and other diseases; 7) ensure environmental sustainability; and 8) develop a global partnership for development."[18] In 2018 the UN added to and modified this list, creating 17 Sustainable Development Goals outlined in the below image.

Similar to the two maps featured in the beginning of this paper, the 17 sustainable development goals articulated here communicate an air of objectivity, while in fact carrying encoded values systems and assumptions that are part of where top-down development can get messy. How does one define "decent work" and what constitutes "affordable energy"; affordable to whom?

[17] Escobar, *Encountering Development*. (p.23).
[18] Maathai, *The Challenge for Africa*. (p. 239).

—What about someone in a rural village who has always lived in subsistence? Is their work not decent?

Going beyond the touted narrative of benevolence, Frederick Cooper argues that development has been a method of imperial domination. A trademark of Western development, and a cornerstone example of why it has garnered a negative reputation for itself, are the structural adjustment programs of the 1980's. Following economic collapse of many developing countries, the IMF issued structural adjustment loans with cavoites now notorious for meddling in social and cultural affairs of the borrowing nation states—including forcing nations into exporting natural resources, rather than developing internal or independent economies, and forcing governments to eliminate food subsidies on nationally produced foods, so that there was an imbalance between the cost of what was imported (which could be subsidized by the importing country's government) and what was grown nationally.[19] The structural adjustment program strategy of Western nations shows that their interest in Third World development was greatly tied to the opportunity to leverage these loans to boost their own economies—particularly private capital as mostly corporations stood to gain the benefits of cheaper access to raw materials and new markets, while being granted the opportunity to import and employ their own labor, effectively ensuring that jobs were kept in developing countries. Escobar highlights the ways in which the development that was provided, both through structural adjustment programs, and generally advocated for such as in the above UN development goals (both 2000 and 2018 editions), did not, and in many ways still fail to think beyond sustainably retrofitting the Western development model,

> Options privileged or excluded must also be seen in light of the dynamics of the entire discourse— why, for instance, the discourse privileged the promotion of cash crops (to secure foreign exchange, according to capital and technological

[19] Lecture notes. SIT Cameroon Development Seminar. Spring 2017.

> imperatives) and not food crops; centralized planning (to satisfy economic and knowledge requirements) but not participatory and decentralized approaches; agricultural development based on large mechanized farms and the use of chemical inputs but not alternative agricultural systems, based on smaller farms, eco- logical considerations, and integrated cropping and pest management; rapid economic growth but not the articulation of internal markets to satisfy the needs of the majority of the people; and capital-intensive but not labor-intensive solutions.[20]

It was generally believed—or at least argued—that through the application of better technologies and through closer adherence to Western systems, developing countries could catch up to their superiors in terms of economic status and thus, where the economy improved, so too would way of life. Rostow coined this the "catching up development theory," essentially stating that by following the same path of industrialization, technological progress and capital accumulation taken by wealthy nations in the North (Europe, USA, and Japan), developing countries could reach the same 'good life'. [21] Beginning as early as the 1970's, Andre Gunder Frank, Samir Amin, and Johan Galtung criticize "catching up development theory" with salient observations that poverty in "underdeveloped" countries today "is the direct consequence of the overdevelopment of rich industrial countries who exploit the so-called periphery in Africa, South America, and Asia". [22] Gunder Frank put forward "dependency theory" (1971) to articulate this relationship, which argues that the West systematically repressed the development of developing nations—through such means as triangle trade and political destabilization, creating a relationship of dependency between 'developing' and industrialized nations, who had—at least in part—gained that status through labor and natural resource exploitation from the Global South. [23] Furthermore, Maria Mies observes that improving GDP

[20] Escobar, *Encountering Development*. (p.43).
[21] Mies and Shiva, *Ecofeminism*. p.54
[22] Mies and Shiva. p.56
[23] *Dependency Theory,* (Revise Sociology, 2015). https://revisesociology.com/2015/10/17/dependency-theory/

has not necessarily brought happiness or improved quality of life in affluent societies of the North, remarking that these societies have spikes in homelessness and inequality, depression and suicide, and addictions to shopping and drugs.[24] Though the 'catching up development' model is still the dominant narrative for development, dynamics are shifting with increased recognition of the "flaws" of the leading societies—particularly in relation to industrialization and environmental crisis, but also, as Mies points out, the social well-being component is under question.

All of these perspectives consider the dynamics of development on the macrolevel; however, Wangari Maathai's *The Challenge for Africa* is a beautiful look into the complexities of development as both harming some and employed to benefit others within Africa. Particularly relevant to this study, Maathai spends a chapter discussing her observations of a Cameroonian farmer in Yaoundé, remarking how the woman engages in an unsustainable, soil-eroding practice: "One of these farmers—a woman on whom my eyes had settled—was cutting the furrows downward, instead of against the gradient. 'That way, when the rains come the water will run along the furrow and not disturb the crops,' one of the young men replied, without hesitating."[25] She reflects extensively on the power dynamics and systems that contributed to this developmental situation:

> If the African states' agricultural extension services had not been underfunded or neglected in the decades since African nations became independent, this farmer not only might have learned the right way to prepare the soil for planting, she also might have had access to information, modern equipment, and governmental support that would have enabled her to farm more efficiently and less destructively. Perhaps she might even have had extension or agricultural cooperative officers who would have assisted her, instead of exploiting her and taking advantage of her poverty, illiteracy, and powerlessness… If African states had prioritized the budgets and work of the ministries of agriculture and environment instead of defense and internal security—indeed, if governments

[24] Mies and Shiva, *Ecofeminism*. (p.61)
[25] Maathai, *The Challenge for Africa*.

> had concentrated on practical measures that helped their people rather than, at times, investing in grandiose, attention-seeking projects or misguided attempts to satisfy the demands of outside investors, often at the expense of their own peoples—then perhaps long ago the woman would have been provided with land more suitable for farming than that hillside. If they had addressed the inequities of land distribution left over from the colonial period, then not only might many of the conflicts that have plagued the continent been avoided or lessened in intensity, but this woman might not have been tilling that steep slope. If they had advocated more forcefully for the industrialized nations to reduce their own agricultural subsidies, and had argued for fairer trading terms, then this farmer might have had a greater number of markets and a better price for her produce. If the African leaders had invested more in education, the creation of sustainable employment options, and inclusive economies, and if they had been more concerned with the welfare of their people and not with their own enrichment, then perhaps this farmer would have gone to school.[26]

It also occurs to Maathai that though she is in Yaoundé to fulfill her roles on Congo Forest Basin Partnership and the Commission for Forests of Central Africa, that there was perhaps a contradiction between the bubble of Commission participants and those, like the farmer, whose practices had a daily effect on the environments of Africa—and the two groups were essentially unaware of each other. One thing that becomes quite clear in Maathai's analysis is that she sees factors responsible for this developmental situation beyond simply "imperialist nations" and digs into the complacencies within African nations and leadership in particular that have contributed to the developmental disempowerment of African nations.

Escobar writes that, "Development has relied exclusively on one knowledge system, namely, the modern Western one. The dominance of this knowledge system has dictated the marginalization and disqualification of non-Western knowledge systems. In these latter knowledge systems, the authors conclude, researchers and activists might find alternative rationalities to guide social action away from economistic and reductionistic ways of thinking"[27] This project looks at community-centered development (also called people-

[26] Maathai. (p.15-17)
[27] Escobar, *Encountering Development*. (p.13)

centered development) as holding potential for telling multiple development narratives that could complicate the dominant Western development model. According to Arturo Escobar,

> The most important exclusion [of Western development], however, was and continues to be what development was supposed to be all about: people. Development was—and continues to be for the most part—a top-down, ethnocentric, and technocratic approach, which treated people and cultures as abstract concepts, statistical figures to be moved up and down in the charts of "progress." Development was conceived not as a cultural process (culture was a residual variable, to disappear with the advance of modernization) but instead as a system of more or less universally applicable technical interventions intended to deliver some "badly needed" goods to a "target" population. It comes as no surprise that development became a force so destructive to Third World cultures, ironically in the name of people's interests.[28]

Classically, Western development models that are pushed by entities such as the UN and the World Bank—especially the IMF—prioritize economic development with rationalization that where economic gains occur, quality of life will also improve. I will not deny that the particular model of each of these entities is more nuanced, but the overall point is that on a whole, the top-down focus of development by main international agencies charged with this subject has been to put economies and industries first and people and communities second (or much later). One of the foundational ideas of this paper and this project is that there are many possible ways to go about the goals of development or improving people's quality of life without necessarily engaging in the systems that have been set out by Western development and the aforementioned agencies. I aim to connect this mapping project to theories of community centered development and current movements and initiatives to participate in a conversation about the potential for grassroots engagement in development and specific methods for further empowering existing efforts.

Community-centered development

[28] Escobar. (p.44)

Several alternatives to Western development exist; this paper will focus primarily on community centered development. Community Centered Development (CCD) generally values diversity of lifeways and incorporates this into its development framework, challenging the Western development assumption that there is one 'good life' and that all people need certain capital goods in order to live a happy, full life (dignified life). CCD recognizes global power dynamics and the way in which today's circumstances of inequality and dependency were not created by accident. In CCD, the communities that have been and continue to be marginalized, oppressed, or incorporated into dependency cycles, are prioritized and empowered to determine their own development projects and trajectory based on their needs and values, rather than those determined by outside groups or top-down programs. CCD proponents include Amartya Sen and Vandana Shiva, as well as those outlined in the below tables describing three different visions for people centered development.[29] The overriding goal of PCD is equity-led sustainable growth were the development process is just, sustainable and inclusive. In people centered development articulated by David Korten, strong emphasis is placed on improving the process of governance by developing accountable institutions which actively include the people that they are meant to serve throughout the decision-making process for the development initiatives in question. Korten and his associates envision NGO's facilitating a large portion of this type of development by (i) developing people's self-help capacities; and (ii) building networks among social groups in order to develop a people's social movement.[30] CCD involves recognizing that value may need to be reassessed or allocated based on cultural significance or ecosystem role as opposed to the Western development model which assigns value solely on capitalist economic worth. For example, "Subsistence, as

[29] Thompson, "People Centered Development."
[30] Heyzer, Riker, and Quizon, *Government-NGO Relations in Asia*.

culturally perceived poverty, does not necessarily imply a low material quality of life. On the contrary, millets, for example, are nutritionally superior to processed foods, houses built with local materials rather than concrete are better adapted to the local climate and ecology, natural fibers are generally preferable to synthetic ones and often more affordable."[31] Along a similar vein, Eade describes sustainable development as people "becoming empowered to bring about positive changes in their lives; and about personal growth together with public action; about both the process and the outcome of challenging poverty, oppression, and discrimination; and about the realization of human potential through social and economic justice."[32] Eade argues for a capacity-building approach within people centered development which strives to go beyond aid-centered models that meet needs for skills and resources, and respond to the feelings that come from people's experience of poverty or oppression. [33] Figure 3 shows a table by Heyzer, Riker, and Quizon that outlines basic information for three types of actors (people, NGO's, government) in three different types of community centered development according to different visions for the concept.

This project also entertains the topic of cartography, particularly the potential for accessible digital social cartography for bolstering and assessing community centered development initiatives (CCDI's).

[31] Mies and Shiva, *Ecofeminism*. p. 72
[32] Eade, *Capacity-Building*.
[33] Eade.

Figure 3 by Heyzer, Riker and Quizon

Table 5.1 Main elements of three contending visions of people-centred development

	Self-reliant & people-centred development	*People-centred Development*	*People's development* Lok-Niti
Proponent	The South Commission	David Korten and Associates	ANGOC (Gandhi)
Overall Goal	Economic growth with equity	Equity-led sustainable growth	Direct governance by the people
Main Principles of Development	• National self-reliance • Social justice and equity • Sustainable • Democratization	• Just (equity) • Sustainable • Inclusive (empowerment)	• Equity-led growth through people's participation • People's empowerment and right power • Sustainable • Non-violent change
Main Strategy for Change	Mobilize domestic resources combined with government policy reforms	Create capacities and enabling settings for people's self-development	Create alternative and countervailing people's power to the state within society
Development Strategy	• Promote food security and diversify agricultural development • Undertake broad-based industrialization • Promote human resource development • Reform macro-economic and trade policies • Adopt sound environmental policies	• Develop accountable institutions and human resources • Promote asset reform and build rural infrastructure • Diversify and create an ecologically sustainable agriculture • Spur rural industrialization • Promote urban industrialization • Pursue export promotion	• Devolve government power to local people-based institutions • Promote people's productive equity • Create a viable people's sector and movement
Primary Actors	Central government, state agencies and enterprises, and private businesses	Voluntary associations, networks of groups and individuals	NGOs, people's organizations, linked through networks and federations
Role of People	Beneficiaries and participants in GO-defined development	Active citizens in development process through: • Decision-making • Social action and networking • Innovating	Originators and guardians of the development process
Role of NGOs	• Promote economic and social development • Serve as democratic institutions	• Create and strengthen people's self-help capacity • Facilitate networking and development of people's social movement	• Create strong people's organizations with self-management capacities • Make GOs more accountable to the people • Help communities strengthen and retain control over their lives • Build human-scale networks and federations for an independent people's sector
Role of Government	• Create stable, growth-oriented macro-economic environment	• Develop enabling policy environment and policies • Support people's creativity and self-help capacities	• Provide greater democratic space for people's self-determination over the development process

Sources: South Commission 1990; Korten 1984a, 1984b, 1987b, 1990; ANGOC 1989; de Fonseka 1983, 1989 and this volume.

Mapping

In the environmental sector, mapping has gained traction in recent years as a powerful tool for presenting information about environmental relationships; with digital mapping instruments like ArcGIS facilitating the overlay of social data (household income, race etc.) with environmental and development data such as air quality, major roadways, hazardous site location, etc. to visually present evidence of environmental injustice. However, cartography has a history of being a mechanism of imperialism that was used for enhancing access to lands and resources, facilitating further exploitation and inequality. This section dedicates time to recognizing how cartography has been used and what recent shifts in cartographic methods and technologies could mean.

Maps convey geographic data that can illuminate distributional patterns and relationships (Green and Reid, 2014, citing Broek, 1965). Maps, as Green and Reid argue, are far more than tools for navigation or efficiency, and serve to inform constructions of reality as much as they can claim to reflect reality; "'World-views' are the material products of cultural projects such as nation-building, colonial expansion or cultural hegemony. In each, maps (and other forms of representation) have played their role."[34] Maps, though often seen as objective tools, always reflect the mapmaker's culturally-determined positionality (Edney, 2007; citing Rundstorm, 1991; Jacob, 2006; and Turnbull, 1993) and can subtly or explicitly advance agendas or ideologies. Mary-Louise Pratt analyzes the cartography and writings of European geographer von Humbolt and others, highlighting the intentional erasure of local peoples and their histories through cartographic methods that super-imposed notions of primal nature in their place. Such maps were not only reflective of white-supremacist ideology, but helped to perpetuate it, and

[34] Green and Reid, "Methodological Issues, International Perspectives and Practical Solutions."p.31

helped facilitate Euro-expansion.[35] Green and Reid write that "Maps and mapping are, moreover, instruments of bureaucracy, of organisation and control, and of governmentality in its various senses,"[36] begging the question of whether the methodology of mapping can be reclaimed to empower the marginalized, underrepresented and underserved. To this effect, Crampton and Krygier argue that, "If the map is a specific set of power-knowledge claims, then not only the state but others could make competing and equally powerful claims."[37] But the question remains, how to do so when the means of making a map—and especially a map that is considered reputable—have disproportionately been reserved for the political, intellectual and economic elites as determined by global power dynamics. Historically map-making has been exclusively in the hands of elites and to some extent academics, but this is shifting as technology changes and businesses create access to mapmaking for anyone with computers and Internet.[38] Indeed the emergence of the Internet, in general increased accessibility to map-making knowledge and technologies has started to infiltrate this methodology, as has a sociological shift in understanding of knowledge production as something that is perhaps more valuable when it is source-informed/guided rather than hypothesized from outside elites. In the context of mapping, social cartography has emerged as a practice designed to specifically counter the practices of people and culture erasure that Mary Louise Pratt noted in early European geographers like von Humbolt. Social cartography is a map-making practice that involves active participation of the groups being mapped and incorporates their understandings of space and relationships to their environments, in which

[35] Pickles, *A History of Spaces: Cartographic Reason, Mapping, and the Geo-Coded World*. p.119
[36] Green and Reid, "Methodological Issues, International Perspectives and Practical Solutions." P.30
[37] Crampton and Krygier, "An Introduction to Critical Cartography."
[38] Crampton and Krygier.

cultural groups to define their own 'sociospatial relations and how they are represented'[39] To paraphrase Pickles, the introduction of modalities such as social cartography to geography have broadened the scope of this field, placing more emphasis than ever before on sociology, while simultaneous shifts in technology that have altered the accessibility of map-making and also facilitated the rapid production of maps perhaps with differing values (recall Edney: each map is subject to the cultural perspective of its maker, and thus variety rather than objectivity is produced) calling into question the notion of "accuracy" in map-making. [40] Though mapping has been dominated by elites and conquerors, there is a rising potential through social cartography and technology to bring the power of mapping to the grassroots efforts. Through social cartography and shifting technology, mapping, like development, is becoming increasingly a grassroots sector. What happens when the grassroots energies within these two areas are combined? My project in Cameroon shows the ways in which accessible digital mapping platforms can be used to address the unmet needs of community centered development efforts. Before I discuss the project further, the following paragraphs will outline the needs I have identified of community centered development efforts and my perspectives on how accessible and socially responsible mapping techniques hold potential for addressing those needs.

Previous maps of Batoufam and Bangoua

There are several existing maps of Bangoua and Batoufam, and I've included pictures of a few below. One thing I appreciate about these maps is that they all challenge the single story of

[39] Pickles, *A History of Spaces: Cartographic Reason, Mapping, and the Geo-Coded World*. citing Rolland Paulston 1996, 1997.
[40] Pickles. (p.27)

what an African village is by even the simple inclusion of depicting the numerous neighborhoods in the village, which is far from the vision of the circle of mud huts that comes to mind with only exposure to the single story. At the same time, other than showing the quartiers, these maps do little by way of disrupting problematic dominant narratives. These maps show these villages as more stagnant than they are and do nothing to highlight the activities of the village, apart from the 'chefferie.' There is an opportunity to make maps of these villages that illustrate more aspects of local way of life or shine light on social, economic, and environmental relationships.

Figure 3 - Map of Batoufam, with information about the 'quartiers,' highway, forest, and water ways (cours d'eau). This map also gives a sense of the relationship between Batoufam and Bangoua, with Bangwa (alternate spelling) in the upper righthand corner. Source: my photo of a map posted for public display outside the Batoufam Chieftaincy.

Figure 4 - This map of Batoufam's 16 'quartiers' was repainted by community members between Spring 2017 and Summer 2018. It also shows the National Highway (N°4) and the road (dark blue) that descends to the 'chefferie' (yellow house). The statue itself is located along the main road that descends to the 'chefferie'. Source: my photo.

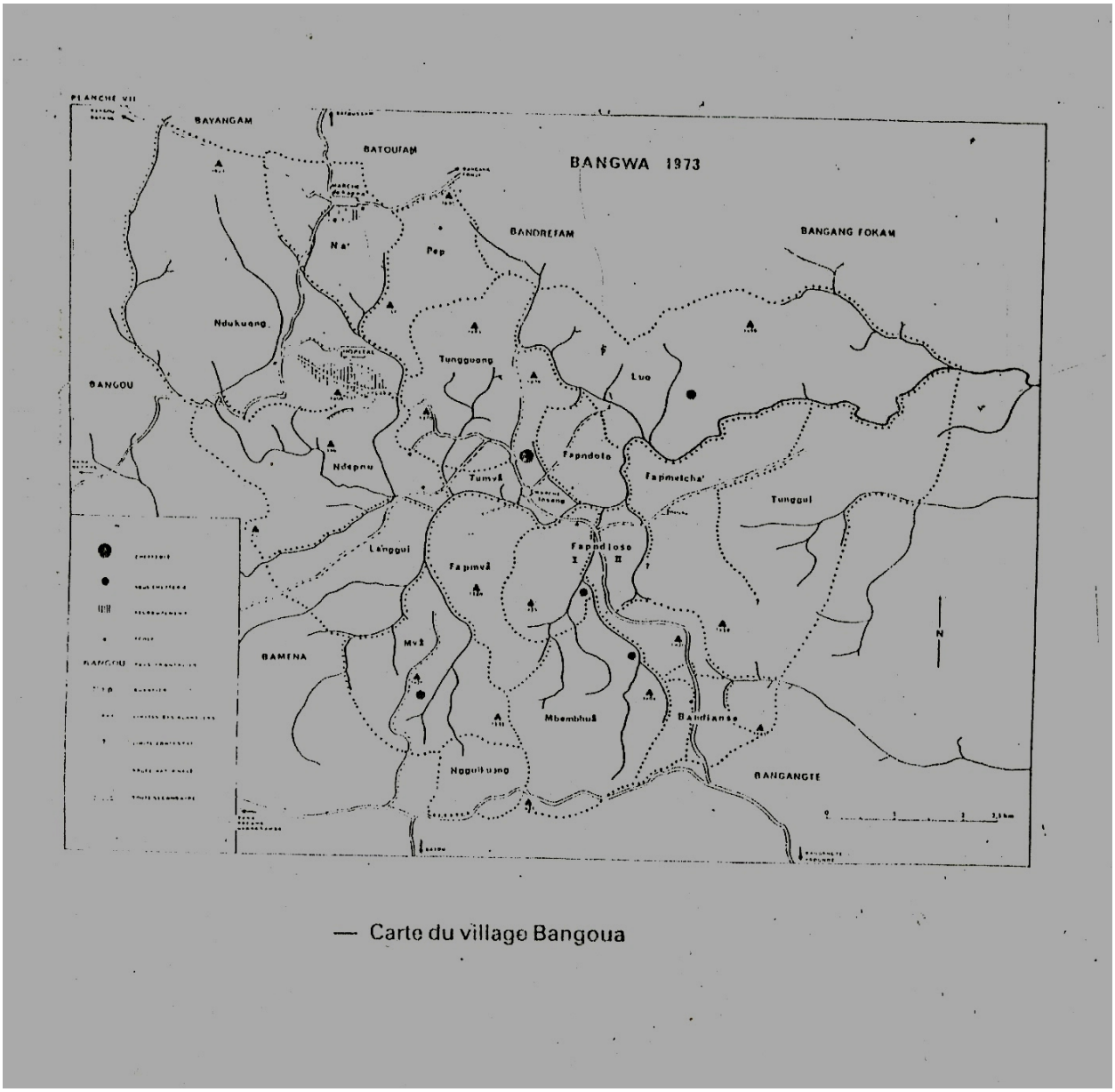


Figure 5 - This map of Bangoua is featured on the icibangoua.net website under the "carte du village" tab. We would love to add a more interactive map in place of this on the website.

Mapping as addressing unmet needs of CCD

Community centered development sounds like an extraordinarily beautiful solution to navigating the tendency for Western development initiatives to be out of touch with specific community needs, while also promoting the retention of traditions and self-determination of group values. However, community centered development encounters several challenges

between theorization, implementation, and actualization. In communities where day-to-day monetary subsistence is already strained, how can the time be found to independently organize as a community and orchestrate sustainable development initiatives with limited community resources? A complex analysis of CCD could perhaps identify dozens of areas of difficulty between the theory and application of this development model, however I want to mention just a few that stood out to me as having a connection to new cartographic methods. First and foremost, CCD is up against a single story about development and pervasive ideas about what a 'good life' looks like. This means that my host family in the rural agricultural village of Batoufam in Western Cameroon, had access to television and the accompanying images of the 'good life' and held ideas about everything that others had that they did not; for instance, one of my host mothers desperately longed for a washing machine. One of the challenges of CCD—or particularly sustainable CCD that focuses on the long-term well-being of communities—is that there are few models of a 'good life' that involve low-cost sustainable infrastructure, that could address things like mama Judith's desire to spend less time washing clothes, while not necessarily buying into the Western 'good life' development narrative that one is suffering or deprived in this lifetime if they do not have a household washing machine. Is there room for innovating a more sustainable community wash site that incorporates new technologies for washing clothes with less human and electric energy required? Who knows, but the first obstacle to adopting ideas that have not been represented in the dominant narratives might be to give them a platform for representation elsewhere.

Another significant issue that I've noticed for CCD is the very nature of it being organized and sustained by community members who all occupy other roles in the community first—often roles of subsistence that take precedent. This can mean that CCDI's fluctuate in

momentum, membership, and organization. Finally, community centered development initiatives are usually by definition small-scale and funded solely by the communities in which they take place as opposed to large development initiatives with large budgets and perhaps more feasible access to grants. So, how can all of these difficulties be connected to mapping, and perhaps alleviated through some component of a mapping project using new cartographic techniques?

Mapping is a tool for storytelling—and while Mary Louise Pratt's work shows the ways in which cartography has been manipulated to privilege the stories and interpretations of Europeans during imperialism, there is also an opportunity for this platform to tell under-represented stories. Digital story maps could be a solution to communicating other 'good life' models that use community centered development and sustainable design, using the map as both visual inspiration of new techniques and spatial evidence of use and solidarity—deconstructing the notion that to not follow the Western development model is to be stuck in the past. This accessible mapping tool poses an alternative to top-down development, with the potential to return some storytelling agency to the people. Next, digital mapping tools can facilitate collaboration and organization and continue momentum by making it easy to exchange information about CCDI's and possibly contact information for project managers, overall increasing involvement and the potential sustainability of people power behind these initiatives. Finally, with the right platform, digital mapping can be extremely low-cost and widely accessible across language (through integrated translation) and literacy (by virtue of providing extensive visual information). Following the theme of information exchange, there is also a potential to use a digital story mapping platform to share information about accessible grant applications and funding sources. Overlapping social cartography and CCD could help

formerly colonized groups establish own identities separate from colonizers—as called for by authors such as Fanon, Memmi, Freire and Blaise. This paper reflects upon a collaborative digital mapping initiative that I did with the Web and Development Foundation in the Grassfields of Cameroon to better understand the themes, challenges, and potential of community centered development initiatives through the platform of digital mapping.

• Part 2 •

Introduction of project

Following a fiery whim in the final week of my Independent Study Project in the Spring of 2017 I found myself taking those illicit motorcycle rides that my study abroad program had so adamantly forbidden—bouncing along the dirt and mud slopes of Batoufam with Papa Pierre Wanko. I had spent weeks studying the social impacts of water scarcity in the village and the effects of late rains on the village. I had beautiful quotes from my interviews and illuminating statistics from my surveys. Still, in that final week I found myself pulled to break the rules to take a stab at being able to communicate what was missing: the big picture; a way for myself and others to *see* the water situation in Batoufam—the number of efforts people have undertaken to have water, and the variety of issues that can arise, and an opportunity to spatially see areas with and without water.

With a free GPS coordinates app that I downloaded on my phone, I was able to traverse Batoufam with M. Wanko, taking note of the specific locations for each point of water, without needing any cellular data while in the field. At each stop, M. Wanko would share his insight about the conditions of the water site, for, as my host dad said, "Il n'y a que lui qui connait tous les points d'eau ici."[41] As a member of the Batoufam Water Council, M. Wanko was often able to not only navigate us all the water points in the vast village, but could recite the facts like the depth of the well, knew which points of water were connected to each other, roughly where the pipes ran, often knew who maintained the water point, what problems it had and why. I carefully noted his remarks and upon returning to Yaoundé, and an Internet connection,

[41] Translation: He's the only one who knows all of the points of water here

I was able to plot the points I'd recorded onto a free digital map using Google MyMaps (see Figures 1 and 1.5).

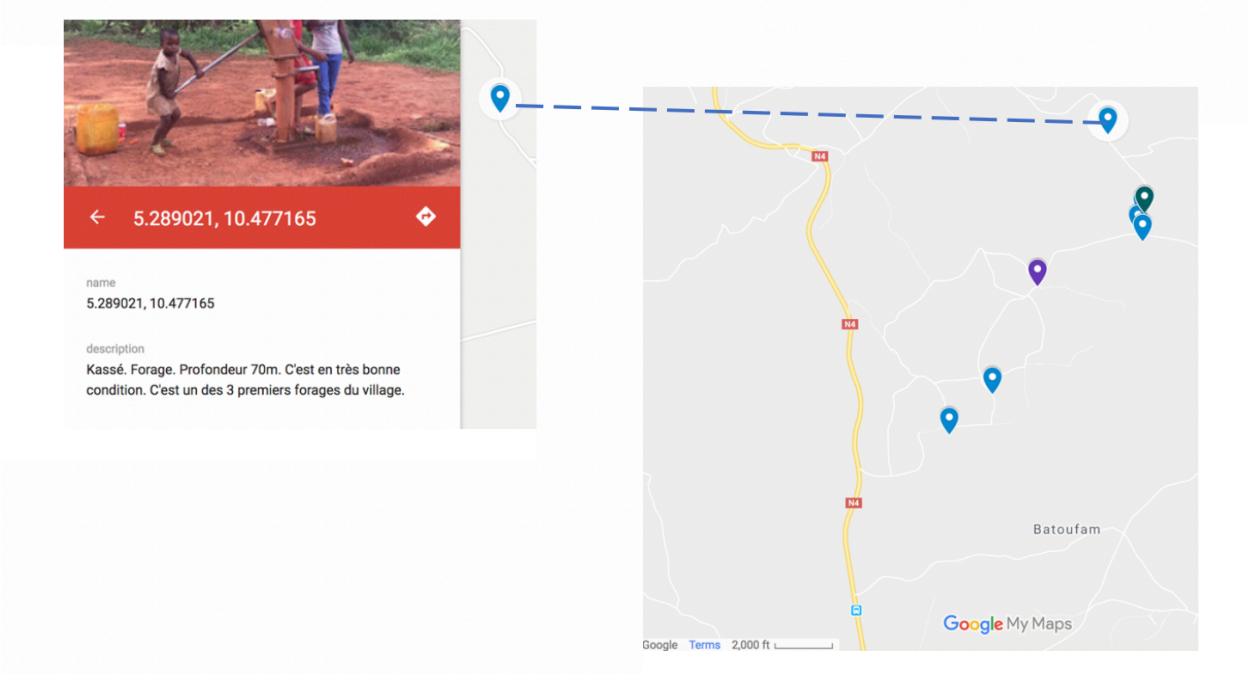


Figure 6 and 1.5 - These two images show the preliminary digital map I made in Spring 2017 of water points in Batoufam. Both images show the same highlighted water point, a well in the neighborhood of Kassé that has a depth of 70m and is in great condition. It was one of the first 3 water wells drilled in the village. There are several stories about the origin of these wells but the most common is that all three wells were drilled and built by a German non-profit and they were expensive but done right and that is why they have lasted so long. By most accounts these wells have been around for at least 30 years.

Though the mapping component of my project was a last-minute afterthought, and tragically much of our hard work was lost to water-soluble ink exposed to a good rainstorm (a mistake I will never make again), this digital map turned out to be the most interesting and unique element of all the work I'd done because it went beyond an anthropological assessment and provided a tool for understanding. In addition, I noted that this tool was far more accessible to the population I'd worked with than my accompanying report written in English and French, as many in these villages have limited literacy and French is taught in school, but not used in the village. I saw that it was extremely valuable to have a tool that communicated information visually—in effect, sharing Pierre Wanko's knowledge with the rest of the village.

During my ISP on drought in Batoufam I also had the fortune of connecting with the Web and Development Foundation (WebDev), a Cameroonian NGO based in Bafoussam. WebDev does community-centered development work in Bafoussam the surrounding cities and villages including Bangoua, Bagante, Batoufam, and before the "Anglophone Crisis," Bamenda, in the English-speaking region. The organization was founded in 2006 by a group of Cameroonian high school students from Bangoua who were frustrated with top-down development model; its absence and slow-pace, lack of comprehension of community needs, and the culture of dependency it was creating. They thought, *we can do these things ourselves, and we can do them better*, so today WebDev runs several projects each year ranging from water well building to sustainable agriculture training to IT classes, to education programs for children and more. This group did not want to wait for the state to bring the development it had promised, and they wondered if development would be equally prioritized in rural and urban areas. The founders also envisioned "le développement de l'Afrique par l'Afrique"[42] which became their slogan. Grégoire—who manages the organization's local affairs—elaborated on this further saying,

> Ça ne veut pas dire qu'on n'a pas besoin d'aide européen ou américaine ou asiatique—non—mais c'est à dire que nous on prend les projets en avant et qu'on va faire des premières parts avant que les étrangères viennent nous aider. Il faut que chacun peut comprendre premièrement que 'si je veux que mon pays ou mon village ou ma communauté ou mon continent avance, il faudrait que je sois de cela qui mettre des actions pour plus s'avancer.' Voilà ! Parce qu'il ne faut pas toujours attendre pour la France de te donner des choses—non ![43]

[42] Translation: The development of Africa by Africa.
[43] Gregoire. Interview Spring 2017. Minute 52:40. Translation: That does not mean that we do not need European or American or Asian help—but that is to say that *we* take the projects forward and we will make the first efforts before the foreign ones come help us. Everyone needs to understand first that if I want my country or my village or my community or my continent to advance, I would have to take action in order to move forward. Voilà ! Because we must not always wait for France to give you things-no!

In Gregoire's eyes—and those of WebDev—Africans, (and more generally, community members of the specific area trying to develop) should be leading the way in terms of their development because there is no one else who understands the nuances of these spaces better and who is more deeply invested in quality of life in these spaces than those who live in them. From this perspective, it follows that external or foreign aid is ultimately not in the community's best interest and they need to find ways to—or be supported in helping themselves to—establish a development trajectory that then others can assist with.

In our interview, Gregoire described sustainable development as a two-part process. One of these parts involves project sustainability in terms of sustainable materials, and also cultural and social sustainability of the project. But, perhaps the less obvious piece, which Gregoire argued is the first and key step is "l'étape mental"[44] and "le développement intellectuel"[45]. He conceptualizes this intellectual development as maybe simply having a vision for yourself or a dream of what you want to do yourself or for your community: "Ces sont les gens de chaque communauté qui doivent ouvrir pour le développement de leur communauté…si tu rêves à faire des choses, c'est déjà du développement…un aspect de WebDev est d'encourager les gens à rêver—de les montrer qu'ils peuvent le faire"[46]. Gregoire and I stayed late after the interview, connecting and sharing ideas, and he left me with an open invitation to come back to Cameroon and work with them on these projects. WebDev's goal of giving people a sense of what they can do and encouraging them to dream is so important

[44] Translation: the mental stage
[45] Translation: intellectual development
[46] Translation: These are the people from each community who have to open up for the development of their community ... if you dream to do things, it's already development ... an aspect of WebDev is to encourage people to dream-to show them that they can do it ". (Interview with Gregoire, Spring 2017, Minutes 54:20…57:00…26:30)

to the work we ended up doing to deconstruct dominant narratives around what development looks like through a digital map.

This journey came together when, months later, I encountered a map by Catalytic Communities, an NGO in Rio de Janeiro, Brazil. Catalytic Communities (CatComm) aims to empower the communities of Rio's favelas by reframing the narratives about favelas and connecting community members to resources with an understanding that Rio's favelas are already the heart of Rio and Brazil's culture, they are often incredible examples of sustainable living and solidarity, and each of these communities understands each other's needs better than outsiders can. As part of their efforts, Catalytic Communities generated and released a map of the Sustainable Favela Network. The Sustainable Favela Network Map shows hundreds of existing initiatives present in Rio's informal urban settlements or serving marginalized favela communities that have efforts relating to social resilience and sustainability across 20 categories. This map was a part of a huge effort, like a documentary or an article, to dismantle the dominant narrative about the favelas and show the ways in which they have been vibrant corner stones of culture and sustainable innovations in Brazilian society for decades.

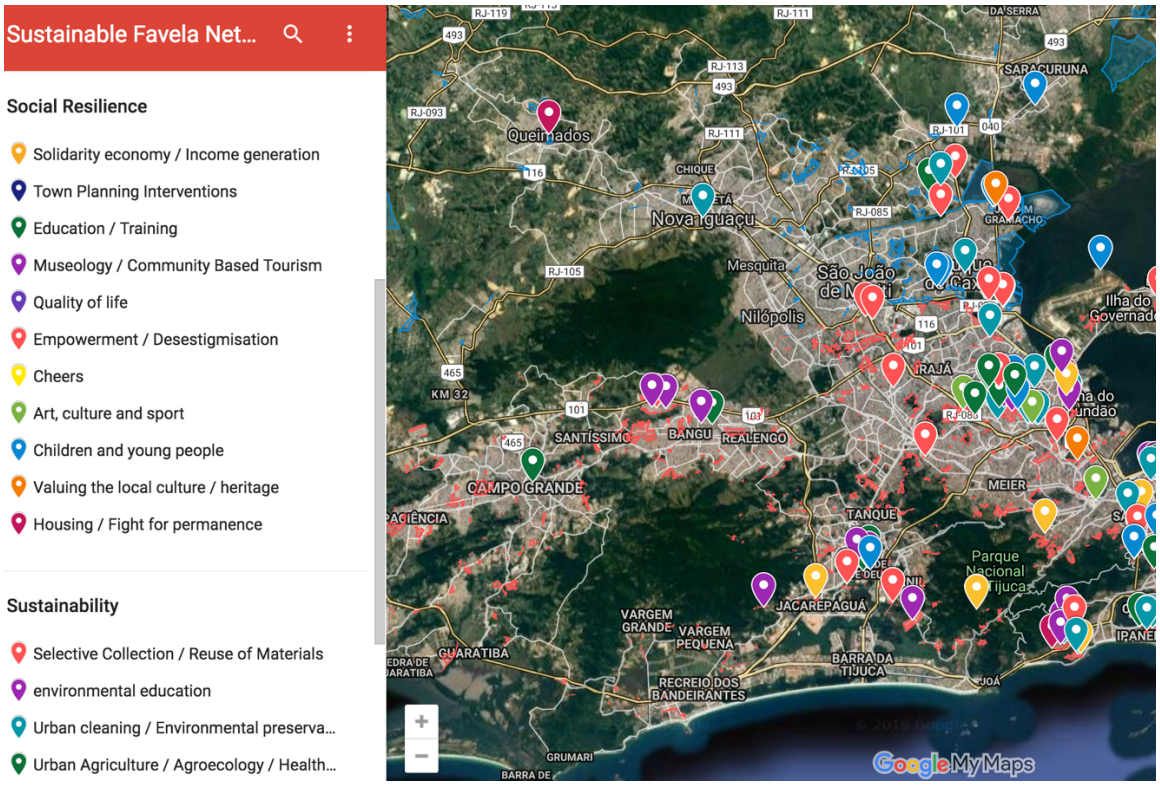


Figure 7 - Sustainable Favela Network Map by Catalytic Communities. Link to interactive map: https://www.google.com/maps/d/viewer?mid=1vdI-tjNOD4xQZl3TeoS6pd0cL4o&ll=-22.855535806206753%2C-43.311820043620514&z=11

Seeing CatComm's that map used the same platform as my own map of water in Batoufam inspired me: not only is CatComm using Google MyMaps, an accessible mapping platform that I already know works in Batoufam, but I could see parallels between the communities. Though CatComm considers folks who are in informal, often densely populated urban settlements, the favela population is similar to the rural Grassfields population in Cameroon in a few key ways. For one, both regions were socially and environmentally modified by the Trans-Atlantic African slave trade. Secondly, today these regions are marginalized within their countries: in Batoufam and Bangoua, development projects are frequently started by the government and then halted so that the official can pocket the rest of the money, and favela communities are often displaced for new development as seen most

prominently in the Rio Olympic stadium construction. Finally, to the outside world these complex and unique communities have been reduced to single stories—stereotypes of the mud hut African village, and the treacherous gang violence riddled urban Brazil slum. Top-down solutions to environmentally and socially sustainable development seem to be lagging globally, but in the chance that they do catch up, there is good reason to believe that communities like those of the rural villages in the Cameroonian Grassfields, or the informal settlements of Brazil's favelas will not get the support they need to survive, especially considering that the academic community consistently identifies those around the poverty level as most vulnerable to climate change.

And yet, here CatComm has made an incredible map showing resilience, and not just showing resilience, but facilitating further resilience by providing contact information and perhaps simply inspiring further action through the presence of the information provided. What if the same could be done in Batoufam and Bangoua? What if these two very different regions, who have struggled with similar things as they strive for "development" improving quality of life while continuing to breathe culture and tradition into their daily movements, could talk to each other? What if they could share their projects and ideas and learn from each other?

I imagined creating a similar map of the villages in the Grassfields and saw it as having the potential to:

- Inspire community members to engage with these projects or the needs of their village and encourage more of the volunteer mentality that WebDev is trying to spread
- specifically address some aspects of rural exodus by youth by engage youth in rural life by integrating technology in place while giving them a sense of a projects in motion and actions to be taken
- increase transparency and facilitate communication between community members and villages regarding development initiatives
- help these groups leverage negotiations with outside development agencies (government or foreign NGO's)

- put these villages on the map literally, and have let them have control over the narrative; create a resource to help community members and village leaders communicate the story of their village to outsiders
- create a platform for these villages for global information exchange related to sustainable and community centered development

When I proposed this mapping project to WebDev, outlining the above goals, I learned that quite synergistically they had been discussing doing the same kind of project a few months prior, but didn't know how to make it into a reality. With the model of Catalytic Communities' Sustainable Favela Network Map, and my previous work in the area, we now had a sense of what it would take to carry out such a project.

Methodology

By mid-June I sat around a table in Bangoua with the Mapping Team—comprised of young Cameroonian volunteers for WebDev Judicaël, Joël (who studied at SIT with me and who ended up joining this project when I came back), often William (Willy) and occasionally Laura, Marie or Aristide—discussing the intricacies of Batoufam and Bangoua—planning, conducting and adapting our digital mapping project. Over July and August of 2018, we identified points of interest, infrastructure, and local initiatives in each village, and spoke with the local leaders such as the village kings to cross-reference our lists with what community members believed should be represented on the map. In this process, we chose to represent points across eight categories and created category-specific questionnaires to ask at each point; so that, for example at a sacred site we would be able to ask different questions than at a hospital.

Figure 3 - Mapping team meeting with Joel, Judicael, Willy and myself. Source: photo taken by Gregoire and used with permission

Working closely with community members is essential to social cartography. We identified the village kings as prominent stakeholders in the map "product" as the kings would be among those who could use the map most given that they have electricity and often Internet access and travel to other places and could benefit from a resource like this map that would let them show their village. In our early stages, we met with the village kings to determine what kinds of categories would be useful for the map to include.

Figure 4 - 2018 WebDev Madiba Program Team. Top row from left to right: Judicael, Kevin, Marie, Laura, Joel, myself, Gregoire. Bottom row from left to right: Ortzi, Willy, Aristide

From Sa Majesté du Royaume de Batoufam we learned the names and neighborhoods of all of the schools, health centers, and religious sites. From Sa Majesté du Royaume de Bangoua we learned of his budding environmental and tourist initiatives for the village—les Collines Écologiques de Baloué and the Musée de Bangoua.

Figure 6 - Chef Superieur du Royame de Bangoua. (King of Bangoua). Image retrieved from Kamerun Haus Berlin website. http://kamerunhausberlin.de/koenigreich-bangoua/

Each king gave us permission to go to the sacred sites in their kingdoms and add them to the map, the next step of which involved working with the *responsible du site* and the appropriate spiritual person to gain spiritual permission to enter. Throughout the process we relied on the knowledge of the motorcycle drivers we worked with, we collaborated with the Bangoua Museum guide, and we worked with associations of mamas and youth groups, and in this sense it was a social cartographic undertaking.

Figure 5 - Willy, Judicael and me at the Chefferie of Batoufam. Source: image taken on my phone by Joel.

Figure 7 - Chef Superieur du Royaume de Batoufam. (King of Batoufam) Image retrieved from twitter account of Gilles Thibault, French Ambassador to Cameroon. Image taken during his visit to Batoufam in December 2016

We conducted three focus groups as well as interviews with community members and people working at the sites we mapped. Of our three focus groups, two were in Batoufam, and one was in Bangoua. In Bangoua we met with the Association des Jeunes de Kamna (AJEKAM), a highly organized group of young people that meets weekly with goals specifically around development initiatives—they discuss water projects, road signs, etc. In Batoufam we also met with a youth group focuses on social and cultural activities such as inter-neighborhood soccer tournaments and creating entertainment spaces for younger community members where they can put on skits and sing karaoke. We also spoke with an Association des Mamans in Batoufam, primarily from the quartiers of Toula and Kassé, ages 32-68, though most were over 50. When we met with these groups we tried to get a sense of people's general perspectives on village life and development, and we also tested terminology to help us design our interviews and questionnaires. For each interview we asked about a description and history of the site/project, the difficulties encountered, strategies already in use or tried to address those difficulties, other conceivable solutions, contact information of someone responsible for the

Figure 8 - Laura and I interviewing the leader of the Mosque Central de Louoh, the only mosque in Bangoua. Source: photo taken on my phone by Judicael.

site or project. Each of these questions was chosen carefully; we asked about strategies already in use and tried in order to show that the involved people are not helpless or passive (and to encourage people to see themselves in this manner as well); we asked about other conceivable solutions to encourage people to see themselves getting involved with these initiatives; and we asked for contact information to try to facilitate communication about development strategies.

Figure 9 - Mapping team picture outside of the Bangoua Museum. Source: photo taken by Judicael on my phone.

Figure 10 - Practicing immersive cartography by taking an adventurous hike to a sacred waterfall in Bangoua, ft. Marie and Laura. Source: my own photo.

Mapping Methodology

To go about the actual mapping, we used a free GPS coordinate apps on our smart phones that function while offline. This method of mapping, using limited technology in the field, and Google MyMaps to produce the map, is an option that prioritizes accessibility on several levels. It is free to use and publish with; it is an intuitive platform that is easy to learn; the text of the map can be translated using a Google Chrome plug-in for Google translate, which means that

information can be communicated in 100 languages; the ability to add symbols and images increases the legibility of the map for those whose languages are not represented in that 100. We kept tract of each point in handwritten data tables in notebooks and corresponding questionnaires, seeing that for our circumstances it was more efficient and reliable in the field to limit technology dependency and not take advantage of the Google MyMaps function that lets you import a digital spreadsheet.

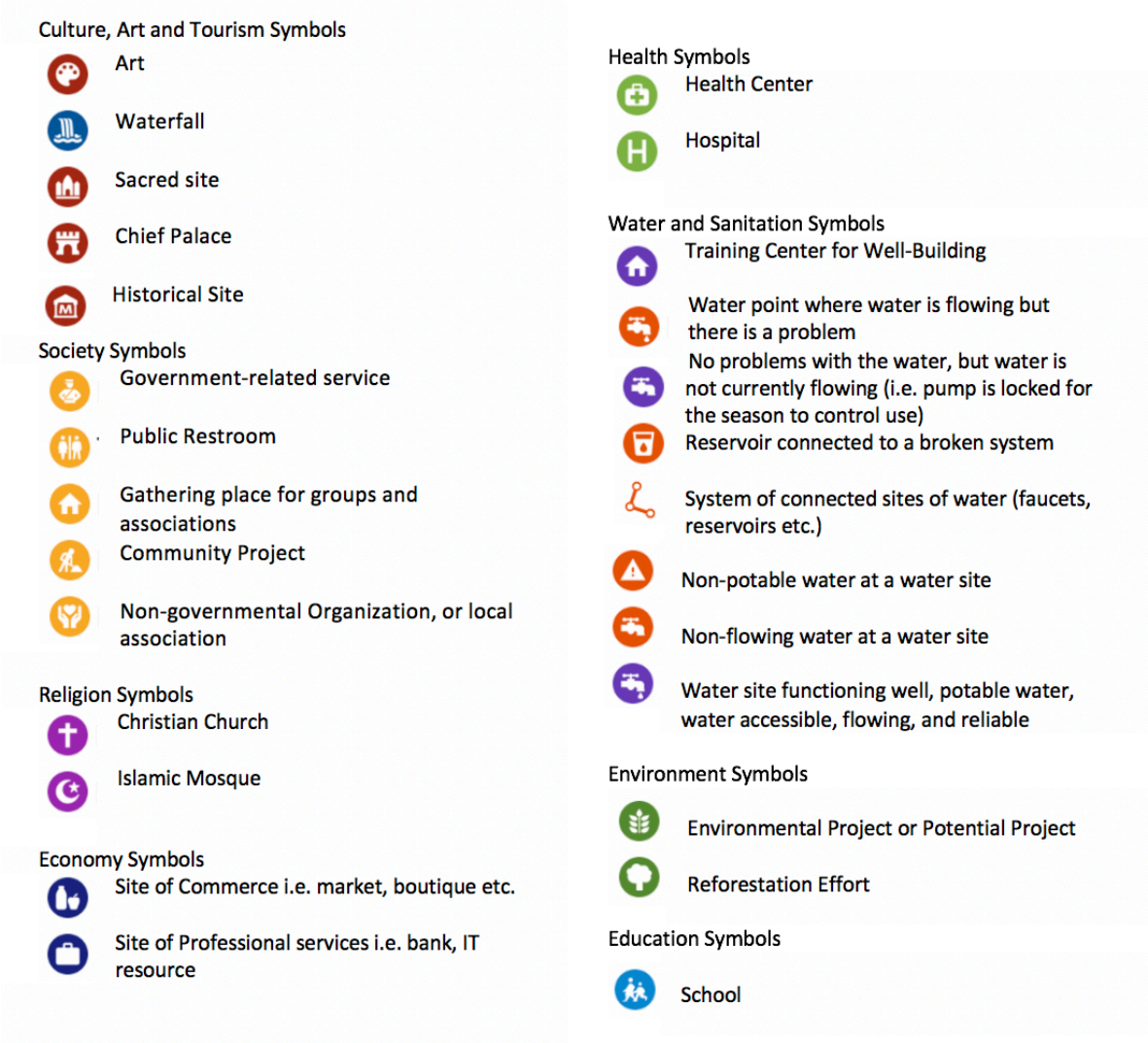
As far as the concept evolution of the map is concerned, I wrote the following reflection one week into the project:

> People are reacting really positively to the ways that this project takes action, supports existing efforts, has a very large potential impact, teaches marketable skills to those who help to build the online map, encourages collaboration, and can do all of this quickly without requiring a large financial investment from the government or a donation from a foreign NGO…Already the mapping project has evolved a lot since I started actually collaborating face-to-face with some team members from WebDev, but in ways that are for the best. One of the core values of this project is social cartography—that is, mapping that is informed by a community rather than an outsider's perception and includes the things that matter most to the community and reflect their understanding of place and space.
>
> My initial vision and understanding of the map was that we were going to be featuring a lot of local NGO's and sustainability initiatives. On my first day I basically learned that there aren't really any other local NGO's apart from WebDev, and my Cameroonian teammates were pretty firm that for this project to be effective for the local context, we should map *everything* from schools, to churches, to the Royal Chieftaincies, to the hospitals and health centers, to water projects, to reforestation and environmental education efforts, to centers for tourism, to initiatives that sustain the local economy and so much more. Rather than looking at an immediate example of sustainability, we'll be looking at the components that contribute to the overall sustainability of these two villages and local way of life, and what it will take to sustain these components.[47]

As this except shows, in true form with social cartography, the parameters regarding what would be mapped were largely determined by community members.

[47] Skutt, "Mapping Batoufam and Bangoua ~ June."

Map Legend



Difficulties Encountered

From bridging the gaps between theory and reality, to acknowledging positionality and culture clash within multi-national teams, many difficulties emerged throughout this process that warrant discussion. Within the first few days of this project I began to learn that while social cartography is a beautiful theory for its power to highlight underrepresented narratives, it can be difficult to define and communicate how this concept might look for a specific project. It took us a really long time to define what projects we were looking for, and honestly, we were

still somewhat unclear on this even at the end of the project. At first, I started by limiting this project to mapping CCDI's on environmental sustainability, but WebDev told me that the only ones were their projects. We broadened the scope to include a much wider range of development initiatives, trying to get a sense of the sustainability of the village given current infrastructure and community member desires and visions for change. Nonetheless, my own ambiguity around how to articulate a social cartography initiative of this scale meant that I was not a very effective team leader.

I came into this project with some pretty romanticized ideas of what decentralized leadership and community-centered projects can look like, but one thing that I did not account for was the cultural relationship to leadership and authority. I eventually noticed that while I came from a cultural setting that valued leaders who integrated the rest of the team in decisions, and also valued team members taking initiative, I was encountering a culture that highly valued authority and expected leaders to determine direction and give clear instructions. By contrast I was going in to group meetings by explaining the overall goals and trying to have an open conversation about what my team members thought was the best way to meet those goals; but this method that sounds great in theory was not cultural convention.

As a group, we encountered several challenges and misunderstandings rooted in the difficulty of managing dynamics of a multi-national, multi-lingual, and multi-cultural cohort that made up the Madiba[48] 2018 team. There was opportunity for more intentional leadership at the organization level in terms of establishing a foundation of communication and trust, and this experience also reiterated for me that there are intense challenges to having foreign

[48] Madiba is WebDev's annual summer program in Bangoua that serves as the principle convergence of local and foreign volunteers. Activities include running a summer school program for local youth, volunteering to help mamas in the community, offering IT and English classes at local hospital.

workers and volunteers involved in local projects that range from lack of linguistic comprehension to different cultural expectations around money and budget management. In all, these difficulties reiterated many of the problems WebDev had identified with outside development groups coming into a community. At the same time, while these challenges were significant, WebDev is not closed to foreign involvement or foreign volunteers and sees that there can be great things to gain from such exchange. I mention the challenges in an effort to encourage further acknowledgment of and awareness about problematic dynamics within the role of foreign researcher or project assistant.

Findings of Mapping Project

Over the course of this project we mapped 136 points of infrastructure or local initiatives in the following categories (listed from most to least frequently featured on our map): Water and Sanitation, Education, Culture Art and Tourism, Religion, Economy, Society, Health, and Environment.

The map content is in French. Follow the following steps to easily translate the map into English or another language that Google translate has.

1. If you do not have the following please download:
   a. Google Chrome – most effective web browser for translation software
   b. Google Translate Plug-in – can be easily added to the Chrome Interned browser, and will read the page you are on and translate it—particularly compatible with other Google platforms such as Google MyMaps
2. Open the below link to map with Google Chrome
3. Accept the Google Translate Plug-in's pop-up offer to translate the page into English. Or if no pop-up occurs, click on the small Google Translate Plug-in symbol on the upper right side of the browser window and select "Translate this Page".

Types of Initiatives Mapped
Culture, Art and Tourism = 16
Environment= 5
Society =8
Economy = 11
Health = 8
Education = 23
Religion = 13
Water and Sanitation = 53
Total = 136

Mapping in Bangoua
7 cultural initiatives
4 environmental initiatives
6 Society initiatives
5 economy initiatives
3 health initiatives
14 education initiatives
8 religious initiatives
3 working water initiatives, 1 training site for water improvement
7 non-working water initiatives /sites

Mapping in Batoufam
9 cultural initiatives
1 environmental initiative
2 society initiatives
6 economy initiatives
5 health initiatives
9 education initiatives
5 religious initiatives
10 working water sites
22 non-working water sites in Batoufam, plus 3 where there are problems with water quality (often in need of filtration), and 5 captation/storage mechanisms (often in need of connection or repair).

Our map can be accessed at the following link: https://www.google.com/maps/d/viewer?mid=1BQv3uBrd4DUspSNZf51_unNRSJLWMV3S&ll=5.2269076198950835%2C10.488586499999997&z=12.

Figure 11 - Zoomed out view of map, for position of villages in relation to rest of country. Source: screenshot of our map

Map Legend

Culture, Art and Tourism Symbols


Art


Waterfall


Sacred site


Chief Palace


Historical Site

Society Symbols


Government-related service


Public Restroom


Gathering place for groups and associations


Community Project


Non-governmental Organization, or local association

Religion Symbols


Christian Church


Islamic Mosque

Economy Symbols


Site of Commerce i.e. market, boutique etc.


Site of Professional services i.e. bank, IT resource

Health Symbols


Health Center


Hospital

Water and Sanitation Symbols


Training Center for Well-Building


Water point where water is flowing but there is a problem


No problems with the water, but water is not currently flowing (i.e. pump is locked for the season to control use)


Reservoir connected to a broken system


System of connected sites of water (faucets, reservoirs etc.)


Non-potable water at a water site


Non-flowing water at a water site


Water site functioning well, potable water, water accessible, flowing, and reliable

Environment Symbols


Environmental Project or Potential Project


Reforestation Effort

Education Symbols


School

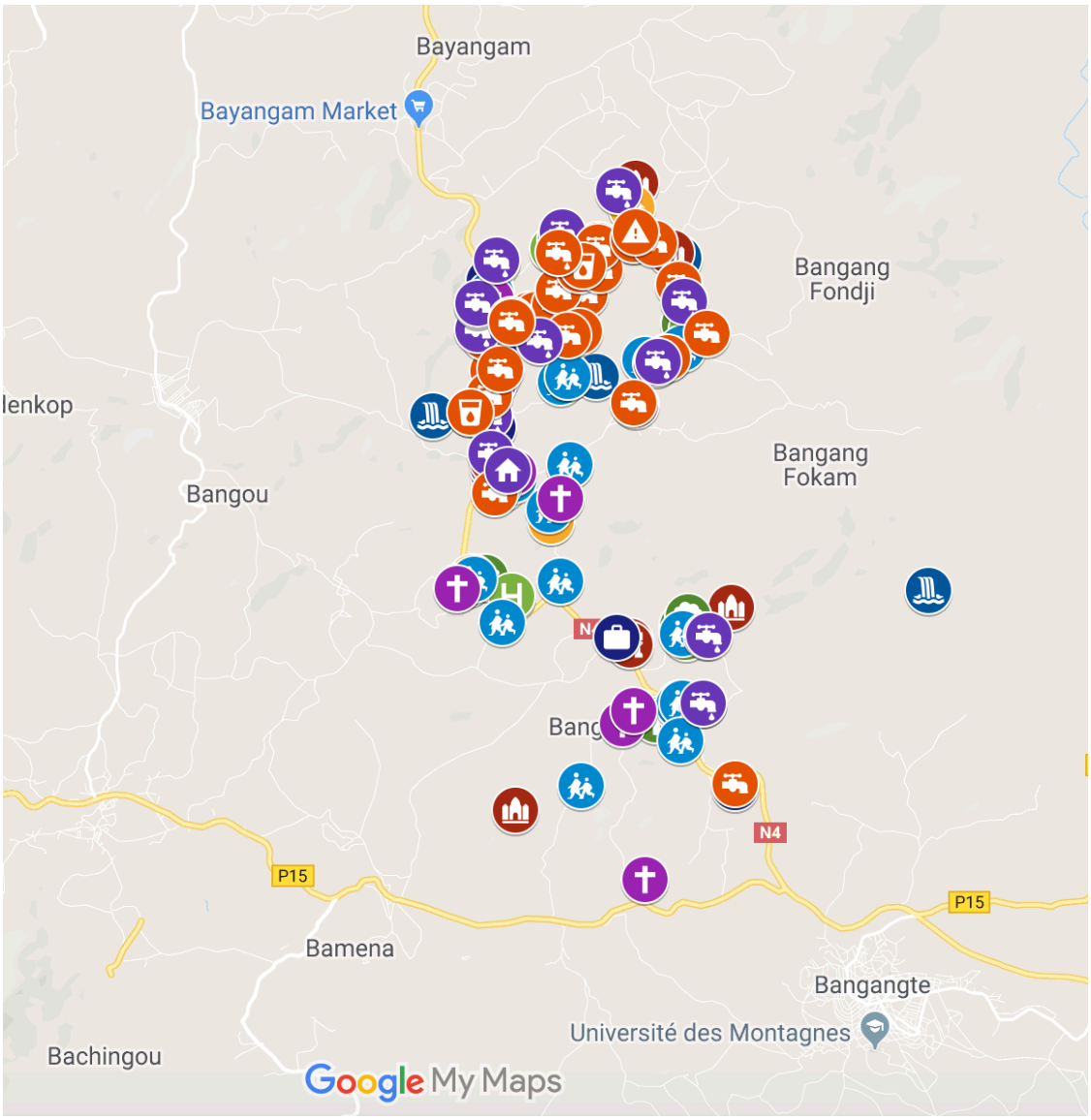


Figure 12 - Screenshot of Map of Batoufam and Bangoua. (Batoufam situated to north of Bangoua)

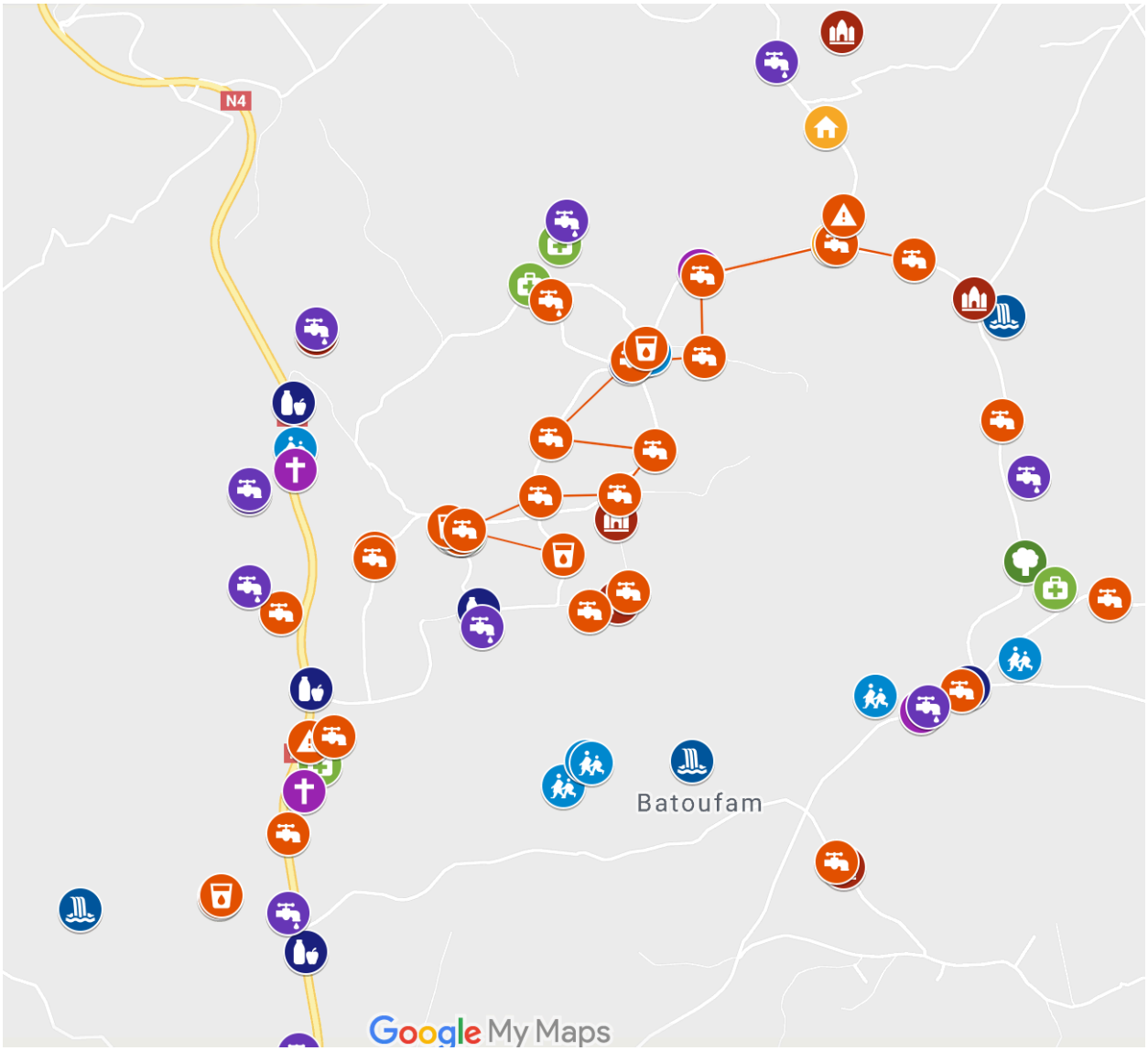


Figure 13 - Screenshot of Map of Batoufam and Bangoua. Focus on Batoufam.

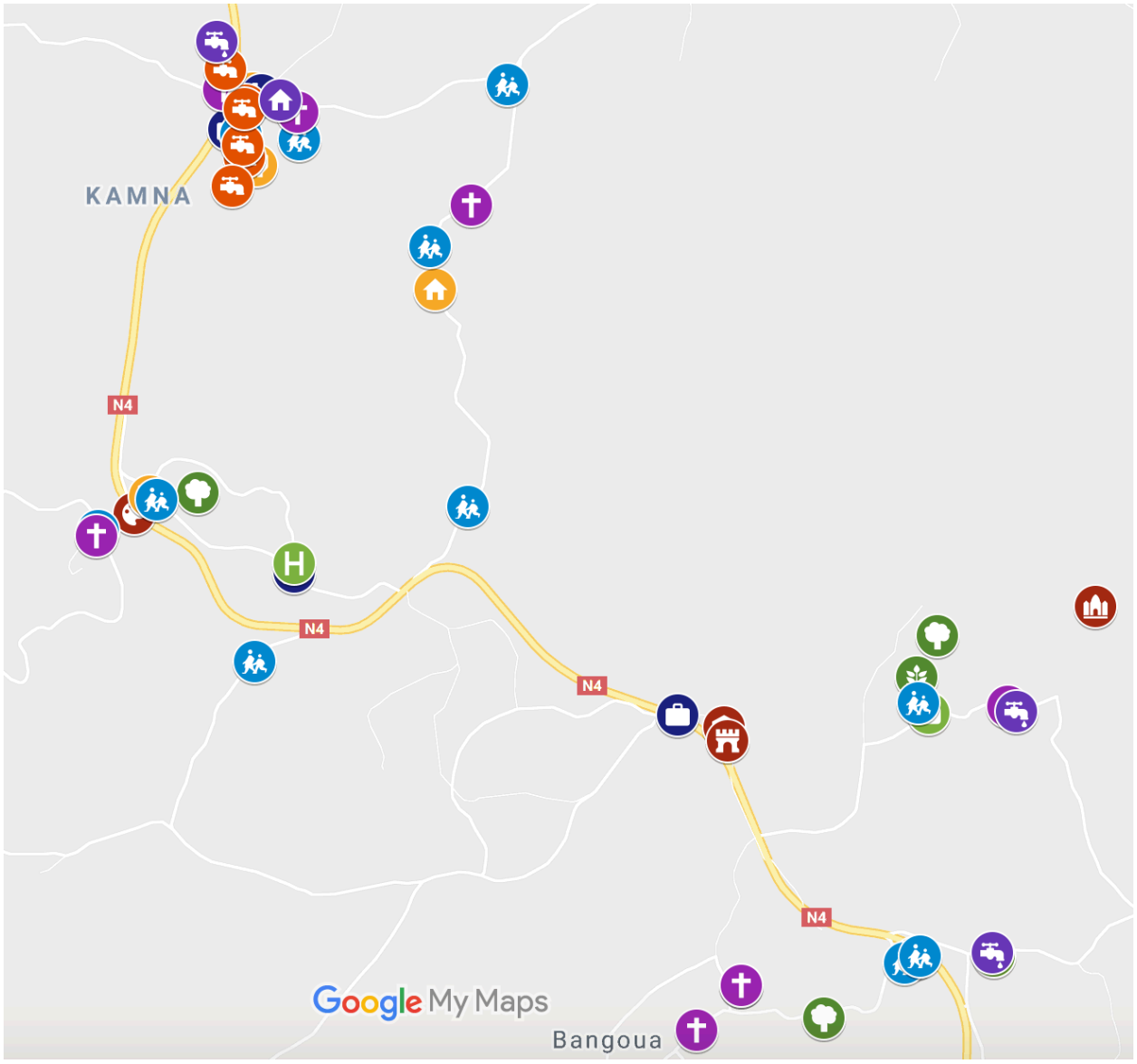


Figure 14 - Screenshot of Map of Batoufam and Bangoua. Focus on Northern section of Bangoua, from Kamna to the Famveuh reforestation effort.

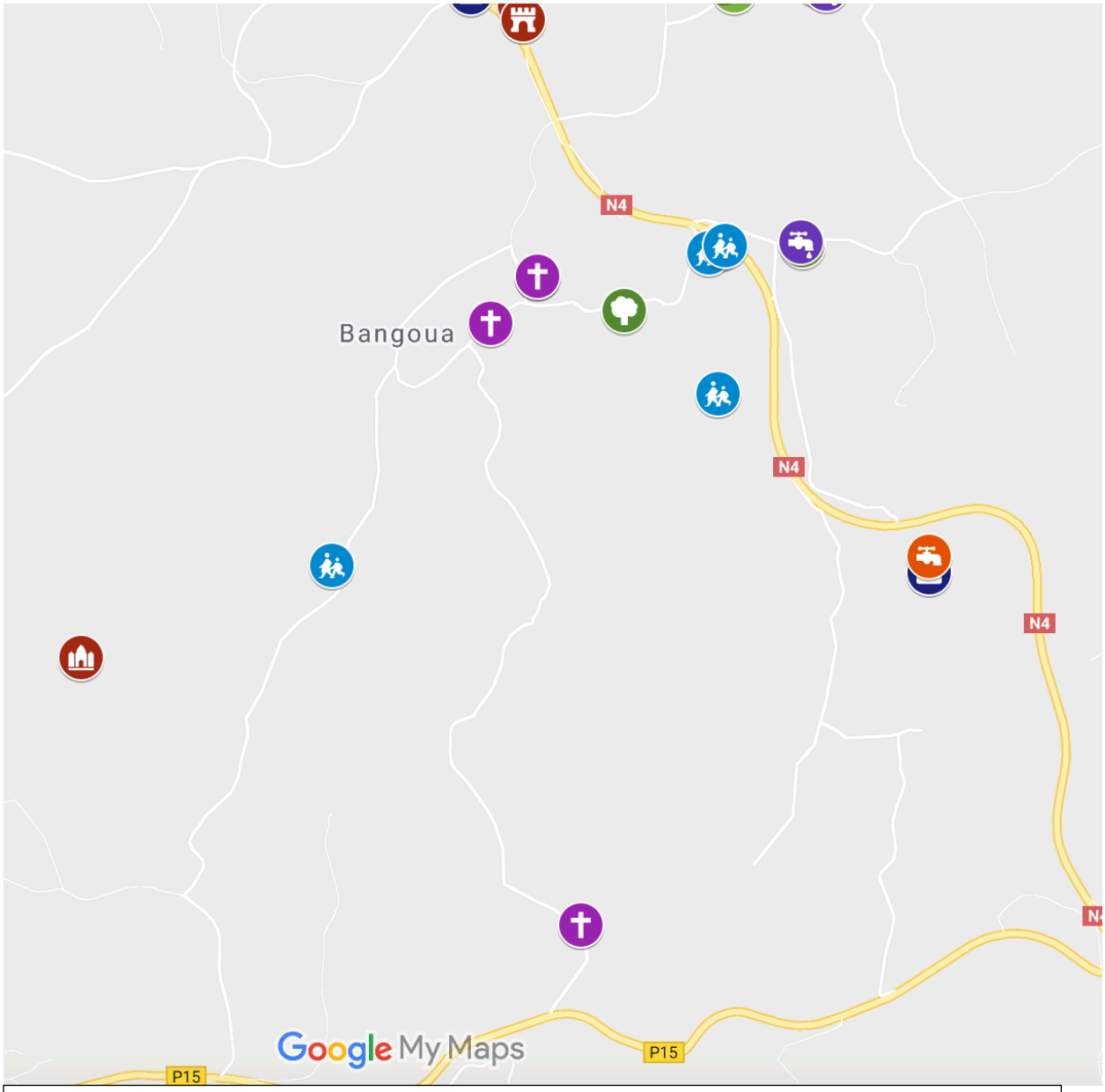


Figure 15 - Screenshot of Map of Batoufam and Bangoua. Focus on Southern section of Bangoua, from the Chefferie to the Catholic Church of Koumkouock

Mapmaker bias embedded in maps

Maps, like photographs or documentary films, give the illusion of presenting truth, but behind each documentary film, photograph, and map, is someone is making decisions around what is included in the frame and ultimately constructing an argument and a narrative. In one way or

another, maps tend to contain the biases of their creators—either through the elements featured or the orientation of the map (North as top of the map, top of the world power structure). Our map indicates a bias towards featuring water infrastructure, with vast majority of the points we mapped falling into this category, which in part was driven by my previous work in the area, and also reflects how important the issue of water is locally, and the volume of development initiatives to address this issue. Our map also shows my personal fascination with the solar powered water system in Batoufam through the repetition of information about this system at each point along the way, and the use of the line function to draw attention to the relationships between each component part (note: the lines drawn do not indicate the lines that the pipes follow). Our perspectives as mapmakers further manifest in the employment of visual cues to help viewers quickly distinguish between water sites that are functioning well (dark purple points) and water sites that have been attempted but are not functional (dark orange sites). This tool lets our map immediately communicate information about which regions and surrounding infrastructure have access to water. This method also challenges on of the dominant narratives about Third World development: that Third World people are either helpless, poor or even lazy, and deprived of essential infrastructure—instead pointing out that dozens of efforts have been made the infrastructure that is often provided by aid efforts is not long-lasting—yet people are not simply sitting on their hands waiting for help to come. As we tried to show with our map, the knowledge that bias is embedded in maps can itself be a tool in deconstructing dominant narratives.

Though I initially hoped that the map would illuminate useful similarities between initiatives in Batoufam and Bangoua, so far this tool has been more useful in telling the stories of diversity across rural spaces. For example, Bangoua has significantly fewer water initiatives

than Batoufam and this difference reflects the different soil composition between these two spaces—separated by a mere 20-minute motorized vehicle ride—that accounts for the nearly impenetrable rocky earth in Bangoua.

Maps and map data can also be misleading, for example, in this map we have only featured one environmental project in Batoufam, despite the significant role that environmental protection plays in the village and at the level of the King. This oversight in our map came about because we how to or whether to map things like the sacred forest and the efforts of the royal traditional healers to protect the local environment and keep the ecosystem, the people, and the local medicinal plants healthy. Many of these practices are sacred and not to be shared with outsiders—to put them on a publicly accessible online map seemed like it might introduce too much vulnerability.

The stories our map illuminates

This map can also be used to illuminate pattern areas within each of these villages where multiple types of activities are occurring in the same spaces.

Figure 16 - Screenshot Map Batoufam Bangoua. Created by Hannah Skutt with the Web and Development Foundation. Created Summer 2018. Published February 2019.

Figure 16 shows the map section of the Chila neighborhood in Batoufam which includes layered activities – a school, a health center, a church and several water points. In this case, the layering reflects the church's sponsorship of the hospital and the school, and those who understand the mechanics of water pumps and storage see that this section of the map also tells a story of local topography, as it includes the area that was selected to house the reservoir for the solar power water system. As you spend time surfing between the dots on our map, reading the descriptions, noting the

clusters of activity, you can see aspects of people's lives—their daily, weekly, annual pathways traveled as they go to school, water, go to Kamna for the market every 8 days, travel between Bafoussam and Bangoua along the highway 4 navigating the bureaucracy involved in getting various official documents for an identity card. You can see the sacred spaces that might murmur each time an offering is made to the ancestors. Our map is one attempt to tell stories of the evolution of local projects, alliances that exist between projects and project backers, and recent happenings in the villages. The next section will look at three initiatives in particular that were featured on the map and that serve as examples of community-centered development initiatives in the area—providing insights into the difficulties and successes that arrive for these efforts.

Web and Development Foundation ~ WaLi Well-Building Training Program

One CCDI on our map is the Water is Life (WaLi) program of the Web and Development Foundation, which includes efforts to fundraise, build, refurbish, and maintain water wells at strategic locations around Bangoua using low-cost local materials and training local community members to do the construction and maintenance, increasing durability of these points of infrastructure. When providing me with context for these initiatives, Gregoire explained that, "le problème d'eau traverse le Cameroun, en particulier à l'Ouest."[49] The outside aid model for addressing water issues in Batoufam and

Figure 17 - Water Well Rehabilitated by WaLi in 2017, maintained in 2018. Photo by Ortzi July 2018, used with permission. Point labeled "WaLi Rehabilitated Water Well" on map.

[49] Translation: The problem of water spans Cameroon, especially in the West

Bangoua typically involves foreign (or occasionally governmental) teams of experts that come into the region and construct a singular well and depart. If done well, there may not be any issues; the first three wells constructed in Batoufam are still the best and most reliable in the village; however, if poorly constructed, the community is entirely dependent on the will of the foreign team to return to repair the well.

WebDev—being a local NGO started by community members—takes a community centered development approach to dealing with water issues and water infrastructure development in the village. Firstly, WebDev believes that water infrastructure should be built by community members so that there are people in place who have the knowledge on how to repair it—disrupting dependency cycles that emerge through the Western development model. WebDev is also in better touch with local needs and social and cultural dynamics and is able to see the trends in youth involvement in village life. WebDev sees the need for appealing village roles for young people in order to respond to increased rural exodus by youth and integrates it with a program to train local people on how to build and maintain water wells in the villages. WebDev prioritized training local technicians who were in school or who had recently attended school so that their families would see a return on investment and so that the technicians would feel inspired to stay local and apply their skills in their community to counteract the growing issue of rural exodus particularly by youth in the area. WebDev works with teachers at the *lycée*

Figure 18 - This image shows a hand dug well in Kamna that was built by WaLi in 2017 and maintained in August 2018. Image taken by Ortzi, July 2018, used with permission. Point labeled "WaLi manual water drilling" on map.

techniques[50] in the area to select students who would be a good fit for the building and maintenance teams, to receive trainings. Then, WebDev uses an innovative video training model to provide trainings while the core WaLi overseers evaluate sites around the villages for appropriate soil for manual drilling (preferred to automatic drilling because it greatly reduces cost), and sites that need repair. Another advantage of addressing water issues with community centered development is that there is a cultural element to whether or not the added infrastructure "survives" which plays into understanding if a lock is needed on a water pump handle during certain hours to limit use, knowing the cultural dynamics of who in the village is acceptable to give that sort of power to, and whose control will not be respected.

The WaLi Project runs every July and August building new wells and checking and repairing older projects. Figure 5 shows a hand dug borehole well—a near miracle in the rocky soil of Bangoua—that was built by WaLi in 2017 and serves a local family in the Kamna neighborhood. Figure 6 shows an image of a well that the 2017 WaLi team transformed from the common uncovered traditional well where water is fetched from the water table with a bucket or the pit is replenished by rain to a covered well that is much safer to drink from and added a manual pump to facilitate the extraction of water. This

Figure 19 - Rainwater catchment system, roof and gutter view. Photo taken on my phone, June 2018. Point labeled "WaLi Water Collection System" on map

[50] Vocational high schools

well is also located in Kamna and serves a lot of people—keeping in mind that Kamna is the site of the largest weekly market within a day's walk for many of the surrounding villages.

Finally, Figures 18-21 show various components of a rain catchment system that the WaLi 2017 team set up at the Kamna neighborhood chief's residence that is a centralized point for the community and used by many people. In this system, the rain that hits the roof is captured in the gutters and channeled into a storage container where it is filtered through fine mesh upon entry and exit.

Figure 20 - Water from the gutters is then filtered and stored in a small container. Photo taken on my phone, June 2018. Point on map: WaLi Water Collection System

Figure 21 - WaLi Water Catchment System storage basin and manual pump ft,. team member Judicaël. Source: photo taken on my phone

The water is then channeled through underground lines to a much larger storage basin that has a manual extraction pump. All system components (pictured in the below images) are available as affordable, locally sourced materials—reducing the environmental impact of importing construction materials.[51]

[51] In addition to importing teams of volunteers and experts, foreign organizations or government development overseers often import building materials for one of several reasons: to use what they are familiar with; or

However, when we checked on the system the following year after installation, the findings were some-what disappointing and frustrating. The system is quite simple and requires some basic maintenance such as clean-ing out the mesh filters and ensuring that another mesh cover over the air intake to the basin that prevents mos-quitos from entering the tank is intact.

In WebDev's eyes, one of the ideas behind charging community members with these tasks is that they see their ability to take matters into their own hands regarding their water access and development infrastructure. Instead, when we arrived we found that the mesh filters had not been cleaned in a long time—perhaps ever—and the mesh barrier against mosquitos looked like it had been intentionally perforated, possibly by playing children, and sadly, not repaired. It seems like there is a gap occurring between WebDev's hopes and expectations of the community's involvement in their development initiatives and the reality, and if so, I'm curious as to why. Are people less inclined to engage in maintenance activities because the consequences do not seem serious? Or is their lack of engagement connected to their knowledge that the WaLi team will return the next year to do repairs? Or do community members not have the time, material resources, or money to make these repairs on a regular basis? Is there a way to change the design of this CCDI to alleviate this phenomenon?

Figure 22 - Underground water basin and manual pump. Photo taken on my phone, June 2018. Point on map: WaLi Water Collection System

because they have made an assumption that the perceived poverty of these regions slated for development initiatives is indicative of a lack of local building materials (which it is not); to uphold trade agreements and top-down parameters around what sort of materials will be used within the country for development initiatives, often as part of what Gunder Frank coined Dependency Theory development.

Nonetheless, this CCDI is a wonderful example of the way in which a CCDI can present several advantages to a community over the dominant development model, but still fall short of a few key aspects that contribute to community member adoption.

Reforestation

Our map spotlights four reforestation initiatives—all community-led to a degree—the abundance of which speaks to the way that reforestation projects are adequately situated to respond to village needs for environmental protection and drought mitigation, while being aligned with local and traditional values. The Batoufam Chief[52] and Monsieur Tchouanguep, the medicine man for the royal court of Batoufam, both stress the importance of reforestation efforts in connection to water health and combatting local drought by encouraging the retention of water in the soil throughout the dry season. Further-more, the forests in these areas are traditionally considered sacred, especially certain areas where significant events occur-red or where ceremonies are performed.

Figure 23 - Owl Rock Sacred Site Reforestation Initiative. Source: photo taken with my phone July 14, 2018

[52] Also referred to as the king, Chef Supierieur du Batoufam etc.

In spite of these factors, today, the local forests contend with a growing need for agricultural land and crop production as local society becomes increasingly monetized and crops remain the primary source of income in these areas. Many individuals decide to clear the forest on their land in order to make way for crops; keeping only the fruit-producing—and therefore money-making—trees. However, as weather patterns change, and water becomes increasingly scarce, many community members are calling for the end of this practice including the Batoufam King and M. Tchouanguep. Their opposition to forest clearing calls upon traditional knowledge that explains that the forests—and certain trees in particular—are what hold water in the ground, bringing stability to water levels during the dry seasons.

Along that note, the Owl Rock Sacred Site featured on our map includes a nearby reforestation effort in Bangoua that coincides with the sacredness of the site. The decision to replant trees in this area was made with the intention to honor the traditional relationship to the environment and restore balance.

Another noteworthy reforestation initiative was found at the *Collège Évangélique de Bangoua*[53], where 143 pine, avocado, and cypress seedlings were donated by a community member and friend of the school. Though these saplings are still small, all have been planted and the school director has big plans for integrating the reforestation zone into the curriculum; teaching students how to care for these trees, letting them sell the avocados to earn their own money and practice commerce.

Figure 24 - Avocado tree sapling and Ecole Évangélique de Bangoua. Source: photo taken by Judicaël, Summer 2018, used with permission.

We were able to map three reforestation projects in Bangoua, however, in conversations with community members in Bangoua about these reforestation projects, the obstacles to starting and maintain them became clearer—thus, the process of mapping these two villages once again, offers a more robust picture of each.

Though the forest is a respected part of traditional life, there is some local resistance to calls to halt deforestation and local initiatives for reforestation and these stem from conflicting needs and ancestral practices. The community efforts for reforestation and awareness campaigns to halt deforestation encounter difficulty because the current dominant practices in these villages involves cutting down trees for agricultural land, fuel for cooking fires, and building materials for houses and furniture. These days, people are most inclined to protect trees that provide some sort of monetary benefit in the form of fruit or medicine, but other trees

[53] Evangelical Middle School of Bangoua

are seen as community resources, though there are agreed upon regions where cutting down trees or taking branches will never be allowed such as a sacred forest or land designated for environmental protection. As a result of awareness campaigns, some community members are more responsive to the idea of leaving only fruiting trees—because those trees at least produce food or medicine which can translate to subsistence or profitable materials. Some community members have also made the switch from cutting entire trees, to only using large tree branches, ensuring that the tree still lives, and its roots can continue to hold water in the soil and prevent soil erosion.

By in large community members are resistant to the prospect of losing potential agricultural land by undertaking reforestation initiatives or refraining from cutting down trees. Most strictly associate agricultural land with clear fields, despite the colonial history of this model and the viability and gradually growing popularity of sustainable agriculture and agroforestry worldwide.[54] There are significant benefits to sustainable agriculture practices in the village; agroforestry—planting crops in shared spaces with forests—decreases soil erosion thanks to the forest root systems which help hold the soil in place, and agroforestry additionally offers farmers shade. However, farmers I spoke with are hesitant to adopt such a practice because of their ties to ancestral practices.

One day when I probed Mama Judith for details about her day, I gleaned some insight into how rooted these practices are in family and honoring ancestors. She told me that she had spent the day in the fields with Adora—her oldest daughter, who was about eleven at the

[54] The permaculture organization "Better World Cameroon" located in the Anglophone region, specifically in Bafut has been relatively successful in garnering support for new sustainable agriculture practices, perhaps because permaculture comes with a clear set of principles, and BWC offers hands on intensive trainings for community members and people throughout Cameroon and surrounding countries to attend—giving them more structure than WebDev's current model. WebDev has met some resistance to trying to promote sustainable agriculture practices, however, they've taken a tactic of primarily focusing on targeting young people who may be more open to change than the older generations.

time— “je lui disais de faire exactement comme moi, et je lui appris comme ma mère m’apprit quand j’avais son âge”[55] Judith beamed as she spoke and it was clear to me that this aspect of ancestral connection through specific agriculture practices could not be overlooked in efforts to push sustainable agriculture.

Even when community members are fully in support of reforestation, there are barriers to such a project. Our interview with the director of the Collège Evangélique de Bangoua shed light on some of these barriers. The director said that what happened at their school is incredibly rare; tree starts are expensive and hard to come by, and without the generous donation of a community member who deeply supported the school, there was no way that they could have obtained the saplings required to undertake such an initiative. Furthermore, we all discussed that this project will take many years to come into realization—it takes a long time for saplings to grow to a point where they can contribute to the community and environment the fullness of their benefits, and this delay could cause people to lose interest in such projects.

There are a few ways in which both WebDev and our digital map might offer relief to these difficulties. Firstly, WebDev runs a sustainable agriculture program in Bagante that specifically targets youth for two reasons: 1) the village has increasingly struggled with exodus by youth populations “qui pensent que la vie est qu’aux grands villes et qui voient de faire le champs comme une signe d’échec”[56] 2) youth are more open to change. Putting these two together, WebDev has found that the use of innovative agriculture techniques peaks the interest of many young people. Secondly, we hope that the map serves as a model for alternatives to

[55] Translation: I told her to do exactly what I did, and I taught her like my mother taught me when I was her age.
[56] Gregoire, Interview Spring 2017. Translation: who think that life is only in the big cities, and that working the fields is a sign of failure.

the current dominant practices of deforestation, perhaps by showcasing instances of sustainable agriculture or agroforestry occurring in Cameroon or in other localities. The map does not currently fulfill this function, but one thing that does come through in the map are the illustrations of possible points of engagement with CCD around reforestation projects. This is particularly clear in the story of Collège Évangélique de Bangoua which shows a few roles possible roles for community members: as donor, not of monetary wealth, but of priceless resources for starting such a project; and as the role of the Collège director who eagerly ran with the donation and not only kept the donor's vision alive but found ways to integrate the reforestation initiative into the school curriculum.

Solar Power Water System

The solar power water project in Batoufam had a lasting impact on me, in part because learning about this infrastructure served to expose to me that I'd formed a single story about water development in this village over my first stay, and this infrastructure gave me a new narrative. I'd seen so many examples of outside development projects and I was used to that as the model, I was not expecting to hear about a highly innovative local effort, and this was piece that inspired me to do a mapping project of such initiatives. The solar power water project is a network of 10 water spigots, a reservoir, and a solar powered electrically pumped water well, that was primarily designed by the Batoufam Water Council, of which Pierre Wanko is a member. It stands out as the only water development project that goes beyond the single-point

Figure 25 - Solar panels of the solar power water system in Batoufam.

model and responds to user desires for electric water extraction instead of manual pumps while using renewable energy.

Figure 26 - Solar powered water system, photo of well (concrete box) and associated solar panels. Source: photo from my phone

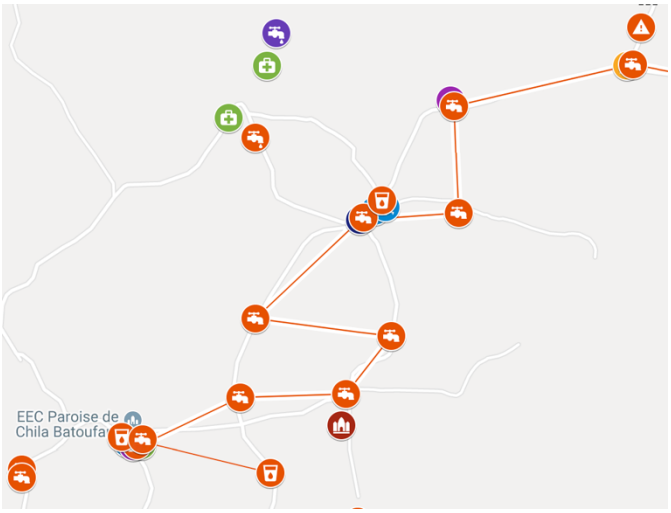


Figure 27 - Map of Solar power water system in Batoufam. Source: screenshot of our map

However, this water system is like the ghost of local development projects; its well was not drilled to sufficient depth to reach the water table and after a couple glorious days of connecting the village to local running water, the system went dry. It is haunting to see the potential of this water point; an abundance of water sites around the village—communities next to farms, economic hubs, schools, health centers and churches—that could be provided with water if only this well were a little deeper. M. Wanko told me that this is a common problem for wells in the area because drilling to the depth where water is guaranteed is so expensive, so often development initiative leaders choose to drill to a lesser depth and gamble with whether or not there will be water.[57] Of course, this situation could also be the result of lack of understanding

[57] This is why the first three wells ever created in Batoufam succeeded and the others always have issues; the first three were created by an organization that was willing to spend that extra money to make sure that the wells would succeed and sustainably provide water for many decades to come—most believe that they were installed in the 1970's by a German NGO.

about how the water table works—especially considering that the tools for acquiring concrete knowledge of water table conditions in a specific area are expensive and often inaccessible to low-budget initiatives. It is possible that this well experienced drawdown of the water table from heavy use due to how many points are connected to one source. Or, it is likely that the well was connected to a confined aquifer, which gave the illusion of having reached sufficient depth and provided water for a few days but could not sustain the system like connection to the lower water table. At present, our map does a great job of highlighting the spatial impact of the failure of the single well on the rest of the community, however, there is still potential to integrate more of a knowledge-exchange among experts and local managers about things like what may have caused the well failure, and how it could be avoided or repaired.

Another point of interest is that there seems to be local confusion around which groups were involved in designing and implementing the solar power water project. On the map and in this paper, I have chosen to give dominant voice to the local group of experts—the Batoufam Water Council, who claims that they were the designers of this system. However, the signs attached to each of the water spigots suggest that there was support from governmental agencies, which could explain why there was a stagnation in progress after the initial failure. In addition, several community members that I spoke with about the solar power water system seemed to think that there was government involvement—particularly that the spigots were indicators of a government promise to connect their village to the centralized water network (SNEC), and I honestly have no idea what to make of this multitude of narratives. Perhaps it speaks to the way that this mapping project helped us bring to light—if not always understand—the various challenges associated with implementing community centered development initiatives in this setting.

Challenges witnessed to Community Centered Development Initiatives

Mapping the development initiatives of these two villages with an emphasis on questions like "difficulties encountered" helped bring to light patterns present that underscore themes of challenges for community centered development initiatives as a whole. At the forefront, most of the points on the map reflect some sort of financial stress insofar as maintaining these development efforts and appeal for either external aid or community elites to contribute money. CCDI's often struggle because they do not have the financial backing of larger development organizations. Beyond this, the content of what sustainable CCDI's push for can meet resistance because community members are under such extreme pressures to meet increasing financial demands. An example of this that I frequently encountered was the situation of a local farmer who would never use any chemical products on the food he or she grew for his or her family; however, in a desperate attempt to make more money by selling more produce and to meet consumer demands of quantity and appearance, they would use these chemical products on the produce they grew and sold to others in the community—chemicals that they themselves did not deem safe for consumption. Stories like these illustrate the mounting financial pressure that these communities are under as everything around them gradually transitions to having a monetary price. As the economy shifts, several community elders and leaders voice concern that the people have become more individualistic out of [at least perceived] necessity. Such an economic situation makes supporting CCDI's all the more difficult; there was already a concern that CCDI's would not be as successful as larger organizations with greater financial backing, but now there is individual community member resistance to the principles within the CCDI itself.

Taking a close look at each of these CCDI's through the mapping process helped me move past a black and white narrative of grassroots development as an ideal and top-down development as problematic. As each of these case studies shows, community centered development is not a panacea, and in the following section I will elaborate on some of the instances where the lines between top-down and grassroots are blurred, as well as where the process of mapping revealed that top-down methods were advantageous.

•. Part 3 •

Grassroots vs. Top-down development: Complicating the Narrative of Dichotomy

When I set out to use mapping to better understand the themes, challenges and potential of community centered development initiatives for addressing climate change and development, I did not initially anticipate encountering so much ambiguity. The black and white narrative of development that I've framed so far in this thesis criticizes top-down development for being out of touch with community needs, for pushing a single, Western-value system, and for prioritizing urban affluent development over development in poor, rural, or marginalized areas. On the other hand, the same black and white narrative glorifies grassroots development for its capacity to come up with sustainable solutions that push less of an industrial agenda and that are in direct alignment with the community's values and thus likely to last longer than imposed systems. This narrative may hold true within a certain sector or single case study; however, when taken in a much larger scale through our mapping process, we found abundant nuances that complicate a simple black and white narrative. The nature of this mapping project was such that we investigated a spectrum of sectors that make up village life, from education, to health centers, to water points, to religions and sacred sites, to economic hubs. By not limiting our study to community centered development initiatives, and by asking at each point about the successes, but also the difficulties encountered, we gained a complex series of narratives.

For example, for the Kamna market, which nearly all of Batoufam and Bangoua attend to buy and sell food for the week, we learned that majority of people do not feel like the market occurs frequently enough for them to have a sufficient supply of food throughout the week. Mamas would complain that by the sixth, seventh, and eighth days, there is nothing interesting left to cook with. Perhaps this is a symptom of transition to monoculture crop cultivation and dependency on neighbors for a full diet. Perhaps there used to be more flexibility in trading

produce, and now there are restrictions that confine these activities to once every eight days in the designated market place with appropriate paid registration to cover expenses of reserving a space to sell. The top-down solution to the need for more frequent market days might be to add another large-scale market, which would invoke bureaucracy, but is 1) a system that people are already familiar with and has been proven to be popular, 2) a system that provides some level of security for both buyer and seller through the bureaucracy. A community-centered development solution might be to independently organize smaller markets, but as I observed throughout this project, community members in financially strained situations rarely have the time, energy, and resources to take such actions. Another possible CCD solution might be to encourage people to each grow a wider range of crops so that they are less dependent on markets to get a full supply of foods, but as the reforestation case study shows, an initiative like this might split the community with half in favor, and half attached to ancestral agricultural practices. Beyond these rebuttals to CCD, I also observed that most people we interviewed bought into the notion of top-down development and did not see themselves as changemakers and the more time I spent with this project, the more I realized how complicated this question is. I came to vaguely understand that in these villages, the king's permission is required for any large-scale activity or change to take place, but the extent of this still remains unclear to me. One thing I can speak to is that most people we talked with saw the king and village elites as responsible for improving the conditions of whatever situation we were discussing—the need for more medical supplies at a health center; the need for water at a school so that students can have something to drink during the day. Though some may attribute this to habits of complacency and dependency, in this process I learned to be weary of simple answers. In the Difficulties Encountered section of my methodology, I noted a subtle cultural difference in

expectations around leadership and initiative taking and towards the end of my stay I began to wonder if there wasn't some aspect of respect for authority that percolated into people's hesitancy to imagine taking development initiatives into their own hands. To further complicate the negative perception of top-down development, in interviews with each of the kings, they spoke of their role as one that involves a lot of training in order to be able to appropriately make decisions on behalf of their people. In these conversations, it was also clear that this form of top-down development was a strategy for ensuring that decisions could be made efficiently and by people whose entire jobs are dedicated to the culturally and environmentally sustainable development of their village instead of being an additional burden spread to all of the community on top of their existing roles as farmers, merchants, craftsmen, and parents. Effectively, this map did not permit me to emerge with a single-story about development and I greatly appreciate the way that the process of making this map challenged my assumptions. Making this map was powerful to me for another reason as well. It symbolized hope for addressing climate change in a multitude of ways: creating space for a variety of stories and strategies to coexist and be shared.

Possible Applications of Our Mapping Method

In this section I will elaborate on the possible applications of this map that emerged during our process, as well as further applications I can envision and associated limitations. I see this map as already having the potential to help leverage negotiations with the government around existing or future development projects by acting as evidence of the presence of need and evidence of the village's organization and capacity to demand change. Since foreigners in the form of volunteers, tourists, and students come to these villages, the map is also a way for them to quickly learn about the happenings of the village and possibly challenge a single story

they may have of what an African village is like earlier in their experience or help them to make important connections with community members.

One of the most touching aspects I noticed regarding the potential impact of this map was what happened when I ended up pointing out something I found remarkable about life in the villages that seemed rudimentary to my Cameroonian colleagues and observing how putting themselves in the mindset of an outsider shifted the way they valued their unique local practices. On a crisp morning as I was taking my usual motorcycle taxi to Bangoua along autoroute Nº4, we passed a large truck in distress on the opposite side of the road and I watched with wonder as people all around the truck came running back to it with branches of bright green leaves to lay in the road like flares to warn other drivers of the situation. I spent the rest of the ride thinking about what that tiny moment symbolized—local innovation that was more cost-effective and accessible in this setting than the Western alternative, and additionally, more sustainable; using strictly biodegradable, local materials instead of industrial flares. When I arrived at our team headquarters in Bangoua, I wasted no time in bringing up what I'd observed to my colleagues. I said that it would be the perfect kind of thing to add to the map, Gregoire smirked with amusement and Judicaël responded, "but it is so ordinary." A few days after we had talked about why it was anything but ordinary to me as an outsider, Judicaël excitedly told me that he was starting to see everything around him through different eyes—and it showed, he started coming to me with several suggestions each day for things that we could add to the map, aspects of village life that I hadn't had a chance to see yet, but that sure enough, fit the category of showing alternatives to Western development such as the local basket maker who uses natural materials and traditional techniques and is one of the few remaining alternatives to plastic and metal containers in the area.

Maps like this one could be expanded to connect other community-centered development initiatives in Cameroon to each other. A few weeks into my work with WebDev, I thought to mention Better World Cameroon, the comprehensive permaculture CCDI in Bafut, that shares much of the same vision as WebDev. While at the beginning of this project, WebDev told me that there were no other NGO's in the area working on issues of sustainability; they had not heard of BWC and there may be many other similar organizations that operate in Cameroon but haven't yet encountered each other. This kind of map is useful in fostering connection between these two organizations because WebDev is in the Francophone region, and Better World Cameroon is in the Anglophone region, but there is little geographic distance between them cooperatively and with the translation capacity of the Google myMaps and Google Translate Plugin, they could collaborate. Collaboration between the Anglophone and Francophone region—even if only virtual—is particularly important right now as there is so much tension and violence with the 'Anglophone crisis'. Another map that includes a wider region could act more like the Sustainable Favela Network Map and explicitly facilitate connections between NGO's and other non-state actors in development.

There is also tremendous potential to make more maps like this one of other localities and grassroots development initiatives and create a centralized hub for finding links to these maps. This could facilitate connection between marginalized or rural zones to outside information and global initiatives. I theorized the possibility of this application from the onset of the project; knowing that we were in part modeling our map after the one by Catalytic Communities and imagining what it would be like for these communities to talk with each other through their maps. However, when I was actually in Batoufam and Bangoua it became clear that as someone who had had the privilege of studying sustainability in university, I had

knowledge of a few techniques that I could share. Most notably, I ended up sharing information with several groups we collaborated with about the Moser Lamp—an ingenious way of lighting up homes during without electricity using repurposed materials, invented by Brazilian mechanic Alfredo Moser. Using plastic bottles, water, bleach, and resin as sealant once bottles have been placed in the ceiling, Moser found a cheap and accessible way to provide brilliant light to indoor spaces that frequently experience blackouts during daylight hours. His design caught on quickly in his hometown of Uberaba, Brazil, and the BBC reports that it is spreading to 16 countries including the Philippines, India, Bangladesh, Tanzania, Argentina, and Fiji[58]; however, it did not surprise me that no one I spoke with in Batoufam or Bangoua had heard of it. How can a rural village without much connection to the rest of the world learn about a story like this that didn't make global headlines, but that is very relevant to rural life? When I shared this concept with the Batoufam and Bangoua Kings they were very excited by the prospects, so too were members of the youth groups we spoke with. We even encouraged collaboration between Association des Jeunes de Kamna (the youth group in Bangoua), the Lycée technique students and professors, and the Bangoua King who was attempting to build the Collines Ecologiques de Baloué—an ecotourism project. I reasoned that if the King incorporated these water bottle lights into this design, he would be using even more of the kind of innovations that his target audience is looking for, and that since it is simple technology to learn how to install, he could simultaneously address some of the youth unemployment problem by pushing for more people to learn how to install these lights, and inviting some to install them at the Collines.

[58] Kuruvilla, "Brazilian Mechanic Creates Light Bulb Using Water, Bleach and a Bottle."

One of the possibly applications that I am most interested in is that of integrating this kind of resource and project into the trainings and work of programs like Peace Corps in Cameroon and SIT study abroad in Cameroon. Most participants in these programs have never been to the area where will be studying or working before they are committed to a lengthy stay and the program's responsibility. It might facilitate integration and faster understanding if participants could look at a detailed digital map describing the region before they arrive or in early weeks, as they begin to make connections with community members. Furthermore, creating these digital maps could be a viable and useful project for Peace Corps volunteers to undertake if approached mindfully. Such a project could serve to counter-act some of the critiques made about the Peace Corps, like that the program primarily fosters the transformative growth of US participants, while doing little to empower locals beyond oppressive systems. Similarly, students in SIT Cameroon's program could be encouraged to make a map like this to take them out of the realm of elite and distanced academic or "expert" and into the realm of co-collaborator on a project meant to create a tool with and for the community.

I also am fascinated by thinking about how such maps could interact with spaces in the West, especially because of the ability for this map to be translated. What kind of an impact could access to maps like this one have on the elementary and middle school classroom in places where textbooks and media portrayals primarily reflect the single story of Africa? How might a map like this serve to deliver on some of the promises of the Internet era and empower global connection and perhaps greater understanding and empathy? Could these maps go in the other direction as well and challenge the dominant narratives of the West as idealistic and

uplift stories of Western poor, rural, and indigenous communities who are also marginalized? Is there potential to connect the African diaspora through this kind of mapping platform?

I do not bring any of these potential applications up to make light of what they would entail; I know from my experiences with this project that such an initiative is complicated to organize, manage and define. However, the description "complicated to organize, manage and define" also applies to another effort that I've dedicated much of my life to already. Sustainable solutions to climate change are difficult to organize, manage, and define, as I've demonstrated through the analyses of my case studies in Part 2. Of all the possible applications for this type of mapping project, I'm personally most fascinated by the potential for mapping as giving a centralization and organization to representing and communicating efforts to address climate change. In my experience, one of the biggest barriers to people's involvement in taking action about climate change is feeling like the problem is just too big; but what if there was a way to easily communicate the multitude of efforts that people are undertaking to address this issue?

I want to close by connecting back to my initial point, that these two villages find themselves somewhat caught between the concern about the impacts of climate change and the desire for development. These two ideas are not necessary mutually exclusive, though the dominant model of development favors 'luxuries' that often degrade the environment. On the climate change side there is some frustration that this problem is not the fault of the Least Developed Nations, and there is also overwhelm at the prospect of addressing such a massive issue when there are more pressing health and wellness concerns that could be resolved through development. However, as this paper and mapping project have show, there are several local initiatives in Batoufam and Bangoua to tend to the local environment and to even integrate renewable energy. On the development side, there is frustration with top-down development

for its slowness, absence, and for being out of touch with community customs and values. This project has revealed some beautiful community centered development initiatives (some described in this paper). And at the same time, the mapping process revealed instances revealed instances where top-down development is really appropriate, such as securing medical supplies for a health center.

The main takeaways from this mapping project are that it has a wonderful capacity for illustrating multiple narratives, and similarly its illustration of the big picture shows multiple possible areas for engagement and can be a tool to both grassroots movements and top-down leaders in addressing development (as modeled) or climate change (as modeled by Catalytic Communities). One of the greatest advantages of this type of map is that it shows a spectrum of initiatives and in this sense breaks down the problem into many possible spheres. It can inspire people by showing them examples of existing initiatives, or promote action when someone notices something that is absent. Instead of asking people to follow every news story or be an expert in the field of environmental studies in order to engage with a global issue, such a platform might allow for centralized access to a wide range information. Furthermore, instead of relying on a genius invention to save the entire planet, this technology exists now, it is free, accessible, and allows for visual and translatable communication of information. This mapping platform has potential to empower grassroots movements through connections to knowledge and resources, while informing top-down organizations of the situations and desires of communities they are interacting with.

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