Mechanisms of Social Change: outline of a conceptual framework

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[2] Author's Note: This paper represents an outline of a conceptual framework used in implementation and measurement of system change, and is shared in the hope it may be of use to others engaged in similar work. As such, the focus is on presentation of the framework rather than embedding it in the (very) many relevant literatures. The underlying thinking was developed during my PhD on wartime displacement decisions, although it has broadened through years of thinking about market systems development. I am extremely grateful to the Springfield Centre for fostering rich discussions that have informed the thinking presented here, and to my PhD supervisors Pieter Serneels and Yvan Guichaoua for helping to shape the original ideas. The work has also benefitted greatly from useful comments on various iterations of the framework from Anna Cucknell, Rachel Shah, Adrián Villaseñor, Simon Levine, Jurgis Karpus, Neil Dawson, Rodd Myers, Laura Camfield, Rob Hitchins, Kate Fogelberg, Jon Burns, Roger Oakeley, Jim Tomecko, Will Attfield, Harald Bekkers, Mujaddid Mohsin, Giel Ton, Ben Taylor, Jason Donovan and one anonymous reviewer. Weaknesses and errors remaining in the framework are my own.

INTRODUCTION

This paper summarises the key elements of the Mechanisms of Social Change framework (MOSC). MOSC represents a generalizable model for understanding and representing various change processes in a system at the actor[3] level. It can represent interactions between actors, and aggregated change processes involving groups of actors that form part of organisational systems, value chains, market systems, or socio-ecological systems.

The utility of MOSC is rooted in its versatility. It is a meta-conceptual framework that can be used to articulate precise concepts at both micro and macro levels, or to express theories about why change happens. This has applications in analysing change processes, development of strategy and impact evaluation. MOSC can be used to analyse negative change – for instance through conflict, crime or natural disaster – as well as positive change. The concepts can be used visually for communication purposes while also linking readily to empirics, so may be used as the basis for research design.

There are four key components to the MOSC framework at the individual actor level. These are expressed in the diagram below. Time flows from the bottom upwards. Actors have a set of resources that they own or can otherwise access. They make choices about what to do with those resources based on their expected resultant resource outcomes (resource set 2).

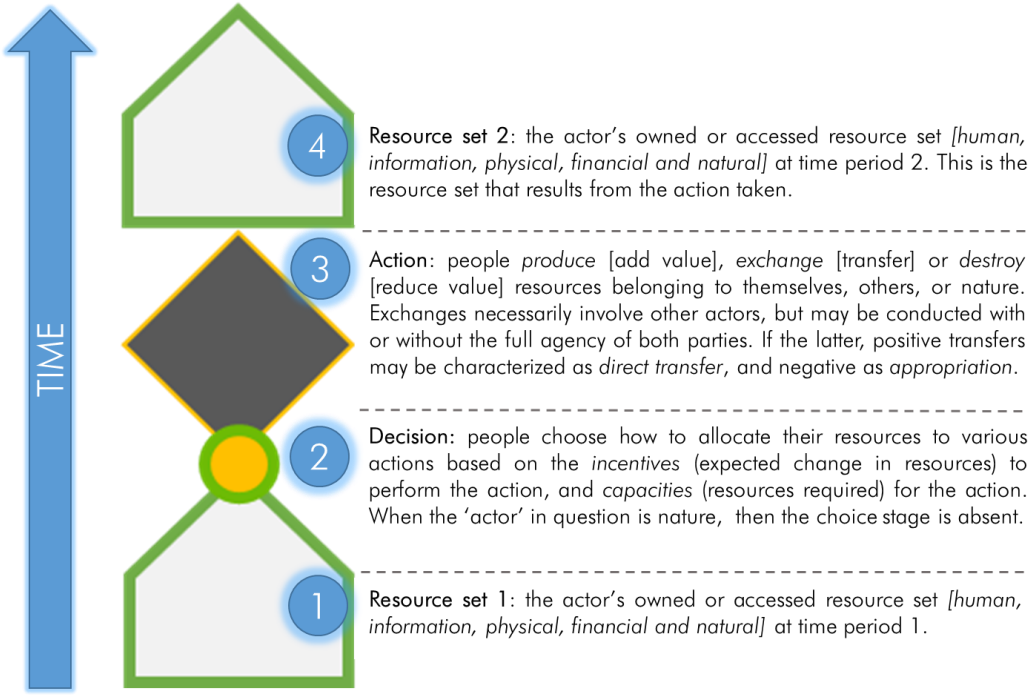

Figure 1: Basic MOSC framework diagram with explanations of the four stages of a change

[3] Actors here may be individuals, households, firms, or other organizations. Natural forces may also be represented as an 'actor', though it is assumed agency, and hence the decision process, is absent in that case.

RESOURCES & DECISIONS

The resources used in the MOSC framework are broadly equivalent to the assets of the livelihood framework[4]. Tangible resources are categorised here as human, physical, financial, and natural. Information resources are embodied in physical or human resources, but it is useful to break them out due to their key role in shaping social change. 'Possibility' information and 'how' information are key informational resources needed in order to be able to do a particular action.

Resource factors	**HUMAN RESOURCES** Ownership of or access to labour including household or labour markets.
	PHYSICAL RESOURCES Ownership of or access to machines, inputs, tools, etc.
	FINANCIAL RESOURCES Ownership of or access to cash or credit.
	NATURAL RESOURCES Ownership of or access to land, river water, fertile soil, rainfall etc.
	INFORMATION RESOURCES Ownership of or access to requisite information, which includes both (1) knowledge of the possibility of doing the action and (2) knowledge of how to do the action – e.g. how to plant seeds, who to buy from, etc.
Decision factors	**OUTCOME INFORMATION - BENEFITS** Information about what the expected amount of resource benefit – i.e. output-driven change in net benefit.
	OUTCOME INFORMATION – COSTS Information about the expected resource costs – i.e. input-driven change in net benefit.
	OUTCOME INFORMATION – RISK Information about expected variation of expected benefit - includes risk, uncertainty, possibility of loss, etc.
	OUTCOME INFORMATION – OTHERS' ACTIONS Information about how others will respond, includes competitor plans, legal or social sanctions, etc.
	ACTOR CHARACTERISTICS RELATED TO DECISION Actor characteristics affecting decisions, which include priorities, preferences, attitude to risk, decision-making ability. Beyond individuals this includes leadership structures and intra-household decision making.

Figure 2: Resource factors and decision factors

Additional important categories of information resources relate to knowledge of future resource states that follow an action, and so are labelled 'decision factors' rather than 'resource factors'. Decision factors include information about the net benefits to be attained through doing the action, and the costs that will need to be incurred in order to attain that benefit. Others actions includes the consequential actions of others. And risk relates to the degree of uncertainty related to possible variation in each of these.

While the MOSC framework here is actor centric, contextual factors will clearly be central to the determination of both 'resource factors' and 'decision factors'. Indeed the framework can be used to represent these processes by which context determines resource access or outcomes at the actor level.

[4] Carney, D. (1998). *Sustainable rural livelihoods: What contribution can we make?* Department for International Development. The changes made to the SRL assets are the addition of information resources, and removal of social assets, which are effectively a set of accrued reciprocal debts or obligations that can be expressed in terms of other resources.

ACTIONS

Actions are the mechanisms by which change happens in the MOSC framework. Each action involves either a change in ownership or access rights (a transfer) or a change in the nature of the resource (a transformation). These changes may be positive or negative, and the degree of actors' agency in the action is also of central importance. Positive or negative outcomes and degree of agency are used to disaggregate the five types of action set out below.

Figure 3: The five basic mechanisms of social change

Production is the transformation of resources in such a way that leads to an increase in expected perceived value. This includes reducing exposure to appropriation or destruction, i.e. where the expected value is negative in the absence of protective action. Moving resources from one location to another is considered a transformation.
Direct transfer is the allocation of resources by one actor to another, without any resources given in return by the recipient. Often there will be little agency on the part of the receiving actor in direct transfers: they may be able to opt in or opt out of the transfer but not dictate the nature or timing of the transfer.
Exchange is the consensual transfer of resources from one actor in exchange for resources from another actor. This includes exchanges for promises of future resource transfer, such as insurance or social debts.
Appropriation is the removal of resources from one actor by another, without any resources given in return by the taker.
Destruction is the transformation of resources that leads to a decrease in expected value. Where that transformation is of the actor's own resource and for the purpose intended it is consumption.

Transformative actions usually entail change to multiple resources. Whether an action is considered to be production or destruction is a matter of perspective. The production of a chair may necessitate the destruction of a tree. Hard physical labour may be needed to plough a field. If the overall impact to the resource set of the actor in question is positive this may considered to be production.

Transfers could be further broken down into further categories according to the degree of agency. For instance, we might distinguish between the unobserved theft of a goat from someone's yard and the robbery of the goat with the threat of consequences if the goat owner intervenes.

ACTOR LEVEL ACTIONS AND INTERACTIONS

Using this basic outline for understanding change mechanisms, it is possible to produce a more detailed categorisation of change processes that explain a change in resource state for any one actor. A central assumption is that actors are motivated by improving their expected future resource state, which may be attained through (1) a gain in resources, or through (2) protecting resources from an expected loss[5].

With this assumed motivation on the part of the actor that we are interested in (we will name this focal actor William), the table below outlines four basic possibilities. First is William's transformation of his

[5] While it is recognised this assumption is not universal – things are done accidentally, when drunk, etc. – it does cover an important set of decisions. The 'improvement' sought in resource state is according to actors' own valuation of their various resources.

own resources. Second is transformation of William's resources by another actor, Bob. Third is exchange actions between William and Bob, including appropriation or direct transfer conducted by William. The fourth type includes appropriation or direct transfer conducted by Bob against William's resources.

These four types of change combined with the mechanisms provides 11 categories of action that can affect how an individual's resource state changes over time, seven of which are actions of the individual themselves, and a further four that are the actions of external actors.

	Actions by William	**Actions by Bob that affect William**
Transformation	**Transformation actions by William affecting his own resources** 1. William produces own resources 2. William destroys own resources 3. *William produces Bob's resources*[6] 4. *William destroys Bob's resources*	**Transformation actions by Bob affecting William's resources** 1. William's resources produced by Bob. 2. William's resources destroyed by Bob.
Transfer	**Transfer actions by William affecting his own resources** 5. William exchanges own resources for Bob's 6. William appropriates Bob's resources 7. William directly transfers own resources to Bob	**Transfer actions by Bob affecting William's resources** 3. William's resources are appropriated by Bob 4. William receives direct transfer of resources from Bob

Any of these may be undertaken for gain, or for avoidance of loss. These are not mutually exclusive, indeed they are often overlapping. Gain in one type of resource can help avoid loss in another. The table below simplifies these distinctions to provide illustrative examples of each of the seven actions of an individual actor.

Actions	**'Gain' examples for a pastoralist**	**'Protection' examples for an arable farmer**
1. Produce own resources	Feed cattle to fatten them for sale.	Apply pesticide to protect against locusts.
2. Destroy own resources	Kill calf of dairy cow.	Uproot diseased plants to prevent spread.
3. Produce others' resources	Help a friend during birth of a calf[7].	Help to defend a neighbour's field in order not to lose social status.
4. Destroy others' resources	Allow cattle to trample neighbour's crops	Kill neighbour's cattle [to stop them grazing on your land].
5. Exchange own resources	Sell milk to trader for profit.	Sell maize stocks to trader because of fear it will be looted.
6. Appropriate others' resources	Graze cattle on neighbours' farmland without permission.	Claim communal grazing land for personal arable use.
7. Direct transfer of own resources	Give share of milk production to elderly relative.	Give a portion of harvest to pastoralists in the hope of avoiding crop losses through conflict.

[6] This list specifies actions that directly impact William's resource state, so William's transformation actions with respect to Bob's resources are relevant only insofar as they affect William's resource outcomes.
[7] Often productive and direct transfer actions that deliver benefit to others' resources are part of reciprocal arrangements that may be analysed as part of wider exchange actions, or in isolation, depending on the focus of the analysis. In this example, is the action an exchange of labour resources for future reciprocation, or is it adding value to the resource set of the neighbour for the sake of warm and fuzzy feelings inspired by one's own generosity?

AGGREGATION

Much research and development policy-making refers to actions on the part of many actors, rather than individual actor examples used thus far. Whether the focus is the level of individual or multiple actors, or at the level of wider socio-economic and socio-ecological systems, the MOSC framework may be applied to understanding and representing the change processes of interest. The main advantage of this is a clear and explicit structure for translating between actor level phenomena and system level phenomena.

A system, as conceptualised here, comprises at least three stages of aggregation. Our starting point is the actions or mechanisms that are the central theme of this paper. Any action that is of interest analytically will usually be an aggregation of various other actions ('micro-actions') – for instance planting seeds involves measuring spacing, making holes, inserting seeds, and so on. These can be reduced ad infinitum. An action is defined subjectively as an analytically useful aggregation of a set of micro-actions. The aggregation of all relevant actors' individual performance of this action is referred to as a 'function'[8]. The *relevant* actors will usually be all those performing the action within a particular region or country, though this too may be defined subjectively[9]. And a system is the overall change process delivered through the various functions that are of interest within the system.

To summarise:

- **System -** Aggregated functions (a selection of relevant, interrelated functions)
- **Function -** One or more actions performed by a defined set of actors or 'function-actors'
- **Action -** Aggregated micro-actions into an analytically useful set.
- **Micro-action -** An act of transfer or transformation of a given resource.

These four concepts are in two quite distinct groups. Functions, and therefore systems, include within their definition a set of actors that perform the aggregated actions and micro-actions. Actions and micro-actions are more abstract in that they are removed in definitional terms from the actors that perform them. Actions may therefore pertain to individuals or groups, while functions are usually[10] performed by multiple actors.

MAPPING SYSTEMS USING MOSC

Visual representation is useful in order to aid understanding of large and complicated social systems. Various methods exist to represent systems visually, including actor network mapping, value chain maps,

[8] This is similar to the term 'supporting function', and roughly corresponds to this concept that is familiar from the Market Systems Development literature, though here it is used rather more broadly. For explanation of the MSD concept see Springfield Centre (2015). *The Operational Guide for the Making Markets Work for the Poor (M4P) Approach, 2nd Edition*. DFID/SDC.

[9] Often actors will be disaggregated within the function for normative purposes – for instance only female farmers may be of interest, or low-income students, etc. see the section of defining 'function-actors' for more detail.

[10] The exception to this is where there is only one actor doing the action within the function definition parameters – this will be particularly the case with certain government functions in national or sub-national systems, but also other monopolistic sectors.

and market systems diagrams [AKA 'donuts'][11]. The MOSC framework introduced above may be used to produce system maps. To the extent that the framework contributes to the rigor of understanding change processes at the actor level, it may also improve the consistency of visual representation of systems through expression of all relevant processes and interactions within a system in terms of MOSC mechanisms.

The MOSC system map presented below sets out the change processes that comprise a hypothetical commercial maize system. Here the system definition includes only functions within a basic value chain. Where functions fall outside the main value chain or are not easily integrated into the main diagram they may be represented to the side, with the connection to one or more actions within the system

The important transformation and transfer actions related to the main resource of interest are set out on the left hand side of the diagram, with the first at the bottom of the diagram. Here these actions are the transformation processes related to maize production and processing, and associated transfers between actors in the system. Only those actions that are subjectively perceived to be important are included.

Functions are set out across the top of the diagram. These are grouped according to the sets of actors that generally perform the actions in question. These will often be imperfectly correlated, because in some cases actors will be 'vertically integrated' performing multiple transformative actions, while others perform only one. The important thing is to represent the system in a way that is most useful, bearing in mind the reason the map is being drawn in the first place[12].

Below the functions are a list of specific actor types that are of interest, these are referred to as 'function-actors', where the actors are of interest only in terms of their performance of the function. The breakdown of function-actors here is not essential, and only if useful to those mapping the system. Possible criteria for breakdown may be according to gender of the actor, socio-economic status, geography, business model, or groupings that are correlated to the performance or underperformance of the function [see the next section].

Transformations are represented in the diagram through the black diamond shape within a function, familiar from the actor-level framework set out in the introduction. Transfers in ownership are represented by the gold diamond in the two different relevant functions with a two-headed arrow reflecting the two-directional flow of resources between the function-actors involved in the exchange[13]. The diagram then represents the full set of transfers and transformations of interest, and these can be numbered and listed to aid in efforts to measure the performance of these different aspects of the system, to which we turn in the next section.

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[11] Each of these has distinct purposes, and associated strengths and weaknesses. The MOSC system diagrams are visually most similar to value chain maps, but have a more formalised visual structure regarding the nature of change processes within the system.

[12] If the transfers between non-vertically integrated actors are important for the functioning of the system, it is easier to represent these so that focus is drawn to them.

[13] Transformative actions performed on other people's resources, and appropriation or direct transfers, would similarly be represented with direction arrows between functions.

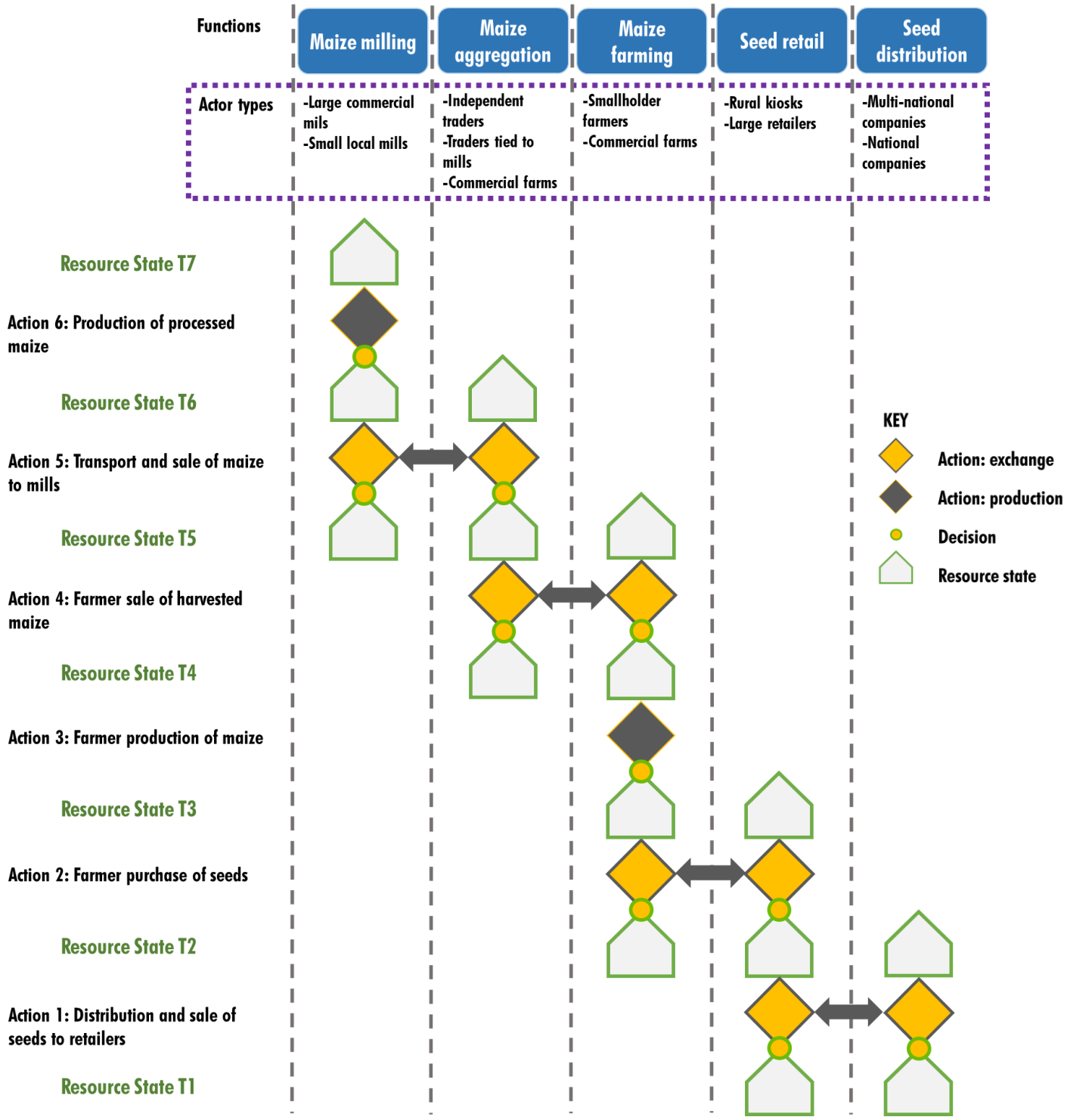

Figure 4: Basic MOSC system map for a commercial maize system

PERFORMANCE AND UNDERPERFORMANCE

For any individual actor, the actions that impact their resource outcomes may vary in terms of efficacy. There are four measures of performance (or underperformance): quantity, quality, rate and timing (QQRT). Interesting characteristics of the efficacy any action may be described in terms of QQRT of the resource outputs from that action.

- Quantity and quality are measures of the resource output of a mechanism. There are two aspects to each, the absolute measure and the degree to which this absolute measure matches the need for the resource. How much there is – is this sufficient? And how good it is – is it good enough?
- Timing is related to quantity and quantity, but specifically addresses the issue of matching the supply of a resource of a given quality and quantity with the time at which it is needed.
- Rate is a measure of quantity of output for a given input. This is typically referred to as yield in production actions and price in exchange actions.

Like other concepts in the MOSC framework these may be expressed at the level of actions of individual actors, or aggregated to the level of functions. Often it will be useful to measure performance and underperformance according to the function-actor breakdown. We may wish to know the yield of remote hill-farms producing goats' cheese, or wages of female factory workers, or productivity of firms using a particular technology.

It is important to articulate a clear definition of performance and underperformance, because most efforts to deliver change in social systems [international development programming, business process re-engineering, healthcare, construction of sanitation systems, collective action of labour, war, prison reform, wildlife conservation, and so on] do so through attempting to improve performance of functions with perceived positive outcomes, or worsen the performance of functions with negative outcomes. Such efforts to change systems, though, are not the subject of this paper.

The core function of the MOSC framework as applied here is to represent the static characteristics of actor or system level change processes. This might be used to help understand to the current operation of a system, or to represent how we might hope a system will operate in future. It also supplies a set of concepts that may be used to represent how these change processes themselves change or may be changed over time[14].

SUMMARY

The MOSC framework intends to provide a set of concepts for understanding and representing change processes consistently at the actor and system level, and across a broad spectrum of positive and negative social, economic and environmental change processes. It builds on a categorisation of actor resource sets to provide a typology of change mechanisms that change the nature of resources [transformation] or their access and ownership [transfer].

[14] For example of application of the MOSC framework to understanding of behaviour change over time, see Lomax, J. & Shah, R. (forthcoming). *Unpacking Incentives and Capacities: factors affecting actor behaviour change.* Springfield Centre Working Paper.

The paper has set out several applications of this framework. MOSC can be used to define a detailed typology of change processes at the actor level and to 'translate' between these actor level and system level concepts. It can be used to produce visual representations of systems, and to underpin the measurement of efficacy of actor level and system level change processes. More work to apply the MOSC framework to real-life examples may help to further refine the concepts outlined here and explore opportunities for wider application.