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Marginality: Addressing the
Root Causes of Extreme
Poverty

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Franz W. Gatzweiler, Heike Baumüller, Christine Ladenburger, Joachim von Braun

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Abstract

The need to address extreme poverty from the perspective of marginality arises from the frustration that the number of the poorest and hungry remains unacceptably high. This triggered the call for an innovative approach from the side of science and action.

The conceptual and analytical framework developed here views marginality as a root cause of extreme poverty. We define marginality as an involuntary position and condition of an individual or group at the edge of social, economic, and ecological systems, preventing the access to resources, assets, services, restraining freedom of choice, preventing the development of capabilities, and causing extreme poverty.

Causal complexes tie the marginalized poor in systems from which they want to escape or in which they want to improve their lives. The rural and agricultural context is of particular relevance here, as we assume that large segments of the extreme poor live in rural areas. The poorest themselves have described their situation, for instance, as being trapped in a “complex knot which can lead to further knots if the wrong threads are pulled.”

While poverty is objectively a matter of absolute deficiencies, we explain why the way in which poverty is perceived by the poor themselves requires looking at poverty as a relative, subjective, dynamic and systemic phenomenon. We conceptualize marginality as patterns of causal complexes in societal and spatial dimensions. These causal complexes can, for instance, comprise different types of livelihood systems or different types of poverty traps. They include proximate as well as underlying causes of extreme poverty and specifically address social exclusion, restrained access to assets, opportunities and transport, communication and public services infrastructure.

An analytical framework is developed, outlining the various steps required for the analysis of marginality in a systematic, re-iterative and participatory manner, involving those affected by extreme poverty themselves. From each causal complex of marginality, leverage points can be identified which match with specific intervention packages, relevant for livelihood management, policy formulation and implementation. The approach to the investigation of extreme poverty is applied and relevant for managing change towards inclusive development. Points of entry for public and private investments are being identified.

Keywords:

Marginality, extreme poverty, complexity, systems, change, interventions

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1 Point of departure

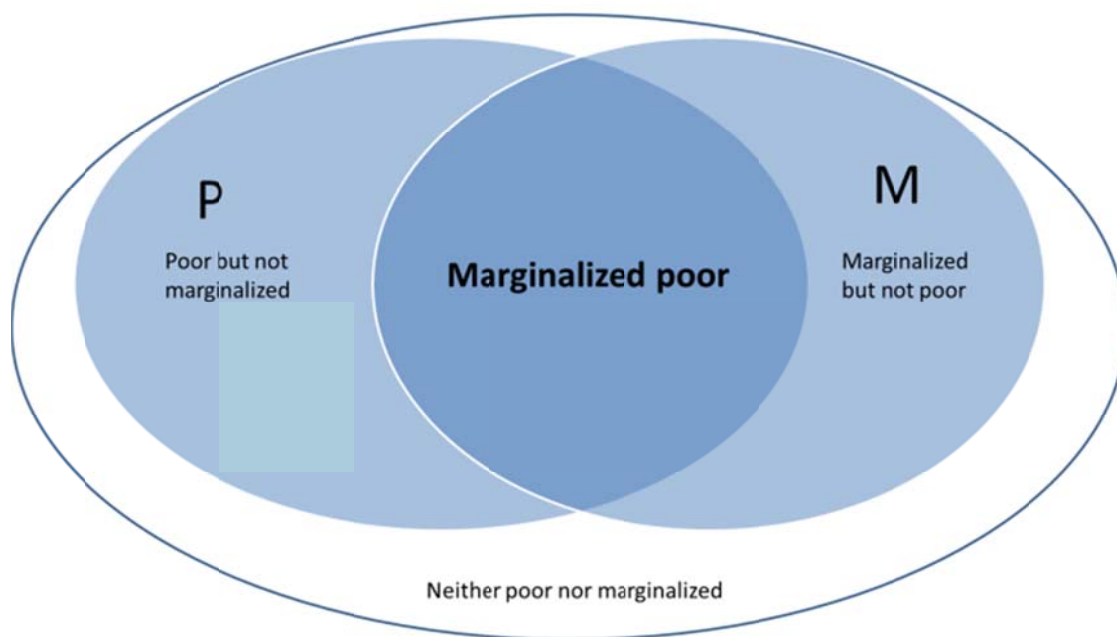
The Millennium Development Goal No. 1 calls for halving the proportion of those who live on less than 1 \$/day and who suffer from hunger. Globally, progress towards that goal has been significant. The proportion of those living on less than 1 \$/day fell from 29% in 1990 to 18% in 2004 (von Braun, Hill, and Pandya-Lorch 2009). Despite this improvement, progress among the extreme poor has been modest or lacking depending on the region. Whereas the number of the extreme poor fell in East Asia/the Pacific and South Asia between 1990 and 2004, it increased in Latin America and particularly in Sub-Saharan Africa. The reasons could be that the poorest are trapped in poverty and do not benefit from growth. Worldwide, the number of undernourished people has been growing since the mid-1990s. In 2009, 1.02 billion people were undernourished. This number is estimated to decrease to about 925 million in 2010 (FAO 2010). A majority of the world's undernourished people – slightly over 900 million to which the extreme poor belong – live in developing countries (FAO 2009). Most of them are found in Asia and the Pacific as well as in Sub-Saharan Africa. Whereas in Africa most of the poor live in low-income countries, in Asia they are found in middle-income countries. Within the last 20 years the majority of the poor have shifted from low to middle income countries, such as India, Indonesia, Pakistan and China.

Although there has been progress in reducing the number of poor, especially those just below the poverty line, the poorest have been overlooked and left behind. Because of inequality, growth has not reached the poorest. Their numbers are stagnating or increasing. They do not have a voice, they are decoupled from the market economy (Grant and Shepherd 2008) and conventional poverty reduction and development programs are poorly designed to reach the poorest or respond to their needs. Such a situation is extremely inefficient in macro-economic terms, and unjust from a human rights perspective. Pro-poor growth does not work for this group, as they are not linked to (or excluded from) the economic processes which generate growth. Policies that redistribute wealth from growth are often not in place. Proximate reasons for this exclusion can be that the extreme poor (ibid):

- live in unfavorable areas (poor agricultural asset base, poor or no transport infrastructure)
- can (for various reasons) only make minimal use of their labor and lack opportunities to acquire skills
- spend most of their effort to achieve a calorific and nutritional minimum
- are socially or ethnically excluded or lost their role or status in society, e.g. because the income earning household head passes away, because of disease, or as a result of remaining childless, or because of being born into a class of extreme poor
- are excluded from public services or poverty reduction programs

Being excluded, not only from growth, but also from other dimensions of development and progress, is an indication for the extreme poor being at the margin of society and marginality is frequently cited as a root cause of poverty (von Braun, Hill, and Pandya-Lorch 2009). Depending on which aspects of marginality are being considered for explaining extreme poverty, millions of people, especially in Sub-Saharan Africa and South Asia belong to those being marginalized and living in and from marginal areas. The marginalized poor are those who are affected by both marginalization and poverty (Figure 1).

Figure 1: The marginalized poor



Findings to date show that there is a correlation between remoteness, exclusion and extreme poverty and that the incidence of extreme poverty and food insecurity is concentrated in remote rural areas with the furthest distance to transport, public service (health, education) and market infrastructure. In addition, the poorest often belong to ethnic minorities and socially excluded groups (Ahmed et al. 2007).

This working paper draws on a recent research and policy consultation program (von Braun, Hill, and Pandya-Lorch 2009), which established strong facts about those who belong to the poorest and hungry today:

1. The poorest are becoming increasingly concentrated in Sub-Saharan Africa and South Asia. More than three-quarters of those living on less than half a dollar a day live in Sub-Saharan Africa and this share is increasing.
2. Poverty and widespread hunger remain even in regions that have experienced rapid economic growth and substantial reductions in poverty.
3. Whereas the number of urban poor is increasing rapidly, the poor are still predominantly rural. Poverty reduction remains strongly connected to agricultural development in many countries.
4. Poverty and hunger reduction has been slower among the poorest and among excluded groups—ethnic minorities, disadvantaged people, and the disabled—causing poverty and hunger to be increasingly concentrated in these groups. In addition, poor women and children are particularly vulnerable to the long-term effects of poverty and hunger for health and education.

Although the total number of people in poverty may change little, this stability masks substantial movements in and out of poverty. Some above the poverty line are vulnerable to become poor, and some below the line may move out of poverty. Others far below the line, i. e. the very poorest, will be there for longer, perhaps for generations.

2 Theoretical foundations and definition

According to the Oxford Dictionary, “marginal” in general means “relating to or situated at or in the margin” or “of minor importance” (Stevenson 2010). Social science, economics and natural science treat marginality differently. In sociology, marginalization is commonly regarded as ‘treating as marginal or peripheral’. In economics, the marginal concept is widely used to assess incremental change in economic situations. Its origin in economic geography (Wiskemann 1859) derives marginal change as a consequence of market distance – and is not necessarily connected to peoples’ wellbeing. Land quality (in combination with infrastructure) defines agrarian marginality, which is important for spatial poverty patterns and causes.

We define marginality as an involuntary position and condition of an individual or group at the margins of social, political, economic, ecological and biophysical systems, preventing them from access to resources, assets, services, restraining freedom of choice, preventing the development of capabilities, and eventually causing extreme poverty.

The concept of marginality overlaps with poverty as a relative concept and as a concept of capability deprivation (Sen 1981; Sen 1999) but includes spatial and environmental dimensions. Sen’s capability approach is of particular relevance, as the causes of (extreme) poverty are explained by unrecognized capabilities of the poorest which need to be brought into function, by endogenous and exogenous change, i.e. changing the attributes of the marginalized from within the system and changing the circumstances/environment in which marginalized systems can function (and thereby become less marginalized). The concept of marginality therefore refers to the constraints which need to be lifted in order to recognize capabilities and transform them into functioning. The marginality concept also evolved from the context of global environmental change and food security (Lobell and Burke 2010).

Beyond the above mentioned facts about those who belong to the poorest and hungry today, we see the need to frame the persistent problem of poverty within a broadened epistemological and conceptual setting. Starting point is the need to seek an approach for better understanding the complex ways in which the poorest themselves perceive their lives. Analysis can be employed in a re-iterative manner to allow for a two-way learning process: The enquiry is structured first, through the application of a chosen method which identifies the situation of being ‘marginalized and poor’, and then the researcher listens to what is said about the situation and about the research method itself. The research process thereby aims at

1. Assessing the underlying causal factors that constitute marginality and which define extreme poverty.
2. Bringing these causalities to attention of decision makers to allow for designing new and adjusting existing policies and programs.

We work with two epistemological stances – the Cartesian and the complexity stance. First, the Cartesian stance, which is largely disciplinary and aims at objective description and (most often quantitative) explanation based on pre-analytically fixed assumptions of system design and behavior¹. Dasgupta argues that such (descriptive) methodological stance “offers little guidance for action. It does not say what is a cause and what is an effect; it does not distinguish between proximate and deep causes” (Dasgupta 2009, 130).

Second, the complexity stance, which is multidisciplinary, works with irreducible value plurality and includes subjective accounts of the quality of life and heuristic methods of enquiry. The complexity perspective reduces preciseness for a limited set of explanatory variables, in favor of better understanding of overall system behavior. Dasgupta refers to this stance by stating that “the persistence of poverty in a world of economic progress elsewhere should be traced to socioeconomic, metabolic, and ecological processes involving positive feedback” (ibid). And further, although description may suggest multiple causations for poverty, Dasgupta finds, that “the temptation to seek

monocausal explanations for the twinned presence of poverty and wealth in our world is so powerful that even development experts have not always been able to overcome it" (ibid).

Our marginality approach is interdisciplinary, implementation-oriented and jointly inspired by research on poverty and research which has revealed that complexity, uncertainty and non-equilibrium are frequently observed in social, economic and ecological systems (Leach, Scoones, and Stirling 2007). The marginality approach is inspired by Sen's capability approachⁱⁱ, the ecosystem approachⁱⁱⁱ (Waltner-Toews, Kay, and Lister 2008), the Millennium Ecosystem Assessment (Millennium Ecosystem Assessment 2005) which assessed the consequences of ecosystem changes for human well-being, the ecosystem health approach^{iv} (Costanza, Norton, and Haskell 1992), and the dynamic systems approach, e.g. as also taken by the STEPS Centre (Scoones et al. 2007), which see socio-ecological systems as complex, dynamic systems, with patterns of relationships emerging into specific behaviors.

These approaches are not confined to the study of ecosystems alone; they are scientific approaches which build on (complex adaptive) system thinking, complexity and sustainability science. "The use of such approaches shows a shift from predominantly economic views toward examining multiple factors and their evidence as informed by systems-based analyses" (Kristjanson, Lilja, and Watts 2010). In the context of poverty research it enables the researcher to take a broader, transboundary and interdisciplinary perspective on poverty, which is no longer merely an attribute of the poor but a systemic feature emerging from the interaction within and between social and ecological systems.

We explicitly include ecological systems into the investigation of marginality. Causal variables from social and ecological systems relate to each other and create emerging patterns of marginality, which are the root causes of extreme poverty. The persistence of extreme poverty is also perceived as an indication of a persisting lack of scientific knowledge on a problem which is characterized by ignorance (not knowing what we don't know), and a generally failed attempt to tackle it by conventional expert-led approaches, which are able to handle risk and calculate probabilities but inadequate for situations of high complexity and uncertainty, which are characteristic of situations in which the poorest find themselves.

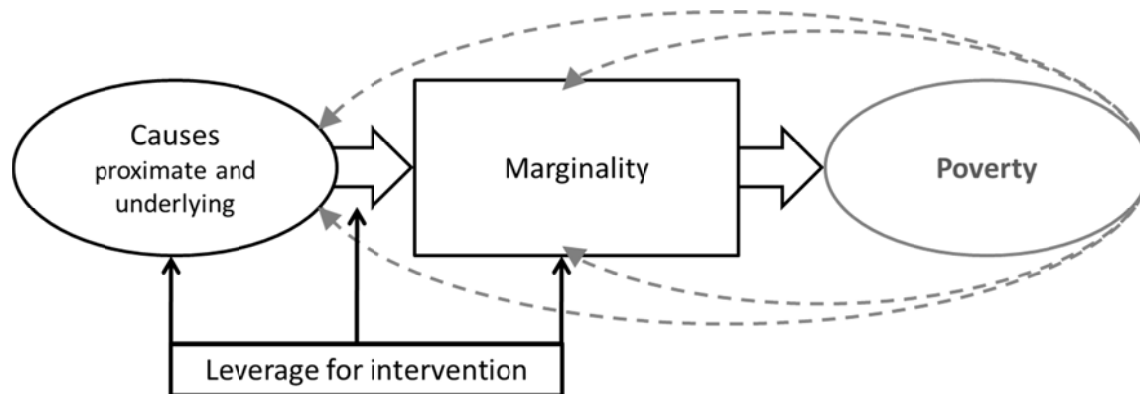
Approaching poverty from a complexity and dynamic systems angle no longer sees systems as complicated and principally predictable, with answers to problems which can be correct with some degree of probability, given sufficient information is available. Instead, complex systems are characterized by irreducible uncertainty and scientists can arrive at possibly correct answers, at best. In a complexity setting, 'being correct' changes its value. When decisions directly affect people's lives and their survival, being roughly right is better than being precisely wrong (Kay 2008). Kay further explains (ibid, p.80): "Investigators into complexity do not seek prediction, control, right answers, or efficiency. These are not sensible goals under conditions of complexity. Rather, the investigators seek understanding, adaptability and resilience. Scientific inquiry, more than ever, becomes an act of collaborative learning and knowledge integration. The role of the expert shifts from problem solving to an exploration of possibilities and from giving correct advice to sharing information about options and trade-offs."

The previously mentioned facts in combination with this broadened approach lays the ground for a new conceptual design for the investigation into the root causes of extreme poverty and simultaneously requires a rethinking of what constitutes progress or wealth. Accordingly investment decisions must be rethought. Reaching the marginalized and poorest and thereby addressing root causes of poverty is a more demanding, costly and uncertain undertaking than investing in those poor who are close to the poverty line and where the impacts of interventions are more visible and easily measurable.

3 A conceptual approach to marginality

Our concept positions marginality as a cause of extreme poverty (Figure 2). Marginality emerges from specific causal combinations of proximate causes (e.g. belonging to an ethnic minority, living in remote areas, having no job and income) and underlying causes (e.g. being socially excluded because of specific cultural beliefs, having no access to water or transportation). Marginality within social and ecological systems explains why individuals or groups are excluded from or do not have access to participation in processes or to resources, which otherwise would free them from extreme poverty.

Figure 2: Causes of marginality and leverage points for intervention

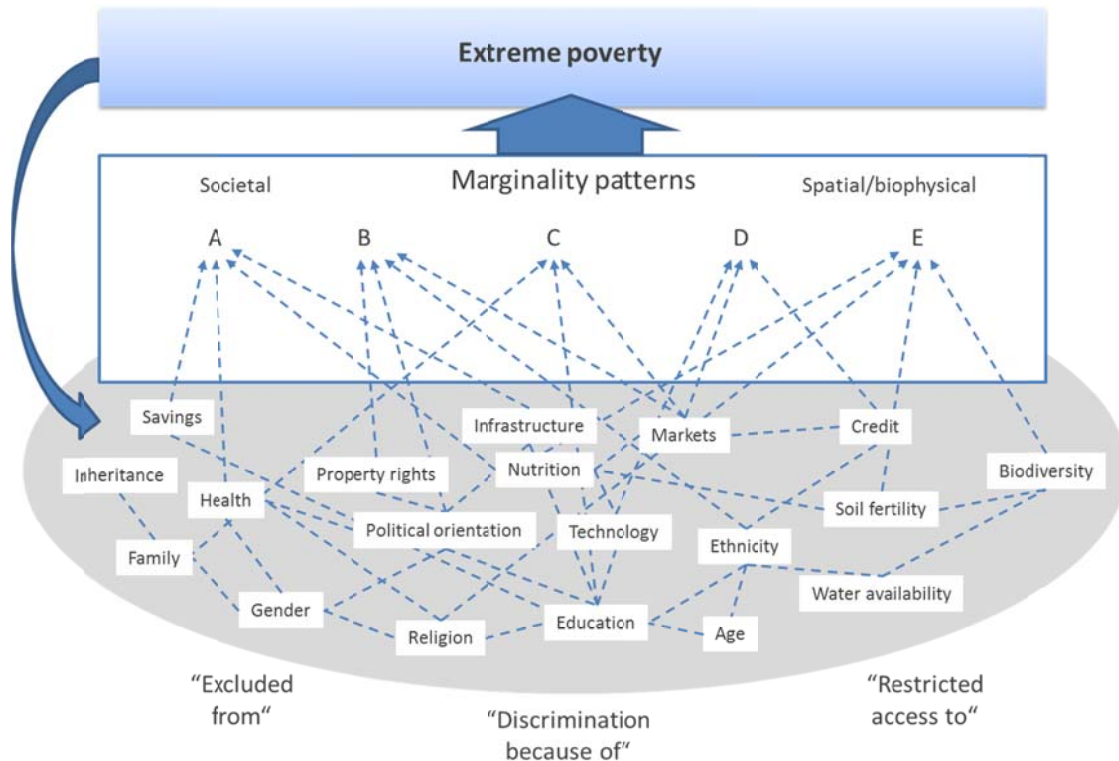


The proximate causes of extreme poverty are often visible or relatively easy to explain, and respond to the question ‘which factor or combination of factors cause a person or group, being poor’, where ‘being poor’ is predefined. Proximate causes of poverty are based on definitions of poverty which perceive poverty as deprivation or insufficiency of dimensions of wellbeing or capability, such as access to public services, material sustenance, control over assets, political freedom or psychological wellbeing.

However, the purpose is not to increase the number of dimensions in which poverty can be measured but to get to the root causes and drivers of extreme poverty by perceiving poverty as a systemic phenomenon. These drivers are the underlying causes which are dynamic, context specific, less visible and respond to the question ‘why does this combination of factors lead to exclusion or prevent access, in other words being marginalized’?

Marginality is the root cause of extreme poverty and is manifested in causal complexes (or marginality patterns) which have societal and spatial dimensions. Examples of causal factors that lead to different patterns are shown in Figure 3. They are interlinked and part of causal networks. Conceptualizing marginality in terms of causal networks means shifting the focus from causal entities to the relationships between them (Mitchell 2009). Understanding causal networks of marginality better – instead of merely understanding correlations between a few variables and outcomes – not only contributes to a better understanding of the behavior of socio-ecological systems, but also to our ability to design policies and programs which respond better to the needs of the extreme poor who are caught in such complexity.

Figure 3: Examples of causal factors underlying different marginality patterns as a root cause of extreme poverty



At this conceptual stage we do not know about the specific combination of causal factors, the number and type of factors and the type of relationships between them. In general however, the type of relations can be (\uparrow = more/increasing, \rightarrow = leads to, \downarrow = less/decreasing):

1. Positive and direct effect:

- a. $\uparrow A \rightarrow \uparrow B$
- b. $\downarrow A \rightarrow \downarrow B$

For example: High yields lead to higher food availability

2. Negative and direct effect:

- a. $\uparrow A \rightarrow \downarrow B$
- b. $\downarrow A \rightarrow \uparrow B$

For example: Better health service provision leads to reduced child mortality.

3. Positive feedback loop:

- a. $\uparrow A \rightarrow \uparrow B \rightarrow \uparrow A$
- b. $\downarrow A \rightarrow \downarrow B \rightarrow \downarrow A$

Examples: Discrimination leads to isolation which leads to further discrimination.

4. Negative feedback loop:

- a. $\uparrow A \rightarrow \downarrow B \rightarrow \uparrow A$
- b. $\downarrow A \rightarrow \uparrow B \rightarrow \downarrow A$

Example: Low indebtedness, increases the likelihood of receiving additional loans and increasing loans reduce creditworthiness.

Single proximate causal factors alone (e.g. being from an ethnic minority, being disabled or having low or now cash income) are not sufficient to explain marginality because marginality are networks of causal factors, which together lead to extreme poverty. Having a low income alone, for instance, is not a sufficient cause for qualifying as marginalized, as someone with no income could be cared for within a family or social group. That means, in combination with underlying causes of being excluded, experiencing discrimination or not having access to services and facilities, causality crystalizes to specific causal networks of marginality and explains extreme poverty. And further, it means that extreme poverty from the perspective of marginality is not only multidimensional with regards to the determining causes of poverty but also multi-relational with regards to the network character of the causal relations. Extreme poverty can therefore be regarded as emerging out of marginality. Its emergent property evolves from its individual causal components (which are in relation to each other) but is not like any of the individual components (Holland 1998). Thus, a marginalized poor is not (only) like a landless person or a person with no income, or ill health.

Emergent patterns of marginality can be characterized by (Goldstein 1999):

1. Novelty (the extreme poor are not like the poor just poorer)
2. Coherence (extreme poverty remains over some time period)
3. Dynamics (extreme poverty is a result of a dynamic process)
4. Ostensive (extreme poverty can be perceived/observed)

Corning (2002) further explains that an emergent structure cannot be explained or predicted alone by the underlying rules of interaction or by merely looking at single properties causing an emergent structure – in our case marginality. What is also needed is the consideration of purposeful activity. It is not sufficient to explain the relationship between, e.g. health conditions and income levels and their impact on poverty. What also matters is how people behave and act in such specific conditions (Corning 2002).

Similar to the idea of webs of causality which explain extreme poverty, Edmonds (1999) identifies common characteristics of complex systems, which also apply to marginality:

- *Modularization with interdependencies*: Complex systems are partially decomposable; their modules are dependent on each other. These modules are the causal complexes in our conceptual frame.
- *Complexity depends on the observer*: The complexity of natural phenomena *per se* cannot be defined in a useful manner, because natural phenomena have infinite detail. Only when observations are made, is when the question of complexity becomes relevant: after the observer's model is incorporated.
- *Emergent levels of complexity*: Often the interactions at a lower level of organization (e.g. subatomic particles) result in higher levels with aggregate rules of their own (e.g. formation of molecules). A defining characteristic of complexity is a hierarchy of description levels, where the characteristics of a superior level *emerge* from those below it. The condition of emergence is relative to the observer; emergent properties are those that come from unexpected, aggregate interactions between components of the system.

Specific types of marginality which explain extreme poverty can be categorized according to those which belong more to the societal dimensions of marginality (social, political, cultural, economic) and those which belong more to the spatial and biophysical dimensions of marginality (geographical, agro-ecological). That is one possible categorization of marginality. Another possible grouping of marginality is adopted from the livelihood approach, according to which different kinds of capital are identified: social, financial, human, man-made, and natural capital (Ellis 2001). Different categories or types of marginality emerge out of different causal networks. Depending on the origin of these causal factors,

causality may be dominated by one or more types of capital, similarly to the description of livelihood systems.

Another possibility to identify categories or modules of extreme poverty is taken by the Chronic Poverty Research Center (CPRC) which identifies five main poverty traps which lead to, what they define as “chronic” poverty (The Chronic Poverty Research Centre 2009). A poverty trap is a self-reinforcing, positive causal feedback loop. These feedback loops are positive because one variable in the causal chain impacts on another in an enhancing manner, eventually leading to system collapse or stagnation:

1. *Insecurity*: Because the poorest have few assets or entitlements to rely on, they decide in favor of short term survival (e.g. daily collection of firewood) instead of long term goals, such as education. The results of an analysis by McKay and Perge (2010) however, does not support asset-based poverty traps.
2. *Citizenship*: Because of no political voice the needs and rights of the poorest are not recognized by their governments.
3. *Spatial disadvantage*: Because of remoteness and lacking access to natural resources and public service infrastructure, the poorest have no chance to improve their situation.
4. *Social exclusion*: The poorest are part of adverse social relations of power and patronage which discriminate then because of cast, religion, ethnicity or age.
5. *Work opportunities*: Lacking work opportunities makes the poorest vulnerable to exploitation as alternatives are not available. The poorest receive the lowest wages which do not allow them to save.

In our conceptualization of marginality (Figure 3) we show modules of causality which create different types of life systems from A to E, or better, different patterns of causality which considerably shape life systems. The different modules of causality can be related to the following spheres of life:

- A. Economy (variables which define the economy or livelihood activities)
 - Production, consumption, different types of income, income inequality, assets, ownership of land or other property, social- and network capital, access to social transfer systems, prices, labor supply/demand, resource flows, investments, trade
- B. Demography (variables which define the actors/stakeholders)
 - Population size, -density, birth/death rates, migration, ethnicity
- C. Landscape design, land use and location (spatial variables)
 - Urban/rural space, agricultural/forest use, proportion of land used for recreation, traffic (roads), settlement, protected areas, areas for water retention, distance from urban centers, remoteness
- D. Behavior and quality of life (separating objective and subjective variables)
 - Health, security, human rights, education, social connectedness, exclusion, social segregation/integration, crime, ethnic tensions, civil war; Aspirations, happiness, mutual support, alienation, gender equality.
- E. Ecosystems, natural resources and climate
 - Precipitation, soil fertility, soil erosion, biodiversity, ecosystem intactness, goods and services
- F. Infrastructure (variables which define the structures required for the exchange of energy, matter and information)
 - Communication, transport (e.g. road, rail), market places, hospitals, schools, universities, power supply system, water supply system, sanitation
- G. Public domain and institutions (variables which define how the system is regulated, the inner order)
 - Regulations, laws, contract, contract enforcement, conflict resolution mechanisms, formal and informal institutions

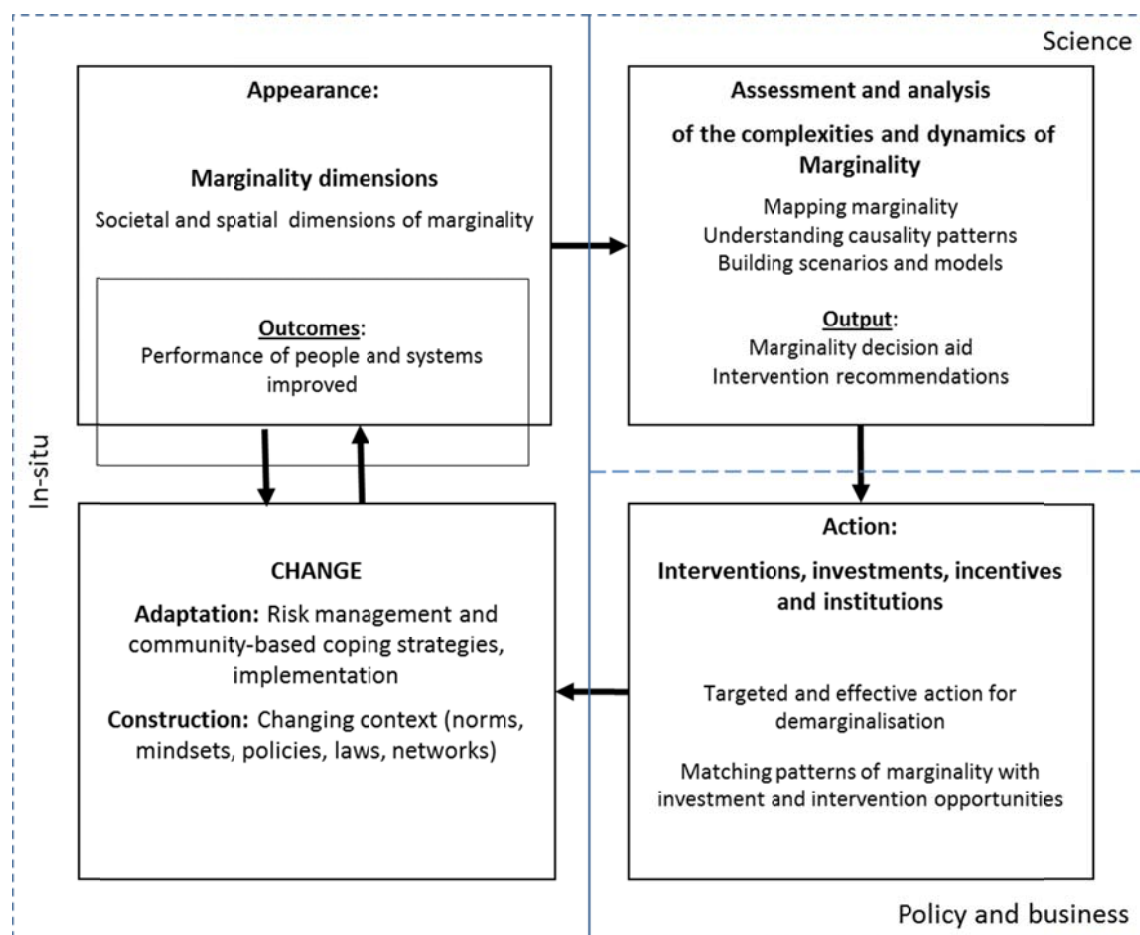
Our approach differs in that causality is not pre-defined by specific poverty traps which describe specific causality networks. Pre-defining poverty traps which policies then need to address bears the risk that other, maybe less visible but more influential causal networks are overlooked. Our concept is similar as it incorporates aspects of spatial disadvantage and social discrimination as compared to more mainstream approaches which largely focus on assets or entitlements and political voice (citizenship).

Whatever typology or categorization of marginality is adopted, it needs to be derived from a better understanding of the specific, partly subjectively perceived complexities of causality. Approaching extreme poverty from that perspective allows for innovative design of intervention mechanisms which effectively respond to complexes of causation. Identifying leverage points in situations which may be resistant to certain policy interventions or situations where small interventions may have large effects has high policy relevance (Axelrod and Cohen 1999).

4 An analytical approach to marginality – From concepts to actions

Implementation and action-oriented marginality science is an important component of the analytical framework. It can not only serve a monitoring purpose but also a learning purpose, which is required to stop doing the same things over and over again, just trying harder. Kacou (2010) refers to such a mechanism as “survival traps”.

Figure 4: Science as crucial component of the analytical framework for marginality



The analytical frame starts with marginality observed as being composed of different societal and spatial dimensions (top left box, Figure 4). Then it shows how we aim at gaining a better understanding of marginality by mapping, modeling and developing recommendations and decision aid tools (top right box). Better understanding marginality patterns through science leads to opportunities for action and intervention (bottom right box, see also Figure 5). Action includes drivers of change. These drivers can be changing interventions, investments and incentives, as well as changing rules at different levels (institutions) which eventually shape the opportunities for change.

We will not elaborate on different theories of change. Instead we merely distinguish between change which can be brought about by adaptation or by construction (bottom left box of Figure 4, see also Figure 5). Adaptive change occurs when an individual or group adapts its beliefs, rules and strategies to its environment (North 2005). Adapting to circumstances which cannot be changed in the short or medium term is a reality for most marginalized poor. Adaptation takes place by risk management and innovation strategies of local communities, e.g. by developing food storage mechanisms, applying biodiversity conserving practices, or adjusting management practices. Pursuing adaptive change can potentially improve the lives of the marginalized poor. Constructive change, or creative construction, is change brought about by changing the context of the marginalized poor (Kacou 2010). This context frames the arena in which the marginalized poor live and act, by setting the behavioral rules, including, norms, mindsets and laws (institutions). The desired outcome of positive (adaptive and constructive) change will eventually improve the performance of people and systems and demarginalize them.

The practical analytical approach can go stepwise from the identification of the presumably extreme poor, analyzing the causes of marginality and eventually redefining the criteria and indicators defining extreme poverty in socially and spatially specific contexts. Repeating such a re-iterative process will

Box: Social entrepreneurship - leverage for change out of marginality

Social entrepreneurship has shown promise in reaching poor people. Many examples especially from India and Bangladesh demonstrate that services in the sector of health care and nutrition can be successfully provided by social entrepreneurs (Prahalad 2010). The term 'social entrepreneur' was first coined by Joseph A. Banks (Banks 1972). A social entrepreneur generally refers to someone who recognizes a social problem and uses entrepreneurial principles to organize, create and manage a venture to bring about social change. Unlike a business entrepreneur who typically measures performance in terms of profit and financial return, a social entrepreneur focuses on creating social capital and on improving social and environmental conditions (Dees 1998; Thompson 2002; Nicholls 2006).

A subset of social entrepreneurship is social business. The concept of social business is mainly shaped by Muhammad Yunus who implemented social business on a large scale with Grameen Bank in Bangladesh. According to Yunus, a social business must be economically profitable to pay back the investors, and to support the long-term social goals. In its organizational structure, a social business works like a profit maximizing business, with social rather than profit maximizing objectives. But for its operating structure and organization it is considered as very important that it is not a charity (Yunus 2009).

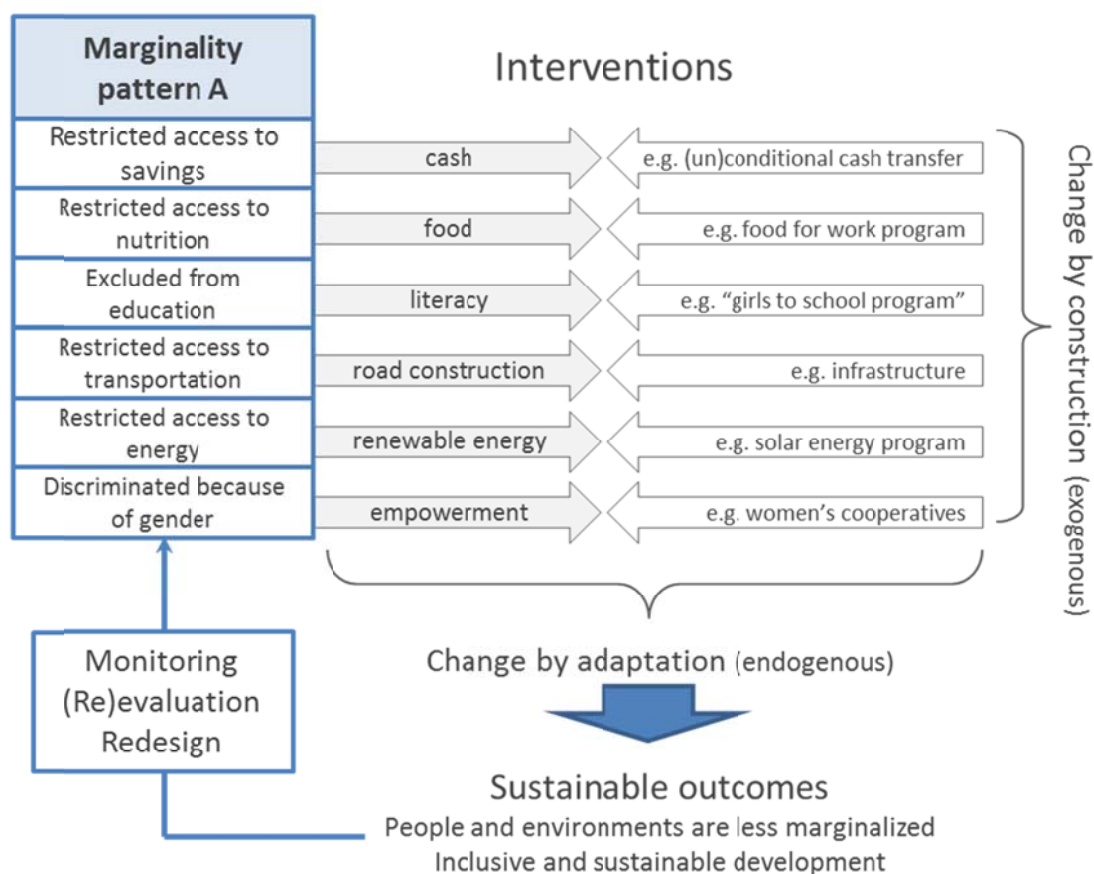
The marginalized poor constitute a large untapped market not yet reached by social business. The development of innovative products for the marginalized poor might be profitable despite small profit margins. Examples of social businesses producing cheap soap in small packages to combat infectious diseases are a case in point (Prahalad 2010). Further, the marginalized represent a huge workforce. Social enterprises aim to add social impact throughout their entire value chain (Nicholls 2006). Taking advantage of the great untapped resource of marginalized people can thus be beneficial for the enterprise and the marginalized themselves, such that they do not only benefit from the new products but also from newly created employment opportunities.

lead to an increasingly refined picture of who and where the extreme poor are and how interventions need to be adjusted to best respond to the needs, wants and aspirations of the poor.

Starting point of the analysis are the extreme poor in the respective country. The initial definition should be broad enough to allow for refinement later on and it should capture the most critical and common characteristics of the poorest in that country. Next the proximate marginality causes are assessed by participatory methods. The seven causality complexes (marginality patterns) in Figure 3 are an example. Each of them explain extreme poverty and are themselves the result of factors related to them. Household income, for instance, is conditional on cash availability, creditworthiness or the availability of forest products which contribute to subsistence income. The causal complex 'nutrition/health' ranges from surviving on a minimal amount of kcal/day to living a healthy life. Education encompasses the availability of basic traditional knowledge, primary and secondary education, or specialized training. The causal complex 'mobility' can include a range of causal factors from the availability of shoes, bicycles or motorbikes to quality of roads and public transport. 'Home' refers to a physical shelter and clothing, or to social belongingness.

As a next step in the analysis comes the identification of leverage factors from each of the causal complexes. A leverage is a causal variable within each complex, which is suitable for being changed in order to change the complex. In the complex of 'income', cash availability can be changed, for example. However, the role of the variable 'cash' within the complex needs to be understood before actually changing it. Some variables require minimal change and result in dramatic system change (to the better or worse).

Figure 5: Matching marginality patterns and interventions for sustainable outcomes



Those are the leverages most frequently sought for, when efficiency is a criterion: minimal input causes maximum output. The problem with those leverages is that they are critical and can also easily be the reason for systems to collapse. Other leverage factors can have a buffering, active and reactive impact on the complex – each with different investment features. It should be stressed here that critical variables are often those which are sought for immediate results because returns on investment are higher. In the long run, however, these investments are lost if they lead to system collapse.

At the level of action, each leverage needs to be matched with intervention and incentive packages and policy mixes which respond to the potential leverage factors and cause effective change. Figure 5 shows one of the marginality patterns illustrated in Figure 3 related to specific intervention strategies. Packages of different intervention tools need to be put together, not only in order to increase returns on investment (utility goal), but to create an environment which gives the marginalized poor a choice, enhances their capabilities and improves overall system functionality^v. At the management level this may incur opting for integrated rural management approaches which need to be backed up by institutional frameworks and incentives at the policy level.

There is mounting evidence that in the context of good management and integrated social entrepreneurship (Box 1), investments into the poorest can be a long lasting and worthwhile decision, which is not only economically efficient but also in line with the moral claim that all people (not only the less poor) have equal value and therefore have a right to equal chances to benefit and develop their potential from investments for the extreme poor^{vi}.

5 Dynamics of marginality

As previously mentioned, we define marginality as a condition or state at the edge of social, cultural, economic, ecological, geographical or political systems^{vii} in which a person (or group) is trapped involuntarily^{viii} and from which the person aims at escaping, to achieve a better quality of life. Being at the edge means benefiting sub-optimally from the goods and services potentially provided by those systems. Every individual in society is part of multiple systems. This becomes obvious when the roles an individual plays in society are looked at. A household head, for example, is not only household head and head of a family; he is also likely to be a father, a husband, a farmer, a consumer, a member of the farmer's association, an elder, and a citizen who votes for local and national level political leaders.

The marginalized and extreme poor need to undertake extraordinary efforts to move from the margin to the preferred location of being. Daily they are confronted with the risk of falling below a threshold, which would put their lives at immediate risk. The marginalized have often developed strategies to survive, cope with hunger and meet basic needs. However, strategies that enable them to escape their situation and reach a higher level of well-being are often beyond their possibilities (Ahmed et al. 2007). There are two scales at which change over time can be observed: system change and change of marginalized actors within systems. In the following we describe both.

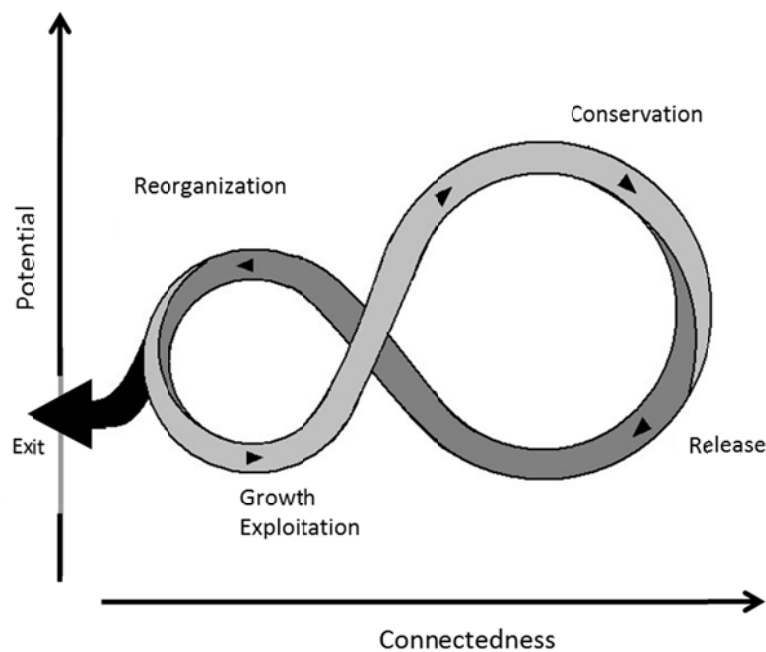
5.1 System change

In the previous chapter we have explained that causality patterns of marginality need to be understood and how patterns of marginality need to be matched with suitable interventions, measures and programs in order to improve the livelihoods of the poorest. In that framework, change towards demarginalization happens by adaptation (endogenous) or (re-)construction (exogenous). Both types of change can be triggered by changing system variables and the circumstances within systems are at work. Both types of change have also been described in social and ecological systems by the panarchy concept of Holling (see e.g. Gunderson and Holling 2002). From case examples of regional development and ecosystem management, Gunderson et al. (1995) have identified two dimension or system properties, along which system change occurs:

1. *The available change potential*: Depending on the system under investigation, available potential can e.g. be described as cultural or social capital. Also accumulated knowledge, available technology, resources and the degree of social organization represent the potential of social systems to change.
2. *The connectedness between system internal variables*: System connectedness, they say, “reflects the strength of internal connections that mediate and regulate the influences between inside processes and the outside world – essentially the degree of internal control that a system can exert over external variability.” (Gunderson and Holling 2002, p.50).

The adaptive cycle which systems undergo (Figure 6), moves from an r-phase of exploitation and growth (e.g. the entrepreneurial market) to a K-phase where the system is established, resources are bound in capital and entropy is low. The system connectedness and control in this phase is high and so is the level of bureaucracy. When control becomes too rigid and the system becomes less responsive, then change is triggered by disasters, such as fire, disease or an outbreak of pests in ecosystems, or revolt, conflict, or over-aging, in human systems. The tight connectedness of the system is lost and resources are released in the Ω -phase. The released resources initially lead to a decrease of change potential as system entropy increases, until re-organization during the α -phase begins and change potential as well as connectedness is built up again.

Figure 6: The adaptive change cycle.



Source: Adjusted from Gunderson and Holling (2002)

Results of a workshop on the use of a system dynamics tool for understanding the causalities of marginality (Gatzweiler 2011) revealed that the life of an extreme poor and marginalized rikshaw puller in an urban slum (who has migrated from the rural areas in order to earn and save money in order to go back to his village again) can principally change in two different ways: 1. the condition and location of the marginalized poor within the system(s) can change, or 2. the marginalized poor can 'exit' the system they are currently trapped in and move to a new system.

Both types of change can also be described by the panarchy concept. Improving the well-being of the poor rikshaw puller within his life system, e.g. by improving access to micro-credits, refers to the growth and conservation phase. Supporting him to increase his savings to a critical level at which he decides to leave the slum and go back to his village (release, exit and re-organization), would require different interventions, e.g. higher relative income or (un)conditional cash transfers.

5.2 Change of marginalized actors within systems

From the perspective of the marginalized actor, marginality describes 1) a position of an individual or group within a multidimensional space and 2) a certain state or condition of that individual or group. The multidimensional space is composed of nested and overlapping systems. Being marginalized means 1) being positioned at the margin of one or more system and 2) having few assets and capabilities to easily move from or change that situation. Both the position at the margin and the condition of having few assets and capabilities can influence each other. In other words, being marginalized means being far away from the center (desired state), to which a person would prefer to be closer to, and being hindered to reach a more central, i.e. favorable, position.

The *degree of marginality* informs about the position of the marginalized individual or group by adding information about how far away that individual or group is from a desired condition (the center of a system). Only after including that information it is possible to identify the systems at which the person is at the margin of. This measure of 'distance' in a multidimensional space provides information about the efforts, difficulties or costs of acquiring access to resources, markets, public services, or having influence or voice in decision making. This distance, i.e. the perceived severity of marginality, influences a person's well-being negatively and it diminishes the possibilities to acquire new and make use of existing assets and capabilities.

We refer to distance in a broad sense, including costs to achieve different states of being. To capture this distance requires the inquiry of subjective perceptions of social exclusion and constrained access to, and its effects on well-being. Consequently, the marginality of a person is determined by three factors, which we refer to as (1) *Assets (A)*, (2) *Design (D)* and (3) *Distance (Z)*.

$$M = f(A, D, Z)$$

Assets (*A*) are all resources an individual has at her disposition (yet without the abilities to actually make use of them). This can be human-made capital (e.g. technology and physical assets), human capital (e.g. knowledge and experience), natural capital, social capital or financial assets. Assets also include the physiological and psychological constitution or condition of a person, such as robust health and genetic propensity for being happy.

Design (*D*) describes those factors which enable an individual to make use of assets, e.g. the capabilities and skills of a person. It encompasses the ability to organize, (self)govern, generate ideas, formulate rules, collaborate and communicate. Rules-in-use and rules in combination with action, which are used to motivate and shape people's behavior, are part of *D*, whereas institutions and rules *as structures*, e.g. *written laws*, belong to social and cultural capital as an asset (*A*). Human capital such as knowledge and experience is a design factor as soon as it is applied to make use of assets. Furthermore, the amount of assets a person has also depends on the design environment. The more knowledge a person has, the more likely it is for this person to recognize potentially useful assets. They are only valuable resources, i.e. assets, if the knowledge of how to use them (*D*) is available. Therefore, *A* also depends on *D*. *A* and *D* together are the endowments (*E*) of an individual.

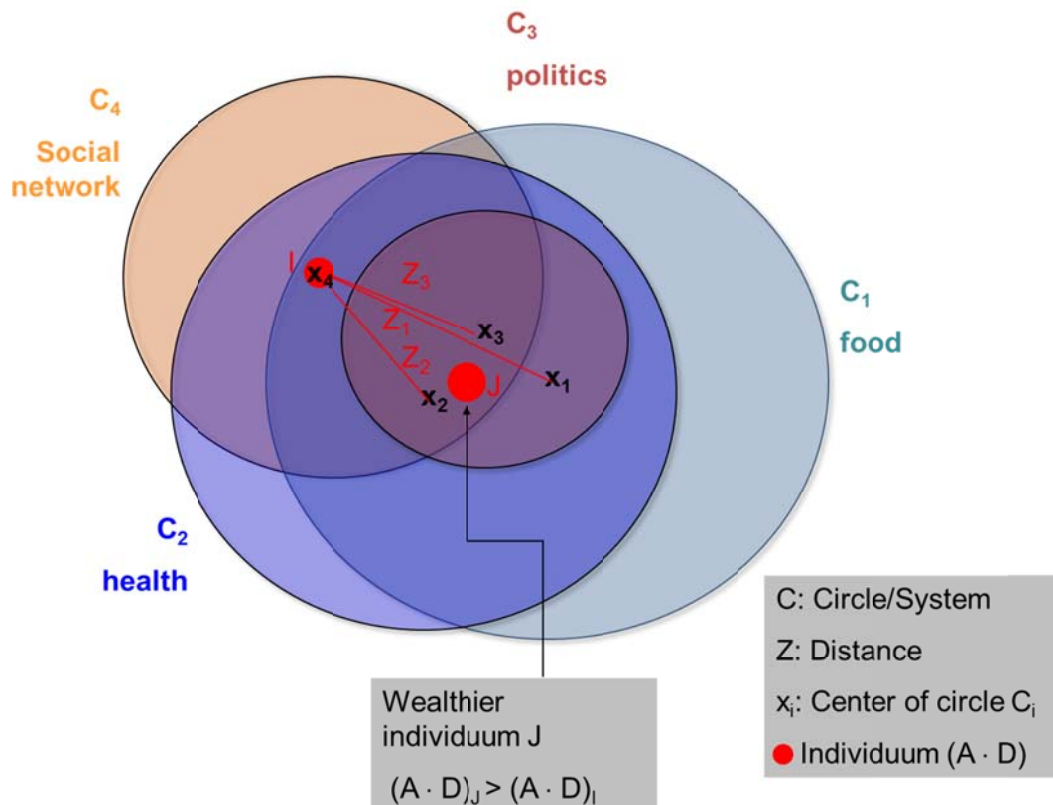
Distance (*Z*) describes the distance a person would need to overcome in order to come closer to a desired state, i.e. to overcome social exclusion, or have access to markets, services, decision-making influence or resources, which are necessary to improve well-being. This distance can be a geographical distance, e.g. kilometers to the next bus stop or road, but it also measures costs of access and costs of

overcoming or suffering from social exclusion. Z makes the decisive difference to usual measures of poverty, since it introduces the marginality-effect in addition to the wealth-effect captured by A and D . Just like D is able to unleash trapped potentials and unused resources by the use of capabilities, Z , once reduced, further unleashes potentials which are trapped in marginality^{ix}. At the individual level the wealth-effect becomes effective (by making use of assets through capabilities), whereas at the societal level, the marginality-effect becomes effective (by improving wealth through decreasing marginality).

The distance can vary according to the reason of exclusion. While some people may be completely excluded from a community (e.g. a leper), others may be allowed to be in the village but ignored or eluded (e.g. untouchables), whereas others again may be allowed to sell their products on the market but not to stay in the village for a longer time. They experience different degrees of marginality because the distances to the centers of the respective systems vary. Distance does not only vary in degree but also in its origin. Distance can be created by norms or beliefs (e.g. stigmatization), by health (e.g. Aids/HIV), education and knowledge, political influence or wealth (e.g. a wealthy land owner with better access to markets and local political elites).

The advantage of this approach is that the three dimensions are put together and in relation to each other. A certain asset or resource i may be available ($A_i > 0$) but if the knowledge to make use of it is not accessible to a person ($D_i = 0$) the resource is useless and does not contribute to the improvement of well-being. Of course, the same holds true for $Z_i > 0$ and $A_i = 0$.

Figure 7: Marginality and the position in relevant systems with different wealth statuses



Next, we differentiate between distance and costs. The distance is the perceived remoteness from a certain service, market or the like. However, we assume that in overcoming this distance, every step requires different efforts and therefore different costs. E.g., if a person feels very marginalized in the food system because she cannot feed herself due to lacking access to land, the first step in getting

access to land may be very difficult, tedious and costly. If this step is made, the next one, i.e. cultivating something on this land, will be easier since simple farming techniques are assumed to be adaptable without major difficulties. Learning by doing and benefiting from previous experiences reduce the costs of overcoming the distance.

To adapt modern farming techniques, use irrigation systems etc. may be more difficult and more costly again. Thus, every step in approaching the center (desired state and position) of a system requires different efforts. We express these differences not with the amount of distance overcome but with varying costs along the distances. The costs of getting one step closer to the center vary from unit to unit of the distance and from one system to another.

In our example (Figure 7) we choose food, health, social belongingness and political voice as three different systems. The size of the circles indicates the importance of the respective system, i.e. bigger/smaller circumference means higher/lower importance to the individual's well-being.

The individual in question is represented by the small red dot. The size of this dot reflects her endowment, i.e. $A \times D$. A small dot indicates few endowments. Furthermore, Figure 7 shows the individual as being close to the center of circle 4 and far away from the centers of circles 1 to 3. This means that the individual is positioned very close to the desired location within the system of social belongingness and far from her desired state within the food, health and politics system. That means the person is far from being able to feed herself, far from access to health care and far from having a political voice. This is indicated by the length of the lines Z_1 , Z_2 and Z_3 . They illustrate the barriers preventing the person from reaching her desired position in the respective system.

We assume that the wealth/poverty status of an individual is partly already the result of her marginality status at the time of observation. A person's wealth status may be meager because the person has no access to markets, lacks health care and has no political voice. Therefore, wealthier and happier (in the sense of being at the desired point) individuals are located more central in the circles (Figure 7).

6 Looking ahead and research needs

This paper wants to pave the ground for an in-depth investigation into the root causes of extreme poverty by laying theoretical foundations, elaborating the concept of marginality, suggesting an analytical approach and describing the dynamics of marginality from an interdisciplinary and systems perspective. The intention is to provide a common understanding of the core concept of marginality. Such a shared understanding of marginality helps create a lens through which marginality hotspots can be made visible. Further it helps cross the boundaries of established mental models of poverty.

Within this common framework, a program for research and action needs to be elaborated which defines the criteria and indicators of marginality in specific contexts, goes deeper into the specific causes of marginality and seeks solutions by matching marginality patterns with suitable intervention mechanisms and investment opportunities.

Elements of such a research program would need to elaborate first, the identification of marginality by means of spatial and societal criteria; second, the organizational coverage and inclusiveness of current de-marginalization programs; third, the effectiveness, and responsiveness of specific programs; and fourth, how collective action would need to be organized to include the marginalized poor.

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Endnotes

ⁱ The Cartesian versus the Complexity scientific stance are synonymous with normal versus the post-normal science perspectives. Post-normal science is a conception for problem-solving and managing complexity related issues in science. It addresses uncertainty, value plurality, and a plurality of legitimate perspectives (Funtowicz and Ravetz 1991). It is seen as useful for situations which need solutions, where typically values are in dispute, facts are uncertain, stakes are high, and decisions urgent. *"In these new circumstances, invoking 'truth' as the goal of science is a distraction, or even a diversion from real tasks. A more relevant and robust guiding principle is quality, understood as a contextual property of scientific information."* (Funtowicz and Ravetz, 2008). The idea, that mechanisms can be put in place which bring social systems and economies into a state of equilibrium is replaced with the view that states of disequilibrium are the rule, rather than the exception and that even when market or price mechanisms are in place these are put in place by conscious design, purpose and involve agency and plural values. Another characteristic of post-normal vs. normal science is that stakeholders become peer communities, meaning, stakeholder values and subjective views are integrated into the scientific process of finding solutions which are maybe not efficient (towards a general goal) but satisfying in the sense of being solutions of high quality and relevance for people and for our times. Context matters in post-normal science and method *"The model of scientific argument is not a formalized deduction but an interactive dialogue"* (Funtowicz and Ravetz 1993, p. 740). Post normal science has evolved out of the need to adjust science to the need of responding to irreducible uncertainty.

ⁱⁱ In Amartya Sen's capability approach, capabilities are defined as alternative combinations of functionings (states of being and doing) a person can choose to achieve (Sen 1985, 1993, 1995). A functioning reflects the condition of a person as a result of what s/he has actually chosen and been able to achieve, e.g. being educated or nourished). Precondition for transforming capabilities into functionings are individual attributes (e.g., age, gender sex, intelligence) and social institutions (e.g., norms, values, culture, economic and social institutions). These are enabling but also constraining attributes and institutions. With reference to the marginality approach, another constraining dimension is the geographical, ecological and technological environment. In that sense, marginality constrains the transformation of capabilities into functionings.

ⁱⁱⁱ The ecosystem approach is defined by the Convention on Biological Diversity (Decision V/6, Annex A, section 1) as 'a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way'. It comes refers to the management of complex socio-ecological systems (Waltner-Toews et al. 2008).

^{iv} The approach is comprehensive and integrated referring to the health of living and non-living world. It recognizes the critical links between human activity, ecological change, and health. The ecosystem health approach is transdisciplinary and incorporates ecological, social, and economic perspectives with human health. (Costanza et al. 1992)

^v Note the overlap with the capability approach. See: Sen 1981, 1985, 1993, 1995, 1999

^{vi} The work of the Bill & Melinda Gates Foundation is guided by the belief and mission statement that "all lives have equal value". 2010 Factsheet; 2010 Foundation brochure; www.gatesfoundation.org

^{vii} Whereas it is not necessary to be at the margin of all systems in order to be marginalized, at this stage we do not judge whether being at the margin of more than one system makes a person or group more marginalized. How to measure marginality needs to be addressed yet.

^{viii} Note that being "marginalized involuntarily" also means being deprived of the freedoms to choose (Sen 1999) – free from system internal and external constraints. Such two types of positive and negative freedoms relate to the two types of change referred to in this paper: changing internal system constraints and external system constraints.

^{ix} That means, e.g. an individual may be situated in a resources rich area. However she cannot make use of the resources or she does not recognize these resources as such because she lacks the knowledge and capabilities to do so. In case she would have this knowledge and the capabilities to make use of the resource, she would still not be able to improve her situation because her distance (Z) to potential consumers or to public service providers is too high; she is too marginalized.