

CHAPTER 8

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8.0 Introduction

The preceding chapters introduced land administration (LA) and international development assistance (IDA) (Chapters 2 and 3), systems and strategy dynamics (SD) (Chapters 3 and 4), and applied them to a simple development task of removing a backlog and keeping it low post aid. (Chapters 4-7).

The *purpose of this chapter* is to: -

- Provide a summary of the SD approach and its application so far.
- Indicate how the SD approach adds value to IDA for LA, and that the SD approach is an important additional tool in the LA toolbox
- Set the scene for later chapters where more complex LA improvement tasks will be illustrated

8.1 Summary of the Strategy Dynamics Approach for Land Administration

8.1.1 What Strategy Dynamics is and What it Does

What SD is

The SD approach allows time based, quantified and transparent simulation models to be built showing how organisations, and the issues they face, actually function and perform over time (POT). This makes it possible to work out what to do on all key decisions across a business, and to continually update those insights as circumstances change. Past POT can be replicated, and likely future POTs generated. (Sec 4.1 refers).

What SD does

SD enables bench testing of strategies and policies to make substantial sustained improvements. This is made very clear with POT (performance over time) charts.

A *system* view solves the challenge of improving POT as a SD model enables (Warren K 2009): -

- *The Determination* if a plan will work at all
- *The design* of a system so that it can perform well
- *The management* of a system so that it does perform well
- *The fixing* of a system if problems occur

8.1.2 The Importance of Improving LA in Developing Economies

The goals of LA are to: -

- Provide security and enforceability of property rights
- Contribute to social wellbeing and stability
- Contribute to economic development
- Provide a well ordered, regulated and functioning property market
- Provide land services

LA does achieve its goals in developed economies, albeit with variations in legal frameworks and mechanics. Chapter 2, Sec 2.1 refers.

There are eight different operational entities in LA (Fig 2.1) and in each there can be significant differences in status between developed and developing economies (Fig 2.2 Annexes B and C, Chapter 2).

IDA has been provided by aid donors and development banks over many decades, all seeking to improve particular aspects of LA in developing economies (Fig 2.3, Annex D, Chapter 2). Wide spread success and sustainability has tended to be elusive.

During the 1970s-90s the emphasis of IDA tended to be on large scale initial land titling which “brought land onto the formal/legal land register”. This tended to be costly and time consuming. From 2000 there has been movement towards FFP (Fit for Purpose) LA¹ and a pro poor approach, largely led by GLTN (Global Land Tool Network)² and FIG (International Federation of Surveyors)³. This movement recognises a continuum of land rights and has developed a SDTM (Social Domain Tenure Model) which provides the means for community groups to record their property rights and hold the results in the community.

Whatever the assistance focus, the overall aim is to achieve an improvement in performance over time, and for the improved performance to be sustained, post assistance.

Prudent assistance investment calls for the use of a tool that can “test” improvement proposals for efficacy and sustainability, before investing. It is considered that the SD approach is such a tool.

The following sub section summarises how the use of the tool was illustrated in the previous chapters. Subsequent chapters will show more complex use of the tool.

8.1.3 How the preceding chapters illustrated the SD Approach applied to a LA development task

Chapter 4 listed the four principles that underpin SD (Sec 4.2.1) and the eight steps in SD Approach for designing a system so that it can perform well, and the five steps in managing and fixing problems (Sec 4.2.2). These were applied to a LA development task of removing a processing backlog in a LR (with aid), and keeping the backlog low, post aid. This was shown in Chapters 4 to 7. Chapter 7 showed how the SD model could be used as a living business model (LBM) to help manage the improvement both during the aid project and post aid.

The HOW can be summarised as: -

For designing an improvement

1. Establish the PIO (performance improvement objectives) and draw POT (performance over time) graphs for past performance, desired future, and feared future performance
Steps 1 and 2 of the SD approach were shown in Chapter 4, Secs 4.3 and 4.4.
2. Sketch the SCS (schematic of the core structure) of the system whose performance is sought to be improved; identify KPIs/PIs and their POT; draw preliminary conclusion on the dynamics in play; identifying PIPs
Step 3 & 4 of the SD approach was shown in Chapter 4 Sec 4.8.
This step is important when carrying out pre-feasibility or project design in a developing economy as:-
 - It provides: - insights, preliminary conclusion, a good joint learning experience for international specialists and those from the IC agency. It fosters “buy in”
 - It does not require the building of a SD model at this stage, while still applying the SD principles
3. Build an SD model (based on the SCS) and use it to:-show that that the model can replicate past POT; test the PIPs for efficacy and sustainability; determine the improvement strategy
Steps 5 and 6 of the SD approach shown in Chapter 5.
This step is very important as it numeric, transparent and incorporates simulation. Without an SD model there is no quantification of future POT (performance over time).
4. Calculate Cost & Revenues with and without the project; do project evaluation
Step 7 of the SD approach and shown in Chapter 6
Steps 1- 7 are used for prefeasibility or project design. The results can be used for project appraisal.

¹ <https://fig.net/resources/publications/figpub/pub60/figpub60.asp>

² <https://gltn.net/>

³ <http://www.fig.net/>

For managing the improvement

5. Use the SD Model as a Living Business Model for M&E

Step 8 – 12 of the SD approach shown in Chapter 7. These are carried out during project implementation or post aid by the IC agency.

8.2 Characteristics of the SD approach

Some general characteristics of systems were listed in Chapter 3, Table 3.1 and particular characteristics were illustrated in Chapters 4 -7.

In general from Chapter 3

1. The characteristics and consequences of a system were listed in Chapter 3 Table 3.1. They are:-
 - a) Handles accumulation (critical factors that build up and deplete over time)
 - b) Handles interdependencies (change depends on more than one factor)
 - c) Incorporates feedback (interdependencies cause changes that either accelerate or slow their own progress)
 - d) Takes into account nonlinear cause and effect (interdependencies) via feedback loops which are characteristics of *system* behaviour
 - e) Captures threshold effects (the system is unresponsive to change for some time, then switches to a new mode)
 - f) Handles intangibles (e.g. morale, reputation)

In particular from Chapters 4-7

- Identifying the performance challenge and the system to be improved allows the PIO (performance improvement objective) to be determined.
-
- The SCS (schematic of core structure) of the model, which can be quickly and easily sketched, enables an easy understanding of the fundamental dynamics of the situation (the backlog in the first example); what is driving what, and why, and what the proposed PIPs (performance improvement proposals) will affect. All before a SD model is built
- The SD model allows the likely future POT (performance over time) of PIPs to be numerically, transparently and quantitatively estimated. Any number of *What Ifs* can be quickly run and the results evaluated.
- The SD model quickly allows the PIP combination that best aligns with a *desired* future POT trajectory to be determined, and hence, identifies the improvement strategy.
- Risk can be examined and quantified by the use of *What Ifs* and the resultant risk management strategy can be incorporated into the improvement strategy
- SD models are completely transparent. There is no black box. There are no implicit assumptions. The logic, variables and assumptions are explicit in the model and can be quickly and easily modified. The model provides new results instantaneously. SD models show, quantitatively, how fast things are changing, by how much performance might be improved, and over what time periods.
- While it is possible to examine PIP using spreadsheets, it is not as easy as using SD software such as Silico, especially when SD models become more complex.
- Based on the above it can be seen that using the SD approach, it is possible to test PIPs for effectiveness and sustainability as part of pre-feasibility or project design, and before large development \$s are committed.
- The SD model can be thought of as a “digital twin” of the project.

- The SD approach is a powerful tool for: -
 - design, for understanding complex situations, and for determining the likely magnitude and timings of outputs and impacts that result from certain inputs and assumptions
 - learning and “buy in” during design where the design team comprises a mix of international specialists, in country specialists and land agency staff
 - Generating time based action plans
- Use of the SD model is not restricted to pre-feasibility or design. It can also be used in design appraisal, internal project M&E, and formal project reviews by the IDA donor and IC sponsor.
 - In design appraisal, the IDA donor would send the project documentation, including the SD model) to a number of independent reviewers, generally including an IDA project design specialist and a subject matter technical expert. Having an SD model would make it much easier for the reviewers to understand very clearly the whys, whats, hows, and whens.
 - For regular internal project M&E, the SD model can include actual tracking data compared to the target data generated by the model. If remedial action is deemed necessary, various actions can be tested using the model, decided on, and adjusted future targets set. Close tracking of the KPIs/PI (Performance Indicators) pays dividends. Illustrated in Chapter 7.
 - Formal project reviews may be carried out annually and tend to be wider ranging than the monthly internal M&E. However, using the SD model as an LBM ensures a focus on the KPIs/PIs of the project. Also, during the reviewing meeting any projected changes can be modelled and then discussed for likely effectiveness and sustainability.

Summation

Using SD approach provides the means, Warren (2009), to: -

- Determine if a plan will work at all
- Design a plan capable of high performance
- Manage the plan so that it does perform well
- Fix things when they go wrong, or when opportunities open up

The big contribution of Strategy Dynamics is that it:-

- Explains how and why systems generate the changes to performance outcomes that occur over time
- Enables bench testing of strategies and policies to make substantial sustained improvements to those outcomes
- Assist the ongoing performance management of projects by enabling revised performance targets to be set and monitored
- Makes the above very clear with performance time-charts

The important point-

- Is not the simple backlog example slowly illustrated in Chapters 4-7, nor the results obtained,
- But is the logical, explicit and quantified approach illustrated, which can be applied to any development task in LA (land administration)

8.3 An Indicative Logframe for the Backlog Example

The following section provides an indicative logframe for the backlog example and shows how the activities and outputs of the logframe can be related to the detail of the SD model. An indicative theory of change diagram could also have been developed but has not been done at this time, as the results while different would not have markedly changed Sec 8.4, How the SD approach adds value.

8.3.1 An Indicative logframe for IDA project - Removing a Processing Backlog and Keeping it Low

If IDA was to be provided to remove a large backlog in an LR and to keep the backlog low post IDA, then the outcome, outputs, verifiable indicators, activities and assumptions in logframe form might be along the lines shown in Table 8.1.

Table 8.1

Outcome	Verifiable Indicators	Assumptions
Processing backlog is removed and kept low without any future IDA.	- Backlog (applications awaiting processing) - Improvement in LR processing capacity	- That the three outputs below, their associated activities and inputs are sufficient to achieve the Outcome - That LR staff are committed to reducing the backlog, increasing processing capacity, and keeping the backlog low.
Outputs	Verifiable Indicators	Assumptions
O1 - Backlog is removed and kept low	Backlog (applications awaiting processing)	- That LR staff are committed to reducing the backlog, increasing processing capacity and keeping the backlog low. - That sufficient temporary staff have been estimated and funded, and that those recruited have sufficient skills
O2 - Improved LR procedures	Improved procedures	- That revised procedures and delivered training will result in increased individual staff capability (productivity) - That LR staff are willing to adopt new procedures that increase processing productivity - That improvements that require changes in Laws & Regs will be passed into Law
O3 – Staff trained and skills increased	Training delivered	That increased skills will results in increased individual processing productivity
Activities for Output 1	Verifiable Indicators	Assumptions
A1.1 Process application awaiting processing	Backlog (applications awaiting processing)	That the backlog can be cleared with the assigned IDA assistance
Activities for Output 2	Verifiable Indicators	
A2.1 Improve LR procedures where changes can be approved by the DG (Director General of Lands); train LR staff and implement	- Procedures improved - Procedures in operational use - Increased individual productivity and LR processing capacity	That the improved procedures will result in an increase in LR processing capacity
A2.2 Improve LR procedures that require approval by government or parliament; train staff to use when approved for use	- Procedures improved - Procedures in operational use - Increased individual productivity and LR processing capacity	- That the improved procedures will be approved for use, sometime post project - That the improved procedures will result in an increase in LR processing capacity
Activities for Output 3	Verifiable Indicators	
A2.3 Train LR staff and increase skills	- Staff trained and skill levels increased - Increased individual productivity and LR processing capacity	That increased skills will result in increased individual processing productivity

In practice the logframe would be larger, but the above captures the essence.

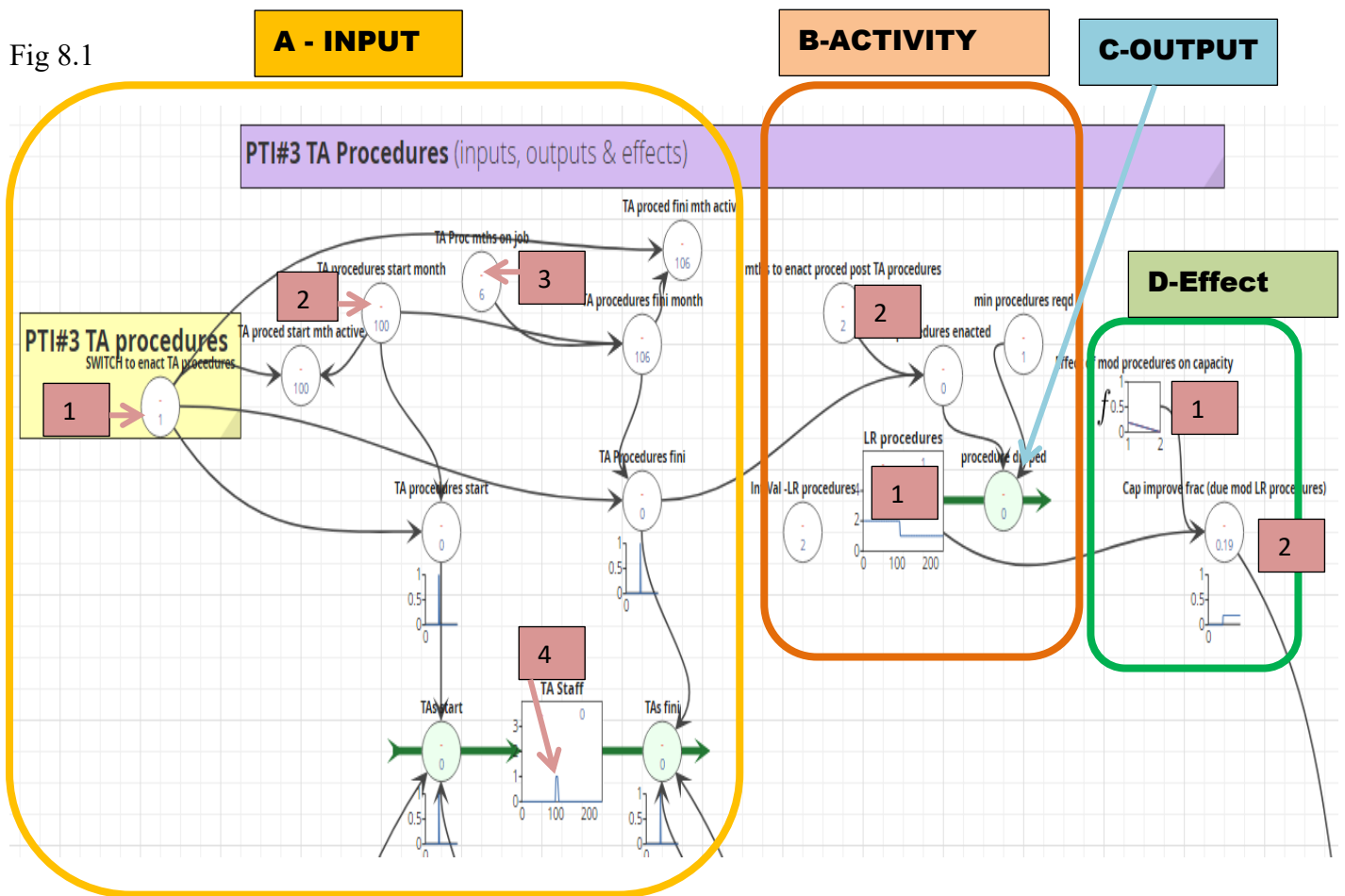
8.3.2 Relating the inputs, activities, outputs and impacts of the logframe to the SD model

The SCS (schematic of the core structure) for the PIPs (performance improvement proposals) (e.g. Annex F of Chapter 4) gives an indication of inputs, activities, outputs and impacts, while Annex B of Chapter 5 shows an image of the SD model structure of each PIP.

Activity A2.1 in the logframe of Fig 8.1 is improving LR procedures that can be changed with the approval of the DG of Lands. This activity is one of two that constitute Output 2, Improved LR Procedures.

Fig 8.1 (from Annex B, Chapter 5) shows part of the SD model that relates to Activity A2.1. It highlights the input (A) by a TA, the activity (B) the TA undertakes, the resultant output (C), and the impact (D) that the output has on individual productivity.

Fig 8.1



An image of the above in landscape is at Annex A. Some notes follow. It can be seen that activity, output, impact logic of the logframe is also contained in the SD model, but in a different way.

Notes on A - Input

1. An on/off switch to activate the input.
2. The month in which the input of the TA commences
3. The duration of the input in months
4. Shows the months of the simulation when the TA is working. [TAs from other inputs are accumulated here, and this is used as part of project cost calculations]

Other variables are part of the calculation mechanics

Notes on B - Activity

1. The improving of the procedure is shown by there being two procedures initially, and this being reduced to 1
2. This shows that there is a delay of two months before the procedure is enacted after the TA has completed them

Notes on C - Output

This shows that the output is one revised procedure

Notes on D- Effect

1. This is a graphical function. It indicates the amount of improvement brought about by revising the procedures
2. This shows seeing fractional improvement in individual productivity and when it commences

The fractional improvement from this activity links to the fractional improvements from the other activities, which happen at different time periods, to give the overall fractional improvement in productivity

Some features of SD models that Fig 8.1 illustrates

1. The transparency of the development logic (what causes what and by how much) can be clearly seen. An input of TA (technical adviser) commences in month 100 for duration of six months. The activity carried out to improve the procedures (shown by reducing the procedures from 2 to 1). The procedures are not enacted until month 109, two months after the end of the TA input. The improved procedures are estimated to improve individual productivity by 0.2.
2. The quantifiable nature can be clearly seen. The numbers associated with all variables, stocks, inflows and outflows are clearly visible.
3. It is very easy to modify the model. The input month or the duration of the TA can be changed simply by clicking on the relevant variable and entering a different number. Similarly for delays before enactment, and the effect that the improved procedures is assumed to have on individual productivity. The logic of the model can also be modified if required.

Other comments

Figure 8.1 illustrates only one of the four activities in the logframe of Table 8.1. These four activities are shown as PIPs #1 to 4 in the SD model (Fig 5.1 refers).

The full model is composed of a number of linked sections for demand, supply, supply servicing demand, PTIs, costs and revenues. These linked sections illustrate another feature of SD models, that of being integrated. A change in one variable (say in input duration), is immediately reflected in other parts of the model (e.g. when the output is achieved, what effect the output has, changes in costs and revenue).

The simulation time period can extend for many months or years after the end of IDA support and does not have to be of the same duration as the IDA project. This is important when the sustainability of improvements, post project, is being examined.

8.3.3 How Designing an IDA Project May Occur and potential limitations

How Designing an IDA Project May Occur

There are a variety of ways that IDA projects may be designed, depending on the procedures used by particular donors or development banks. The following may occur: -

- In country (IC) discussions between representatives of the aid donor/development bank, the government entity responsible for IDA, and the agency (e.g. Lands Department) seeking the IDA to improve some particular aspect, leading to agreement that IDA is worth examining in detail.
- The aid donor /development bank assembles a design team to visit and to work with IC agency counterparts to design an IDA assistance project. The full project write up is generally done after this IC visit and not done IC.
- The designed and costed project, conforming to aid donor/development bank templates and procedures, is considered by the aid agency and the IC agencies and, after discussion, modifications and assessment, may be approved for IDA.
- The IDA provider arranges for a contractor to be appointed to execute the project in collaboration with the appropriate IC agency.
- An important part of the design documentation is the logframe or the theory of change diagram which seeks to encapsulate the development logic and indicate the inputs, outputs and impacts (Chapter 3 refers). Project costings are generally carried out on spreadsheets separate from the logframe.

Potential Limitations

Some potential limitations are: –

- The time IC for the design team may be limited. A preliminary version of the logframe tends to be done IC with a more detailed one done together with detail costing spreadsheets, post IC visit. There can be limited time IC for detailed discussions between the visiting members of the design team and IC agency counterparts.
- Full project documentation may not be available to IC agency staff for some time after the design teams IC visit. Documentation may not be easy to understand for those in the IC executing agency not familiar

with the particular IDA formats. Queries from IC technical staff of the land agency may not be able to be clarified by IC aid donor staff.

- The above can lead to different or incomplete understandings between the visiting design members and the IC counterparts, on the objectives of the IDA project, and the whys, hows, whats and by whens. This may lead to shallow *buy in* by IC personnel who have to participate in the project and live with the results, post IDA.

8.4 How the SD Approach can help apply Lessons Learnt from LA Project Evaluations

Several relatively recent reports⁴ provide assessments and lessons learnt from the World Bank and the UK (United Kingdom) DFID (Department for International Development) projects in LA. There is a wealth of information in these papers. These papers cover a large number of projects in many countries and, while dealing with LA, have some differences in focus.

All of these papers make the points that LA is complex, that sustainability must be designed for, that it will take time to happen, and that the flow of all benefit types is not axiomatic. The lessons outlined in these papers have been consolidated and then encapsulated into those shown in the first column of Table 8.2. The remainder of the table indicates how the SD approach can help and where in the book there are example of this.

Table 8.2

Lessons Learnt	How the SD approach can help	Remarks
Objectives must be well defined; Country and context needs to be taken into account.	• Objectives are explicit as PIOs, and their POT graphs indicate past performance and future desired performance. • The SCS and the SD model explicitly show the logic of <u>how</u> the objectives will be achieved and <u>the rates</u> at which performance and PIs will improve (i.e. the theory of change is explicitly contained in the model).	• While shown to some extent in the backlog example, this is seen in more detail in the examples in the following chapters where there are multiple PIOs and examples are more complex. • In Chapter 11 there is a discussion on the importance of having clarity in the selection of the aim.
Sustainability considerations are vital and need to be central to considerations.	• Simulation provides time frames extending past the period of aid, allowing sustainability, post aid, to be explicitly and quantitatively examined, and a strategy to achieve it determined. • Makes it possible to design for sustainability • Allows capacity and capacity building to be incorporated • Using the SD model as a LBM for M&E and modifying performance targets as necessary, allows sustainability to be continuously managed for	The conditions for maintaining sustainability post aid is examined closely in each of the different examples in this book.
Considering and building capacity, both for implementation and sustainability post aid, is very important.	• Capacity is a feature of the supply side of the SD models. Both it, staff skill levels and productivity are very important factors affecting the performance trajectories of PIOs. • Sustainability is commented on above	• The backlog example deals with increasing staff skill levels and productivity and thereby increasing productivity. • The example in Chapter 9 shows how capacity is increased to meet demand. • The example in Chapter 10 deals with formally designing an annual training program to achieve designated skill levels.
Undertaking land reform and improving land administration requires long term support from donors and IC governments, including IC long term strong	• Support can be regarded as tangible <u>inputs</u> and comprise \$s for such as: - procurement; training; specialised assistance staff; temporary increase to working staff. A distinction can be made between resources contributed by an aid doner and those contributed by the IC agencies. Durations for the inputs and related costs can be included in the SD model, and the quantitative effect these inputs	Tangible inputs are shown in some detail in the backlog example. Intangibles (quality, reputation, morale) are shown in the example in Chapter 9.

⁴ Satana et al (2014); Payne et al (2015); World Bank (2016); Torhonen (2016); English et al (2019).

political will, and ownership by IC agencies	have over their duration can be tracked through to the PIOs. Will and ownership are intangibles, but these can be included in models as a stock, with a 0-1 rating. Their impact on other parts of the model (e.g. productivity, capacity) can be shown via graphical functions, feedback loops and delays.	The uses of other intangibles is shown in examples of Chapters, 11 and 12.
Commence projects with the existing legal framework if at all possible, and then seek legal improvements	- Likely delays before necessary legislation is passed (or not passed) can be incorporated into an SD model. The possible effects this will have on the achievement of PIOs, before and after the passing of the legislation can be quantitatively traced through the model. - Delays in passing legislation are one of a number of aspects that can be examined in this way	Delays before legislation is passed, and the effect this has on performance was illustrated in the backlog example and is illustrated well in the example of Chapter 12 where interdependency is involved.
There is no single preferred institutional model for the conduct of LA projects (i.e. whether agencies responsible for Land Registry and Cadastre should be combined or separate)	The effect of agencies cooperating or not cooperating to, (e.g.) share data sets so that the quality of both can be improved, can be incorporated into a model and the likely effect on quality and the PIOs, of cooperating or not cooperating, can be quantitatively examined.	The effect of agency cooperation, or not cooperating, is incorporated into the example of Chapter 11.
Improvements in land tenure alone are insufficient to guarantee the full flow of all benefit types and projects should not be overloaded.	- The SCS allows a qualitative examination of the logic of the system structure to see if and how the PIOs being desired are likely to be achieved from that structure and inputs. The SD model will provide a quantitative assessment. - The SCS and the model can be modified to develop a structure likely to produce the desired PIOs. - A judgement can then be made as to whether a project may be overloaded, and if a scaling back is required. A scaled back SCS and model can then be developed and tested for effectiveness and sustainability.	The first lesson learnt in this table referred to the need for clarity of objectives.

8.5 How the SD Approach adds value

In summary the SD approach adds value to design methods that use a logframe or a theory of change diagram/description or similar by: -

- Complementing existing approaches with a deeper dimension that explains how and why *systems* generate the changes to performance outcomes that occur over time and enables the bench testing of strategies and policies to make substantial sustained improvements to those outcomes. This is made very clear with performance time-charts
- Being fully logically explicit, transparent, and quantifiable and combining all aspects in a single model. A change in any variable (e.g. the duration of a TA input) immediately computes through to change the quantum and timing of an output, and costs etc.
- The compilation of a SCS, before building a model, allows many useful insights into the dynamics at play in a system
- Using the SD model not just for design, but also for project appraisal, for M&E throughout IDA support, for formal reviews, for M&E post IDA by the IC agency. i.e. using the SD model as a living business model (LBM)
- Having the characteristics listed in Sec 8.2
- Being, fast, reliable and relatively easy (after some initial training and experience). The approach saves work and does not make work.
- Being a powerful design learning tool for understanding complex situations. It helps determine the likely magnitude and timing of outputs and impacts that result from the inputs and the assumptions that underpin the model. It can be a particularly powerful learning tool during design where the design team comprises international specialists, local professionals, and IC land agency personnel.

- The SD approach has a focus on determining/testing if a proposed improvement plan is likely to achieve stated objectives, and if not then designing a plan that will. [The literature, formal and grey, tends to have much on the appropriate use of technology, but much less on pre-testing if a plan is likely to achieve its objectives].

Thus the SD approach is seen as a worthy additional tool to the LA toolbox

The Pain -Gain equation

There is always some pain in considering, examining, learning, trialling, and deciding if a new or modified approach is worth adopting operationally. There is an investment in time and effort which is hoped will be repaid in the future by improvements in productivity, quality, or sustainability of improvements.

It is hoped that this first simple example (& other examples in the following chapters) will provide illustrations and initial learning material, sufficient to show how the SD approach adds value, and encourage readers to “give it a go”.

Some steps to learning more- reducing the pain

The following provide some steps to learning more.

Meadows D (2008), Thinking in Systems, Chelsea Green Publishing USA	A Primer on system dynamics	
Warren K (2010), Strategy Dynamics Essentials, Strategy Dynamics Ltd	The basics of strategy dynamics	
[Warren] Agile SD	A short free course of 49 online lessons on how to build system dynamics models	https://www.sdcourses.com/
[Warren] Business Modelling- getting started	A course of 24 online lessons	https://www.sdcourses.com/
[Warren] Business Modelling- core	A course of 95 online lessons	https://www.sdcourses.com/
[Warren] Business Modelling- extensions	A course of 108 online lessons	https://www.sdcourses.com/

8.6 Places to intervene in a system (leverage points) and their relative power

Meadows D H (1998) identified twelve different places, termed leverage points, to intervene in complex systems. Leverage points are places where a small shift in one thing can produce big changes in everything. The twelve different places have increasing order of effectiveness and are shown at Annex B. For simplicity in LA, Lyons et al (2010) reduced the 12 to 4. They are: -

- Improving the rate at which work is done - Low-Medium effectiveness
- Addressing the feedback loops - Medium – High effectiveness
- Changing the rules of the system and focusing on achieving the goals of the system -High-Very High
- Changing the mould/paradigm - Very High effectiveness

The first area tends to apply to discrete subsystems. e.g. a Land Registry. The second and third areas are best considered in a current whole system context. The last fundamentally involves a completely different system and way of doing things.

The importance of considering the whole system is well illustrated by the following homily, believed to have originated from a British Airways senior executive seeking to illustrate the futility of conducting capacity building for personnel, while ignoring the system in which the personnel work. Imagine a group of goldfish sluggishly swimming around in a bowl filled with murky water. The goldfish are taken out in groups, resuscitated and treated at a day spa, and then thrown back into the same murky water. They operate well for a day and then resume their original behaviour of swimming sluggishly.

The following examples of activities in LA that could fall in each of the four area were listed in Lyons et al (2010).

1. Improve the rate at which work is done: (L-M effectiveness)

- a) Support activities that improve the rate of achieving key performance variables
- b) Foster senior management involvement to achieve sustainability
- c) Collect due and avoided fees

2. Address the feedback loops: (M-H effectiveness)

- a) Establish incentives and use penalties (carrots & sticks)
- b) Widely provide information on LA system performance, and support customers

3. Change the rules - focus on achieving the system goals: (H-VH effectiveness)

- a) The Land Agency to focus on the achievement of the goals of LA and the establishment and proper operation of all the elements of LA, compliance checking and enforcement, rather than focusing on and being the sole service provider.
- b) Allow the competitive provision of a range of land services which could be via the private sector, churches, NGOs, etc
- c) Have the authority “to approve” be based on personal independently certified competency (irrespective of which sector a person is in), rather than on being appointed to a certain position in a government department⁵
- d) Aid donors to provide IDA to all involved, and not predominately to Government Land Agencies

4. Change the mould/ paradigm: (VH effectiveness)

- a) Allow locally based deposit of records and agreements
- b) Treat land/property dealing as a purely commercial legal contract
- c) Have a system based on local culture, e.g. “the Melanesian Way”
- d) Allow Title insurance

The first backlog example falls in areas 1 and 2 where trying to both improve the rate at which work is done and also addressing the feedback loop where long waiting times cause titleholders to stop using the LR.

8.7 Key Points

- The SD approach is a powerful learning tool for: - understanding complex situations; testing PTIPs for efficacy and sustainability; identifying an improvement strategy. It can be particularly powerful where a design team comprises international specialists, local professionals, and IC land agency personnel as it builds joint understanding and assists “buy in”.
- The SD approach adds value, not just to pre-feasibility and project design, but also to project appraisal, normal monthly project M&E, and annual project reviews. It can be used post IDA by the Land Agency.
- There are a number of different places to intervene in a system, with varying levels of effectiveness
- Using the SD approach provides the means, Warren (2009) to: -
 - Determine if a plan will work at all
 - Design a plan capable of high performance
 - Manage the plan so that it does perform well
 - Fix things when they go wrong, or when opportunities open up
- The important point-
 - Is not the simple backlog example slowly illustrated in Chapters 4-7, nor the results obtained,
 - But is the logical, explicit and quantified approach illustrated, which can be applied to any development task in LA (land administration)
- The SD approach is seen as a worthy additional tool to the LA toolbox. Much literature, formal and grey, provides views on the appropriate use of technology, but there is much less on the quantitative achievement of strategic objectives.

The Next Chapter

The next chapter covers a more complex example in an LR where several improvement objectives are sought to be achieved. Quality and reputation (intangibles) are sought to be significantly increased, together with winning back a significant percentage of titleholders who do not currently use the LR, with a subsequent rise in revenue, and a small portion of the increased revenue being used to ensure adequate O&M (operation and maintenance) budgets, and sustainability of improvements post aid.

References

English C, A Locke, J Quan, J Feyertag, (2019). Securing land rights at scale: Lessons and guiding principles from DFID land tenure and land sector support programmes.

https://www.researchgate.net/publication/333658289_Securing_land_rights_at_scale_Lessons_and_guiding_principles_from_DFID_land_tenure_regularisation_and_land_sector_support_programmes_NonCommercial_Licence_CC_BY-NC_40

Lyons K, and D Hebblethwaite (2010), Using Microworlds to Improve Success and Sustainability in Land Development Assistance Endeavours, FIG Congress Sydney

Meadows D H, (1998), Leverage Points – Places to Intervene in a System, USA, Sustainability Institute,

Payne, G., Mitchell, J., Kozumbo, L., English, C. and Baldwin, R. (2015). Legitimate land tenure and property rights: fostering compliance and development outcomes. London: DAI.

<https://assets.publishing.service.gov.uk/media/57a0896ded915d622c0001f9/61566-REA-Land-Q2publish.pdf>

Satana S, Torhonen M, Anand A, Adlington G, (2014), Economic Impact of 20 Years of ECA Land Registration Projects, Annual World Bank Conference on Land and Poverty. Washington DC, USA. March 24-27, 2014.

<https://www.oicrf.org/documents/40950/43224/Economic+impact+of+20+years+of+ECA+land+registration+projects.pdf/cd8a94c5-3f04-3e0e-8c9f-6d5413e663fa?t=1510229848480>

Torhonen, M (2016). Keys to Successful Land Administration, Lessons Learnt in 20 Years of ECA Land Projects. World Bank. <https://openknowledge.worldbank.org/handle/10986/24623>

Warren K (2009), Strategic Management Dynamics, John Wiley and Sons Ltd

World Bank (2016). Lessons from Land Administration Projects: A review of Project Performance Assessments. IEG Category 1 Learning Product. March 31, 2016.

<https://openknowledge.worldbank.org/handle/10986/24407?show=full&locale-attribute=en>

ANNEX B

Meadow's 12 places to Intervene in a System (in increasing order of effectiveness)

12. Constants, parameters, numbers (such as subsidies, taxes, standards)
11. The size of buffers and other stabilising stocks, relative to their flows
10. The structure of material stocks and flows (such as transport networks, population age structures)
9. The lengths of delays, relative to the rate of system change
8. The strength of negative feedback loops, relative to the impacts they are trying to correct against
7. The gain driving positive feedback loops
6. The structure of information flows (who does and does not have access to what kinds of information)
5. The rules of the system (such as incentives, punishment, constraints)
4. The power to add, change, evolve or self-organise system structure
3. The goals of the system
2. The mindset or paradigm out of which the system – its goals, structure, rules, delays, parameters- arise
1. The power to transcend paradigms

ANNEX C

Abbreviations Used

DFID	Department for International Development
DG	Director General
FIG	International Federation of Surveyors
FFP	Fit For Purpose
GLTN	Global Land Tools Network
IC	In Country
IDA	International Development Assistance
KPI	Key Performance Indicator
LA	Land Administration
LBM	Living Business Model
LR	Land Registry
M&E	Monitoring and Evaluation
O&M	Operation and Maintenance
PI	Performance Indicator
PIO	Performance Improvement Objective
POT	Performance Over Time
PIP	Performance Improvement Proposal
SD	Strategy Dynamics
SDTM	Social Domain Tenure Model
SCS	Schematic of the Core Structure
TA	Technical Adviser
UK	United Kingdom