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Our village – creating endogenous growth

In the midst of the so-called "refugee crisis", cries to address root causes of migration in Africa become louder. This article addresses insufficient economic growth in rural Cameroon as cause of migration and identifies four major reasons for this lack. It then proposes an innovative approach combining cultural, social and economic aspects to stimulate endogenous growth in rural areas.

Outline

Introduction

In Africa's rural areas, prospects for a prosperous life are particularly poor. Therefore, many people, especially the younger generation, leave for urban centers. Such rural depopulation causes problems in the source areas, where mothers with young children and old people are those who remain and become increasingly economically and socially vulnerable. Urban centers in Africa do not offer many opportunities for those pouring in from the hinterland, which puts pressure to migrate further. To address the key cause of such migration, insufficient economic development in rural areas, has been the target of economic cooperation for almost six decades. Nevertheless, rural areas are still among the most disadvantaged regions in Africa where subsistence agriculture prevails and social services do not reach. We introduce an innovative approach combining cultural[1], social and economic aspects to stimulate endogenous growth[2] in rural Cameroon. Bringing together traditional structures and the newest technology, this approach promises to reduce poverty and strengthen local businesses[3] and allows for upscaling to other countries.

We focus on the following core challenges:

- Rural areas are subject to seasonal fluctuation in cash quantities, leaving them with *little liquidity* during the dry season and insufficient means of exchange. Thus, local and endogenous growth is considerably impeded.
- Rural areas generally *lack funds* since central government allocates too little and local sources of communal income do not exist. This substantially impedes local development.
- The prominent approach of stimulating local economic growth, community driven development (CDD), *undermines traditional authorities*. It causes significant inefficiencies and creates social disputes.
- The *lack of transparency* typical for development cooperation has enhanced elite capture of funds and decreased trust in (local) government, consequently impairing project outcomes.

A community-level solution with the following components is proposed. It has the potential to create endogenous growth and social capital within the targeted community and may be scaled up on a worldwide level:

- A *community currency* creates new liquidity which cannot leave the community. It promotes inter-communal commercial interactions and endogenous growth.
- Residents contribute to a *community fund* which provides additional means for targeted communal development projects and is accountable to its contributors.
- *Traditional authorities* implementing these measures in cooperation with a development agency capitalize on existing legitimacy and increase project effectiveness.
- Basing the community currency on a *blockchain technology* ensures transparency and allows for upscaling on a worldwide level.

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[1] Nooke et al (2018) *Cultural and religious dimensions of sustainability in Africa taking the examples of Ghana and Cameroon* URL: http://kultur.org/wordpress/wp-content/uploads/Delegationsbericht-Nooke-GHA-CMR_englisch_2018.pdf.

[2] cf. Romer (1994) *The Origins of Endogenous Growth* Journal of Economic Perspectives.

[3] cf. SDG goals 1 (No Poverty) and 8 (Decent Work and Economic Growth).

Lack of liquidity and community currencies

Status Quo and the idea of community currencies

Income in rural areas fluctuates seasonally, especially in Sub-Saharan Africa[4], causing a lack of liquidity. Income suffices during some seasons, while even food intake may decrease due to low income in others[5]. Decreasing liquidity, however, does not cause a decrease in supply of goods and services or the demand thereafter; excess capacity has been shown to be as high as 144 per cent during seasons with low liquidity.[6] Scarcity of cash causes an imperfect allocation with excess supply and excess demand, preventing endogenous growth.

Conventional means of creating new liquidity are not available or inefficient. In theory, bank credits could provide new liquidity. However, poor rural population in need of credits does not have access[7]. Micro-credit institutions, while providing access to small loans, draw on the surrounding community's cash reserves. These institutions provide a re-distribution of existing means; what is needed, however, is creation of new liquidity.

Community currencies provide new liquidity and increase commercial interactions. Essentially the same as any other currency, a community currency is *restricted to a geographical area*, though this area only covers a local community. Since the currency cannot leave, it cannot become scarce and therefore provides a *constant mean of new liquidity*. It can function as means of exchange, store of value and as unit of account[8] and can be issued by a central authority, usually a network secretariat instead of a state party. A community currency critically relies on *trust*, promising all members accept the currency as means of payment, generally or for specific goods and services. While usually *not convertible* into other currencies, it can co-exist with another currency[9], complementing it with additional liquidity. It represents a loan without interest transferrable to any other member. Favoring business transactions with businesses accepting the currency, it promotes commercial interactions inside the network.

Community currencies draw on extensive experiences. Based on Silvio Gesell's theory of *Freigeld (*German for "free money"), a movement criticizing money grew stronger in the 1920s. Criticizing too slow circulation of money, first community currencies aimed to speed up circulation using *demurrage*, i.e. the currency continually lost value over time. Rather dormant after first experiments in the 1930s, a number of community currencies was introduced in both the Global South and

Austrian town Wörgl's mayor introduced a community currency in 1932 during an economic recession. Unemployment rates decreased due to increased commercial interactions, investments and new jobs paid with community currency. Demurrage forced money to circulate more quickly, creating a social product nine times as efficient as conventional currency. However, after six months the national bank stopped the experiment.

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[4] Hong/Hanson (2016) *Scaling up Agricultural Credit in Africa*, URL: https://bit.ly/2Ox1sYl, accessed 12/08/2018, 5.; Lipton (1986) *Seasonality and Ultrapoverty* URL: https://www.ids.ac.uk/files/dmfile/lipton17.3final.pdf, accessed 12/08/2018, 6.

[5] ibd, 4.

[6] Ruddick, W., Richards, M. and Bendell, J. (2015) *Complementary Currencies for Sustainable Development in Kenya: The Case of the Bangla-Pesa* International Journal of Community Currency Research, 22 and 25.

[7] Baye F.M. (2013) *Micro-credit Access and Household Welfare in Rural Cameroon* Manos R., Gueyié JP., Yaron J. (eds) Promoting Microfinance. Palgrave Macmillan, London, 103.

[8] Collins, J.R., Greenham L.S.T. (2013) *Energising Money. An introduction to energy currencies and accounting* URL: http://www.i-r-e.org/docs/nef.pdf, accessed 12/08/2018, 39.

[9] Schraven, J. (2001) *The Economics of Community Currencies. A Theoretical Perspective* URL: http://www.jorim.nl/economicscommunitycurrencies.pdf, accessed 12/08/2018, 9.

North since the 1990s. They vary in their respective implementation and mostly focus on the local aspect of the currency. Sometimes they reintroduced demurrage as a fee to finance a community fund implementing local development projects. Academic evaluation has increased, allowing for a study of best practices.

Swiss WIR bank started in 1935 as network of local businesses pledging to conduct the majority of business within the network. Founded to address the discrepancy between abundant supply and limited buying power, it still provides community currency credits today. Initial demurrage was removed due to limited efficiency in 1948.

Community currencies have most impact when addressing actual need for additional liquidity. In the Global North, currencies as *Chiemgauer* (Germany) and *Bristol Pound* (Great Britain) are used by few and are considered "luxury money"[10]. These currencies replace conventional currency instead of creating new liquidity and faster circulation, lacking evidence of a significant economic impact[11]. In the Global South, more than 2.5 million members joined Argentine community currency *Red de Trueque* during an economic recession 2002. Creating an emergency market when official currency failed to meet citizens' need, it created a protected space for commercial interactions and improved the economic situation for almost half its members[12]. In Kenya, the *Bangla-Pesa* accounted for 22 per cent of the network's daily commercial interactions within a week after introduction in an informal settlement[13]. The community currency continues operating until today and has been copied in other informal settlements and villages in Kenya.

Advantages of community currencies

Additional liquidity increases turnover, strengthens local supply chains and enables endogenous growth. During seasons with low liquidity, excess supply and unmet demand prevail. Scarcity of funds prevents consumers with remaining demand to purchase the supply producers have left in stock. Increasing liquidity by introducing a community currency makes these transactions possible and *generates welfare* for both producer and consumer. *Local supply chains* are strengthened since businesses can only use additional liquidity within the network, favoring local suppliers. A consistent currency circulation can be guaranteed if all participating parties are both consumers and producers ("prosumers), increasing turnover for members. This potentially leads to a virtuous cycle of increased income, increased consumption and increased production, generating endogenous growth[14].

Realizing every-day purchases with community money, conventional money can be saved. Assuming members of the business network cover production costs with community currency, they need to procure goods and services for production within the network. Consequently, supply offered within the network will consist mostly of locally produced goods and services intended for everyday use. Network members should therefore be able to cover everyday needs within the network using the community currency. Members can thus save conventional money they earn. This process increases

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[10] Thiel, C. (2011) *Das bessere Geld* VS Verlag für Sozialwissenschaften, Wiesbaden, 287.

[11] Marshall, A.P., O'Neill, D.W. (2018) *The Bristol Pound: A Tool for Localisation?* Ecological Economics (146), 276.

[12] Gomez, G.M., Helmsing, A.H.J. (2008) *Selective Spatial Closure and Local Economic Development: What Do We Learn from the Argentine Local Currency Systems?* World Development (36/11), 2498 and 2502.

[13] Ruddick, W., Richards, M. and Bendell, J. (2015) *Complementary Currencies for Sustainable Development in Kenya: The Case of the Bangla-Pesa* International Journal of Community Currency Research, 28.

[14] Servet, J. (2013) *Monnaie Complémentaire versus Microcrédit Solidaire et Tontines. Contribution Comparée à un Développement Solidaire Local* United Nations Research Institute for Social Development, 10.

liquidity in conventional money within the community[15]. Savings can in turn be used to invest in business, increasing productivity and further enhancing economic growth.

Counter-cyclical usage of community currency allows for a constant income throughout the year. In the long term, use of community currency will increase during times of generally low income and decrease when incomes are sufficient to cover the network members' needs, as e.g. research on the Swiss WIR-Bank shows[16]. This counter-cyclical effect helps decrease sales volatility throughout different seasons and provides for a more predictable income year-long.

Challenges of community currencies

Community currencies are prone to free-riders and only work based on trust. A decentralized currency risks free-riding: members can spend initial allocations of community currency, but then refuse to accept it as means of exchange. Individually, it is more sensible to spend community currency than to accept it. However, if a majority of members follows this strategy, no new liquidity can be derived. Therefore, incentives to refuse community currency need to be eliminated. This calls for effective measures to prevent free-riding and create trust in other members' cooperative behavior.

An equilibrium of supply and demand is crucial. Community currencies use additional liquidity to enable excess supply to match unmet demand. Therefore, offered supply needs to equal demand within the network. If supply exceeds demand (as happened in the Argentine *Red de Trueque[17]*) or demand is larger than supply (as in the case of *WIR bank* during WWII[18]) the specific situation needed for a community currency to work is no longer provided - the network stops functioning effectively. Mechanisms are needed to ensure this equilibrium. For example, only prosumers could be allowed into the network or a guarantee could be required from a number of members to commercially interact with newly entering business[19].

A community currency is only attractive when offered goods and services are diverse. Network members need to be able to spend their units of community currency on something they deem valuable. Since needs vary greatly within a community, a certain level of diversity is required to meet at least part of members' demand within the network. If this critical value is not reached, using a community currency may be too unattractive and circulation insufficient (as in the case of the Stroud Pound[20]).

Community currency needs to be accepted as "real" money. A project radically different from the usual requires an appearance already known to ease acceptance. The currency needs to be introduced in a form already known, such as money bills or a credit card [21]. If a community currency is not accepted or only as an inferior means of exchange, this will seriously reduce the number of businesses willing to join the network and thus decrease the community currency's efficiency.

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[15] Ruddick, W., Richards, M. and Bendell, J. (2015) *Complementary Currencies for Sustainable Development in Kenya: The Case of the Bangla-Pesa* International Journal of Community Currency Research, 28.

[16] Kalinowski, W. (2011) *Pluralité monétaire et stabilité économique : l'expérience suisse* Veblen Institute for Economic Reforms, 1.

[17] Gomez, G.M., Helmsing, A.H.J. (2008) *Selective Spatial Closure and Local Economic Development: What Do We Learn from the Argentine Local Currency Systems?* World Development (36/11), 2496.

[18] Studer (1998) *WIR and the Swiss National Economy* WIR Bank, Basel, 12.

[19] Ruddick, W., Richards, M. and Bendell, J. (2015*) Complementary Currencies for Sustainable Development in Kenya: The Case of the Bangla-Pesa* International Journal of Community Currency Research, 21.

[20] Degens, P. (2016) *Between „Market" and „Reciprocity": How Businesses Use Local Currencies* URL https://freidok.uni-freiburg.de/data/11521 , accessed 12/08/2018, 30.

[21] Thiel, C. (2011) *Das bessere Geld* VS Verlag für Sozialwissenschaften, Wiesbaden, 276.

Options of implementing community currencies

Demurrage may increase the speed of circulation, but also represents an entry barrier. Demurrage, i.e. a devaluation of the currency over time may cause a faster circulation because no party wishes to pay the fee at the end of a certain period. However, this practice leads to a factual decrease of liquidity and burdens the participating businesses. It may therefore represent an obstacle in their willingness to join. If implemented as contribution to a community fund benefiting the population, businesses may be more likely to accept the fee.

Convertibility eases acceptance of community currency but prevents additional liquidity. In the initial stage, convertibility may appeal to businesses because supply from outside the network is still possible. However, convertible currencies only replace conventional currencies. They possibly increase speed of circulation, but do not create the needed new liquidity. Pegging the worth of one unit of the community currency to one unit of national currency facilitates pricing for members.

Community currencies may be backed by a valuable good or service or be designed as fiat-money. A central authority may accept community currency as payment for a good or service which everyone inside the community deems valuable. For instance, such a service may be a grain mill or school fees. It represents an "insurance", a promise that members will be able to spend the currency on something valuable. This insurance connects the currency's worth to this good's or service's worth, with every issued currency unit exchangeable for a unit of the good or service. For finite goods and services such as a decentralized power system this may pose challenges. Conversely, a community currency may be designed decentralized and purely between the members, only backed by each member's promise to supply goods and services in exchange for the community currency.

Tying entry to a small network of guarantors may decrease free-rider behavior. A system proposed by local businesses before introduction of the *Bangla-Pesa* in Kenya, the network of guarantors ties every business to a defined number of other businesses. If one business defects, i.e. does not accept community currency, the others are required to accept it in their stead. If defection continues, all network members are excluded. This way only trustworthy businesses enter, increasing the likelihood of the community currency to succeed. Additionally, if a member has difficulties finding partners, his guarantors are required to commercially interact with him. Consequently, mostly businesses already trading with each other enter, increasing the potential sums of community currency which may be exchanged.

Community currencies may be issued in form of paper notes or be kept electronically. While paper notes are wider spread and easily accepted, they are also susceptible to forgery and wear out rather quickly. Electronic solutions on the other hand necessitate more initial energy and explanations, and potentially require members to own electronic devices. However, they are easily introduced and cannot be forged.

Issuance may be conducted by a central authority as initial endowment or payment for services, or it may represent a credit between participating businesses. A central authority may issue currency. One option is providing every member with the same initial endowment, allowing commercial interactions with other businesses. To ensure circulation, each member should accept as many units as he spends. The other option is for to pay members in community currency for community services.

Money circulates and may be paid back to the central authority for services or taxes, ensuring a constant level of liquidity. In a third way, community currency may be a direct credit from one member to another. In this case, every member starts with zero units of community currency and can both take and give credits to other members, i.e. the account may be both below and above zero. To ensure circulation, members should keep their accounts close to zero, giving as many credits as accepting.

Launching only with a minimum number of participating businesses ensures a sufficient diversity of goods and services. A network can be slowly built up to connect interested businesses and explain the concept. A minimum number of businesses may be fixed as a requirement to start the community currency, offering a diverse array of goods and services. If this array meets at least part of the members' basket of goods, it incentivizes them to use community currency in everyday purchases and support circulation.

Lack of funds and community funds

Status Quo and the idea of community funds

Rural Cameroon lacks access to public goods and services and government funds fail to provide them. Central government fails to supply sufficient access to needed public goods and services[22]; on the most recent Human Development Index, Cameroon places 153rd out of 188 countries[23]. Government spending on rural development is low and does not show significant results[24]. This lack of funds hinders community development.

Domestic resource mobilization (DRM) is key to local development, but low. As public income collected inside the country, DRM is a reliable source of independent government income. Opposed to Official Development Assistance (ODA), it correlates significantly with a country's economic growth[25]. Considering the significant levels of ODA Cameroon receives[26], there is a high potential of increasing DRM.

DRM strengthens the population's surveillance of public expenditure. Administration does not view ODA revenues as taxpayers' money and therefore does not feel accountable to population in its expenditure. DRM, on the other hand, creates a social contract between citizens and government[27]. In light of low levels of trust in institutions and their ineffectiveness in providing public goods and services[28], spending DRM in the same region it was acquired in may be a sensible measure. It could

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[22] IMF (2010) *Cameroon. Poverty Reduction Strategy Paper. Joint Staff Advisory Note* International Monetary Fund, Washington, D.C., 10.

[23] UNDP (2018) *Cameroon. Human Development Indicators* URL http://hdr.undp.org/en/countries/profiles/ CMR accessed 12/08/2018.

[24] Thierry, B., Jun, Z. and Guohui, H. (2017) *Government Expenditure on Rural Development and Economic Grwoth in Cameroon* International Journal of Innovation and Economic Development (3), 119.

[25] Wujung, V.A., Aziseh, F.I. (2016) *Assessing the effect of domestic resource mobilization on the economic growth of Cameroon*, AESTIMATIO The IEB international journal of France (12), 83.

[26] OECD (2017) *Interactive summary charts by aid (ODA) recipients* URL https://public.tableau.com/views/OECDDACAidataglancebyrecipient_new/Recipients?:embed=y&:display_cou nt=yes&:showTabs=y&:toolbar=no?&:showVizHome=no, accessed 10/09/2018.

[27] Ogunleye, E.K., Fashina D.A. (2010) *The Imperatives for domestic resource mobilization for sustained post-crisis recovery and growth in Sub-Saharan Africa* URL https://www.uneca.org/sites/default/files/uploaded-documents/AEC/2010/Papers/session_i.2.3_2._the_imperatives_for_domestic_resource_mobilization_for_sus tained_post-crisis_recovery_and_growth_in_ssa.pdf, accessed 12/08/2018, 16.

[28] BTI (2018) *BTI 2018| Cameroon Country Report* URL https://www.bti-project.org/en/reports/country-reports/detail/itc/CMR/, accessed 12/08/2018.

boost a feeling of accountability to local population and promote the population's oversight over expenditure.

Drawing on knowledge of local needs, a community fund provides needed public goods and services. Governed by locals accountable to the community's contributing citizens, management needs to implement measures and projects benefiting the community. Since it intimately knows the community's need and is obliged to use the fund exclusively to address these needs, the fund can effectively provide public goods and services the community will use.

Advantages of a community fund

A community fund compensates for lacking governmental resources. Since government spending barely meets citizens' needs in rural areas, an independent source of income is sensible. On a community level, a mechanism consistently and reliably supplying monetary resources could draw on the legitimacy local authorities have and more efficiently motivate population to pay.

A community fund implements efficient development projects. Managed by locals with intimate knowledge on the community, projects can be tailored to actual community needs. Population's feeling of ownership can be increased, decreasing possible opposition to the projects. Considering local customs, culture, history and habits, barriers can be avoided and efficiency increased.

A community fund builds general trust in DRM and increase population's sense of responsibility. Since projects are implemented exclusively inside the contributing community, results are directly visible. Contribution and personal profit are thus more easily connected and the utility of contributing more obvious. Aversion to taxes in general may be decreased and government may profit in future efforts of increasing DRM, creating citizens aware of the responsibility they have towards their own community.

A community fund increases social capital and trust within the community. Realizing projects together without external funding can increase a community's pride and help taking a step away from the "victim mentality" so often attributed to African population[29]. The resulting increased social capital may be another driver towards development.

Challenges

Obligating citizens to contribute to the community fund is challenging. Considering the substantial leap from pre-colonial common property to a (post-)colonial understanding of private property, the introduction of regular contributions to a community fund may meet substantial skepticism from the population. Especially in the beginning, motivating citizens to contribute from an already low income will be challenging and should be accompanied by incentives and effective mechanisms which fairly spread the weight of contribution.

Targeted development projects need to mirror the needs of all citizens. In an already existing community currency networks, women tend to interact more with other local businesses[30], making them more likely to join a community currency network. In another business network, 85 per cent of

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[29] E.g. Wambugu, F (1999) *Why Africa needs agricultural biotech* Nature International journal of science (400)., Gatune, J. (2010) *Africa's Development beyond Aid: Getting Out of the Box*, The ANNALS of the American Academy of Political and Social Science (632/1), 110.; Hammond, T. (2007) *Recounting a difficult past: a South African accounting firm's "experiences in transformation"* Accounting History (12/3), 269.

[30] Richards, M., Ruddick, A. (2013) *Kenyan Businesswomen Transforming Slum Economies through Complementary Currencies* URL http://www.unrisd.org/unrisd/website/newsview.nsf/%28httpNews%29/B84ECEC19AC54952C1257BB20049414E?OpenDocument , accessed 12/08/2018.

members are female[31]. It is therefore likely that women will constitute a significant part of the network. However, they tend to have less rights and influence in decision making processes[32]. Considering that the network is also designed to specifically help poorer residents and they tend to be a discriminated group as well, efficient mechanisms need to be found for a decision-making process including all members' preferences.

A community fund is susceptible to elite capture and corruption. Considering the fund should be large enough to finance e.g. small infrastructure projects, a significant sum will be entrusted to its manager. If not monitored closely, *elite capture*, i.e. misappropriation and corruption, is quite possible[33]. Likewise, if managers influence the allocation of projects, they may use their power to implement projects benefitting themselves and their family in a disproportionate way.

Options of implementing a community fund

Royalties on payments provide a constant contribution inflow but decrease the currency's attractiveness. A royalty would send a portion of each transaction directly to the community fund. While easy to implement with a digital currency and sustaining a constant inflow to the fund, it renders every transaction more expensive than a transaction using national currency. Since the community

OPTIONS
• *Royalties*
• *Initial membership fee*
• *Payment for good or service provided by community*

currency would co-exist with a national currency, transactions in national currency would be more attractive (similar to the demurrage cost explained earlier). Liquidity within the community also decreases with every royalty added to the community fund but stays stable on the long run if projects within the community are paid from the fund.

An initial membership fee is easy to implement but does not provide a constant inflow to the fund. This fee would be imposed in units of community currency when joining the network and requires minimal bureaucracy. However, if not repeated after a certain period of time, the community fund will run empty after all joining fees are spent. It may also present an entry barrier since it presents an up-front cost.

Payments for a good or service provided by the community stabilizes the currency and provides a constant inflow. The community may provide a good or service desirable to a majority of its members, such as a grain mill, phone charging station or a school whose fees are (partially) payable in community currency. Using such a fundamental backer guarantees members will be able to spend the currency on something they value. This fact increases their trust in the community currency and provides a form of insurance. Additionally, it provides a constant inflow to the community fund since members consume these products and services on a regular basis. However, this good or service requires an up-front investment, most probably in national currency.

[31] Gomez, G.M., Helmsing, A.H.J. (2008) *Selective Spatial Closure and Local Economic Development: What Do We Learn from the Argentine Local Currency Systems?* World Development (36/11), 2496.

[32] Fonchingong, C.C., Fonjong, L.N. (2002)*The concept of self-reliance in community development initiatives in the Cameroon grassfields* GeoJournal (57/1-2), 93.

[33] Oyono, P.R. (2005) *Profiling Local-Level Outcomes of Environmental Decentralizations: The Case of Cameroon's Forests in the Congo Basin* The Journal of Environment & Development (14/3), 319.

Cooperation with traditional authorities

Status Quo in Community Driven Development (CDD)

CDD aims to operate closely with local population and installs committees to manage projects. Practice from the 1970s and 1980s showed that central, state-controlled development was inefficient and decentralization seemed a viable alternative[34]. In order to increase ownership and better address population's needs, so-called Community Development Associations (CDA) were installed to manage the funds and the projects[35]. CDD projects now represent a significant share of development projects.

Elite capture is a major concern in CDD. Giving control over funds to a managing group enables it to misappropriate these funds ("elite capture"), which experience shows to happen frequently[36]. In order to avoid local elites acquiring the funds destined for community development, traditional authorities are usually not put in charge. Instead, a local committee, the CDA is authorized for management[37].

The discrepancy between CDAs with funds and traditional authorities with legitimacy causes problems within the community. The newly-founded CDA is usually not accountable to central government; neither is it monitored by local population since it is not democratically elected but rather externally appointed[38]. However, the CDA does dispose of the power to steer the community development projects and the allocation of the associated funds. The traditional authorities on the other hand dispose of the long-standing legitimacy of their regency without the funds necessary to implement development measures. This discrepancy between two different sorts of authorities has led to social unrests and taken significant tolls on the projects' results.

Putting traditional authorities in charge of the community fund while closely monitoring their management ensures legitimacy and efficiency. Traditional authorities have governed their villages and kingdoms for a long time and thus dispose of the legitimacy to impose new measures, even if these are only beneficial on the long run. Nevertheless, the danger of elite capture needs to be kept in mind and transparency in their management guaranteed to keep the community's trust.

Advantages of cooperating with traditional authorities

The project has a strong advocate from the onset. Before introducing the community currency, local businesses as well as government need to be informed and convinced of the concept. Only if participating business owners feel ownership and central government agrees will the currency have a chance of working effectively.

Already existing structures are used, keeping initial efforts of organization to a minimum. In all project phases bureaucratic structures are needed for such activities as advocacy, information, management and implementation. Using already existing structures which have grown over time and gained legitimacy within the community reduces organizational efforts to a minimum and ensures local knowledge and legitimacy from the start.

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[34] Dasgupta, A., Beard, V.A. (2007) *Community Driven Development, Collective Action and Elite Capture in Indonesia* Development and Change (38/2), 230.

[35] Mansuri, G., Rao, V. (2004) *Community-Based and –Driven Development: A critical review* World Bank Policy Research Working Paper 3209, 1.

[36] Platteau, J., Gaspart, F. (2003) *The Risk of Resource Misapproriation in Community-Driven Development* World Development (31/10), 1695.

[37]Oyono, P.R. (2005) Profiling Local-Level Outcomes of Environmental Decentralizations: The Case of Cameroon's Forests in the Congo Basin The Journal of Environment & Development (14/3), 323.

[38] Ibd, 327.

Challenges of cooperating with traditional authorities

Managers of the fund can misappropriate means. Elite capture is a phenomenon well-known in the context of community driven development and led to the installation of CDAs – which in turn was not immune to misappropriation of funds. Installing fund managers always carries the risk of elite capture. They need to be closely monitored and directly accountable to contributors.

In decision-making, traditional authorities may choose projects benefitting themselves and their families non-proportionately. Profiting from their position of power, they may push projects directly impacting themselves and not include other members' preferences or choose family members for implementation, directing larger sums toward their favorites. Conversely, they may decide to sabotage political opponents, using their power to prevent projects advocated by them. This kind of behavior may decrease members' trust in the community fund and discourage them from contributing.

Options of involvement

Traditional authorities can manage the project as a central authority. This top-down method obligates them to decide all questions of major and minor importance and compel members to comply. It places ownership of the entire community currency project in the chief's hand and requires initiative when deciding on the exact implementation of the currency. One successful example of this method is the Austrian town of *Wörgl*.

> **OPTIONS**
>
> - *Top-down*
> - *Bottom-up*

Implementation can be a democratic process with the chief acting as leader. In this bottom-up method decision-making is shared between the chief and members. Numerous variations exist, a successful one being the *Bengla-Pesa*. The NGO *Grassroots Economics* initiates and manages, but members are involved in central decisions.

Lack of transparency and the blockchain technology

Status Quo and blockchain

Corruption and lack of transparency are major concerns in Cameroon. The country places 153rd out of 188 countries evaluated on the 2017 Transparency International corruption perceptions index[39]. While anti-corruption laws exist, they have been insufficiently implemented, especially in judiciary, public services and customs[40].

Corruption caused by lack of transparency considerably affects development progress. Officials' transactions not being recorded transparently enables them to misallocate funds destined for the public. Corruption thus impedes a government's ability to provide basic public goods and services needed for further economic development[41]. Causing misallocation of resources and inefficient business taxes as well as making non-productive sectors more attractive, corruption further poses an

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[39] Transparency International (2018) *Cameroon* URL https://www.transparency.org/country/CMR, accessed 12/08/2018.
[40] Business Anti Corruption (2018) *Cameroon Corruption Report* URL https://www.business-anti-corruption.com/country-profiles/cameroon/, accessed 12/08/2018.
[41] United Against Corruption (2016) *Corruption and Development* URL http://www.anticorruptionday.org/documents/actagainstcorruption/print/materials2016/corr16_fs_DEVELOPMENT_en_PRINT.pdf, accessed 12/08/2018, 1.

obstacle to an economy's economic growth; on a macro level, it has been shown to negatively correlate with economic growth[42].

Blockchain technology provides a framework to tackle corruption. Recording transactions in a decentralized manner on every member's device, this new technology ensures complete transparency for each network member on every performed transaction. Since transactions need to be verified by every member in the network before saving, records cannot be changed afterwards, providing a tamper-proof data base.

Advantages

Blockchain ensures complete transparency, increasing levels of trust and providing immunity to corruption. With a community currency based on blockchain, every member is aware of all transactions completed, including contribution to the community fund and its spending. Often described as a "trust-free" technology because transparency replaces the need for trust, blockchain may also increase levels of trust within the network as members see that their partners behave according to the rules. Adding in social pressure within the dense network of a village business community, illicit actions and corruption become impossible as every faulty member can be held directly accountable.

A digital currency is cheap to introduce, easy to replicate. Unlike paper-based community currencies, designing and printing a tailored currency is not necessary, eradicating significant up-front costs. Additionally, scaling the project up and replicating it in other interested communities becomes significantly easier since the technology already exists.

Using a digital currency allows easy connection of members, facilitating intra-community commercial interactions. While a paper-based community does not necessitate members to know each other, the database of a digital currency stored on every member's device makes it easy to identify other members. The payment network may be used as a business network as well, indicating the location and quantity of members' excess supply in real-time to potential customers. This significantly increases the efficiency of allocation of members' goods and services.

Running community currencies on a central digital network facilitates inter-community commercial interactions. More communities may be involved, each with their own currency. All these currencies are based on the same software and stored in the same network. This connection facilitates exchange between two different community currencies, i.e. if one village's chief wishes to buy a good or service from another village with a different community currency, the network facilitates this exchange.

Automatic recording of transactions allows uncomplicated scientific monitoring. In order to assess the efficiency of the new community currency, scientific monitoring is indispensable. While payment flows in a paper-based currency may only be followed indirectly, the blockchain technology allows complete disclosure of all transactions, opening new options of analysis and assessment of the project. It is important to stress that a blockchain-based currency is not necessarily a cryptocurrency. On the contrary, the blockchain technology is merely used for documentation of transactions. Mining new units of the currency, a key element of cryptocurrencies, is not envisioned in the proposed blockchain-based currency.

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[42] Transparency International (2014) *Impact of Corruption ono Growth and Inequality* URL https://www.transparency.org/files/content/corruptionqas/Impact_of_corruption_on_growth_and_inequality_2014.pdf, accessed 12/08/2018, 2-3.

Challenges

The currency must be understood without literacy or knowledge of new technology. To ensure maximum outreach, the application used to transfer units of currency should be understood by a majority of the target population, i.e. adult business owners in rural areas. Considering a quarter of adult population in Cameroon is illiterate[43], the software must be useable without knowledge of numbers or reading skills and should be easy to understand and use. This should apply to entering the sum of payment as well as to registering, connecting with other members and searching for products.

Owning a smart phone may be a barrier to entering the network. While as of 2016, almost 80 per cent of adult population owned a cell phone, only 20 per cent of population had access to internet services[44]. If payment and network of the community currency are based on a smart phone application, the 80 per cent of population not disposing of such a device are unable to join the business network. However, a USSD code-based implementation is also possible, ensuring non-smart phone users can also participate. With combinations of numbers, asterisks and hashtags (such as *101#), conventional phones can be used to dial through a menu and authorize payments. This technology is already wide-spread as it is used to re-charge phones with credit or transfer money with systems such as m-pesa[45].

Complete transparency may not be welcomed by everyone. Considering the wide-spread occurrence of corruption in Cameroon, it is safe to assume that a significant number of people profit from the current lack of transparency. Major profiteers inside the community may oppose the introduction of a transparent currency vigorously.

Options of implementation

The application may be used as a market place between business owners. An additional option to a pure payment network is to advertise goods and services directly on a platform connected to the payment network. If a member searches for a specific good, a quick search would provide him with the location, quantity and price other members are willing to offer him.

> **OPTIONS**
>
> - *Market place: yes/no*
> - *Decentralized/centralized payment*
> - *Positive/negative list:* yes/no

The currency may be based on a decentralized smart phone application or centralized scanning devices. If implemented as smart phone application, every network member always has direct acess to their accounts and an online market within the network. However, if smart phone coverage proves to be low, members may also use printed and uniqe QR-codes for receiving and sending money, making passwords unneccessary and simply copying of accounts difficult. Transactions may be done at central scanning devices using the QR code of the producer and consumer, respectively. Instead of a QR-code, a fingerprint or iris scan are also envisionable. A third option would be to use USSD codes to authorize payments between members.

A list of (non-)tradeable goods and services can be implemented into the payment system. It may not be desirable to make purchases of just any good and service possible. With additional liquidity, members might chose to monetarize goods and services which were previously provided for free, such as care work or property rights. This, in turn, may disrupt social interactions and networks. Therefore, a smart contract containing a positive list of all goods and services allowed for purchases in the

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[43]UNICEF (2018) *Cameroon Statistics* URL https://www.unicef.org/infobycountry/cameroon_statistics.html, accessed 12/08/2018.

[44] Internet World Stats (2017) *Cameroon* URL https://internetworldstats.com/af/cm.htm, accessed 12/08/2018.

[45] Mtaho/Mselle (2014) *Securing Mobile Money Services in Tanzania: A Case of Vodacom M-Pesa* International Journal of Computer Science & Network Solutions (2/5), 2.

community or a negative one explicitly listing forbidden goods and services may be implemented in the software. This smart contract may or may not be designed to allow changes to the lists.

Proposed framework

Following these reflections, in the following an array of options is proposed for the concrete implementation of the community currency.

1. **A currency limited to a geographic area providing additional liquidity, i.e. a community currency.** Outside the participating business network, the currency cannot be used and is therefore limited to use between the members. Since it cannot leave the network, the community currency provides additional liquidity at any point of time, facilitating commercial interactions during times of low cash liquidity.

2. **A community currency without demurrage, i.e. degradation of the currency's worth.** Considering the marginal positive effect demurrage has had on increasing the speed of circulation and the skepticism it is likely to meet within the community, an implementation without demurrage is encouraged.

3. **A community currency without convertibility.** With high levels of corruption in Cameroon, misappropriation of funds with a currency allowing for convertibility is likely. Additionally, the currency is supposed to increase levels of liquidity which it cannot generate if it is convertible, in which case it simply replaces the official currency.

4. **A community currency backed by a solar power plant.** Without convertibility, a different sort of assurance of worth is sensible. If every currency unit can be exchanged for a defined energy unit, the community is ensured the currency will always retain a certain worth. However, care needs to be taken so distributed currency units always equal or inferior to generated amounts of energy. If energy can be bought with conventional money, a portion needs to be set aside to satisfy the possible demands arising from the currency units in circulation. If large amounts of community currency are spent on solar energy, a corruption-proof mechanism needs to be found to bring them back into circulation, or liquidity decreases.

5. **A community currency using guarantors as social system of insurance.** Requiring every new business network member to be backed by a defined number of guarantors accountable for their behavior reduces the likelihood of free-riding and increases the number of already-existing commercial relationships between businesses.

6. **A payment system based on blockchain technology and combining smart phones with central scanning devices.** Blockchain technology increases transparency and prevents illicit allocations of money. Considering smart phone coverage is still rather low, a mixed system of a smart phone application using QR-codes and printed QR-codes allocated to members without such a device is recommended. Supposing smart phone coverage will increase due to low market prices, a switch to a purely smart phone-based payment system can be envisioned for the future.

7. **Bringing community currency into circulation through initial endowments and development projects.** Entering the network, an initial endowment equal to average daily business turnover is recommended, allowing normal business transactions to be conducted with community currency. Members should aim to always keep their "bank account" at this level, spending as many units as accepting. Furthermore, currency can be brought into circulation through community fund projects, employing citizens and paying them with community currency.

8. **Installing a community fund implementing local development projects.** With a considerable lack of funds, communes are currently rarely able to provide public goods and services necessary for local development. A community fund draws on the knowledge of local needs and provides a constant source to implement needed projects.

9. **Low transaction fees contributing to the community fund.** A transaction fee added to each purchase with community currency is recommended to ensure constant inflow to the community fund. However, high transaction fees make using community currency less attractive, so a low percentage is advised. The exact percentage should be determined by trial and error.

10. **A bottom-up network overseen by the local authority managing the community fund**. Using the legitimacy and authority a local chief disposes of and including network members, this way of governance promises to include all members and lead to an efficient implementation.

11. **A market place connected to the payment system**. An additional incentive to use community currency, this feature may enhance allocation efficiency within the network without causing major additional costs.

Within this framework, social and economic factors are combined to create a project stimulating endogenous growth and social cohesion. While it is implemented on the most basic level of a society, a community, it carries all aspects of development cooperation – economic, social and cultural ones. Bringing these together, the proposed project may just be the starting point for a thriving and growing city, providing an attractive economic perspective inside Africa's rural areas.