Costing and Financing of Land Administration Services (CoFLAS) in Developing Countries

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GLTN GLOBAL LAND TOOL NETWORK

Topics

- Objective for CoFLAS
- Implementing CoFLAS
  - Comprehensive LAS
  - Running LAS
  - Possible Revenue from LAS services
- Financing LAS reform and services
- Next steps

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CoFLAS: Objectives

- Focussed on developing countries:
  - Developing comprehensive LAS
  - Operating and maintaining LAS
- Underpinned by “Fit-for-Purpose” LA
- Intended tool for:
  - Land sector staff preparing proposals for LAS reform
  - Policy-makers assessing proposals for LAS reform
  - Key agencies (e.g. MoF), development partners in reviewing proposals, assessing ‘value-for-money’
- The key decisions that have major cost implications for LAS reform

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CoFLAS: Comprehensive LAS

Fit-For-Purpose LA is based on four principles:

- General boundaries rather than fixed boundaries
- Aerial imagery rather than field survey
- Accuracy relates to purpose rather than technical standards
- Opportunities for updating, upgrading and improvement can be implemented over time

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CoFLAS: Objectives

CoFLAS does not seek to:

- Identify problems or prioritze LAS reform activity:
  - Dale & McLaughlan Land Information Management (1988) checklist for evaluating cadastral systems
  - USAID LTPR Situation Assessment and Intervention Planning Tool
  - World Bank LGAF
- Decide on how to undertake LAS reform:
  - R S Simpson, Land Law and Registration (1976) – legal and technical options
  - Dale & McLaughlan Land Administration (1999) – main options for LAS reform
  - Toulmin & Quan (2000) – experience in Africa
  - Williamson et al, Land Administration for Sustainable Development (2009) – key implementation issues, future trends
  - Byamugisha Securing Africa's Land for Shared Prosperity (2013) – modernising infrastructure, appropriate technology, scaling-up

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CoFLAS: Implementation Stages

There are four stages in the application of CoFLAS:

- STAGE 1, the initial investigation of:
  - the policy, legal and institutional context,
  - estimation of the scope of any LAS reform initiative and
  - demonstration of knowledge of key issues
- STAGE 2, estimating the resources/cost in establishing a comprehensive LAS
- STAGE 3, estimating the likely costs in running a LAS
- STAGE 4, estimating the possible LAS revenue

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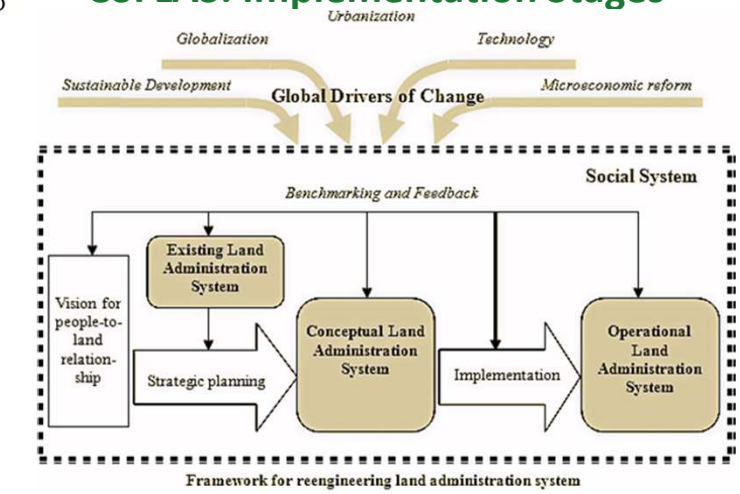
CoFLAS: Implementation Stages



Framework for reengineering land administration system

(Williamson et al, 2009)

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CoFLAS: Implementation Stages

- Existing System:
  - Key issues (LGAF, other analysis)
  - Plans for LAS reform
    - Piloting of efficient processes
    - Requirements for legislative changes
    - Stakeholder consultation
  - ICT strategy
  - Sector capacity development plan (TNA, HR Strategy)
  - Planning, M&E
  - Government/DP activity and interest

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CoFLAS: Implementation Stages

The first stage of CoFLAS gathers the following information:

- Key policy issues that impact on establishing a LAS in the country
- Information to estimate the number of properties
- Analysis of existing records of rights in land
- Preparation of a tenure typology
- Preparation of an Institutional Matrix
- Demonstration of knowledge of:
  - the key issues,
  - the status of stakeholder consultation,
  - other government initiatives and
  - existing development partner support.

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CoFLAS: Comprehensive LAS

Establishing a comprehensive LAS typically involves:

- Completing first registration
- Establishing a spatial framework for LA
- Establishing physical infrastructure to support LAS
- Adopting a service delivery philosophy & BPR
- Implementing ICT to support LAS
- Capacity development
- Project management

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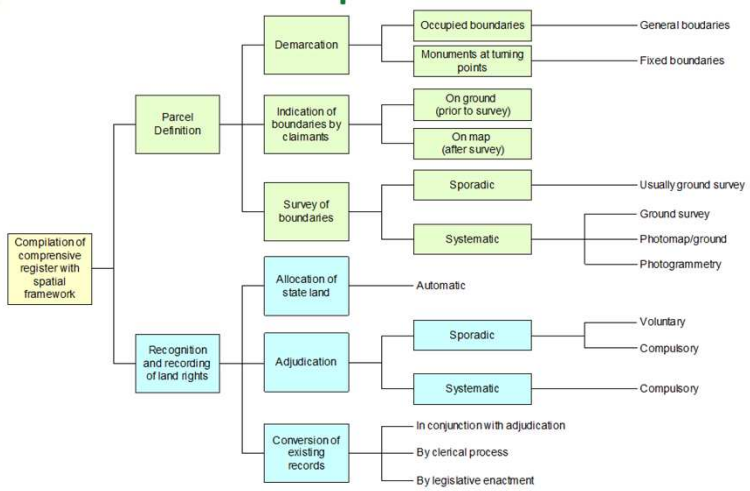
CoFLAS: Comprehensive LAS



(Burns adapted from Simpson, 1976)

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CoFLAS: Comprehensive LAS

Country	Cost/parcel (US$)
Ethiopia	1
Rwanda – rural	9-11
Rwanda – urban	9-10
Namibia	11
Madagascar	7-28
Tanzania	45
Uganda	40
Ghana	45
Cote d'Ivoire	7-10

(Byamugisha, 2013)

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CoFLAS: Comprehensive LAS

Country	Costs (US$/parcel)		
	Survey Costs (incl. GRN)	Non-Survey Costs	Total Costs
Armenia	6.11	7.24	13.35
Kyrgyzstan	3.22	7.33	10.55
Moldova	27.66	18.75	46.41
Indonesia			16.30
Thailand	~10	~14.21	24.21
El Salvador	19.46	10.28	29.74
Peru (urban)	4.61	8.07	12.68
Peru (rural)	23.44	32.25	55.69

(Burns, 2007)

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CoFLAS: Comprehensive LAS

- Likely unit costs for systematic registration:
  - Adjudication with substantial work by local volunteers and with no spatial framework for $1/parcel
  - Systematic registration can be undertaken for:
    - about $9-10/parcel with little investment in mapping/GRN
    - about $15-20/parcel with investment in mapping/GRN
  - Ground survey methodology is likely to be +$50/parcel
- SR also involves HR - ~50 parcels/person month
- Conversion - ¢ > $ /parcel – needs to be cost effective

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CoFLAS: Comprehensive LAS

Spatial framework:

- Few countries have invested in new GRN
  (Tanzania - $6.1 M 70 primary/600 secondary, gravity)
- CORS
  - Typical unit cost $30-40,000
  - Additional costs if infrastructure required
  - Various accuracies
    - 0.5m – 1 CORS/500 km^2
    - 1-2cm – 1 CORS/70 km^2
  - Operating costs can be significant ($500-1000/month)
  - Additional effort to make available to users

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CoFLAS: Comprehensive LAS

Source of Large-Scale Maps	Image Scale and Resolution	Unit Costs ($/km^2)			
		Europe	Ethiopia	Ghana	Tanzania
Satellite imagery, ortho-rectified (new, at least 30km^2)	GeoEye (0.5m)	30	30	30	30
Aerial photography (250km^2)	1/45,000 (0.5 pixels)	31.5		150	
Line mapping (analogue method)	1/2,000	1,643			

(Byamugisha, 2013)

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CoFLAS: Comprehensive LAS

The staff requirements for LAS service delivery will depend on:

- How LAS services are to be delivered and roles and responsibilities
- The nature and complexity of the LAS processes and procedures
- The tasks that are expected of staff assigned to LAS service delivery
- The completeness and comprehensiveness of the LAS records
- The level of land market activity, user demands (may be seasonal)

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CoFLAS: Comprehensive LAS

Implementing service delivery requires:

- A careful review of all procedures to update land records and BPR and the rationalisation of forms/data
- A careful review of the fee schedule to ensure land services are affordable to all sectors of society
- The implementation of service delivery in offices providing LAS services
  - Clear promise on quality, cost, time
  - Comfortable customer service areas
  - Help desks
  - Information on procedures, requirements
  - Standards for service delivery > M&E
  - Effective handling of complaints
- The development and implementation of a comprehensive public awareness campaign.

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CoFLAS: Comprehensive LAS

Different approaches in developing ICT systems include:

- Project-based LAS ICT software development
- The specification of comprehensive LAS ICT software:
  - to be developed and implemented by a government ICT organisation;
  - implemented by a large private ICT company under contract;
- The development of open-source LAS ICT software
- A combination of the above approaches

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CoFLAS: Comprehensive LAS

Key lessons from LAS ICT investment in ECA:

- Start with the development of an ICT strategy
- Plan a small 6-8 month project for BPR
- Hardware should be separate from software development
- TA for project & contract mgmt., QA and capacity building in design
- Clear links to senior managers
- International and national standards should be adopted
- Data quality improvement is a long process > start prior to or in parallel to ICT development
- The period for using two parallel IT systems should be planned well and kept as short as possible
- Sustainability should be a top priority in the design and implementation of the IT system

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CoFLAS: Comprehensive LAS

	Turkey	Kenya	DRC	Vietnam	Pakistan	Guatemala
Project	Land Registry and Cadastre Modernization Project	Informal Settlements Improvement Project	Urban Development Project	Land Administration Project	Punjab Land Records Management and Information Systems Project	Land Administration II Project
Project cost	$210.1 M	$100 M	$100 M	$100 M	$127.9 M (original plus additional)	$62.3 M
Capacity Development	Component 3 all CD and includes NRD strategy, strategic planning, training and study visits. Component 4 includes capacity building. Total about $6.5 M.	Much of component 1 and other CD activity in other components. Total about $10 M.	The urban governance component includes funds for local government capacity support ($12.8 M) and measures at the national level mitigating capacity short-comings ($2.5 M)	Component 2 includes a public awareness and communication activity ($1.0 M)	All of component 1 and a reasonable part of component 3. Possible total about $10 M.	Much of component 3 with some capacity building in components 1 and 2.
Approx. % budget for CD	3.1%	10.0%	15.3%	1.0%	7.8%	~12%
Approx. % PM and M&E	1.0%	~2-3%	2.2%	7.8%	5.4%	13.8%

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CoFLAS: Running a LAS

Possible Parameters	Albania	Denmark	Georgia	Lesotho	Netherlands	New Zealand	Norway	Peru	Rwanda	Sweden	Thailand
% complete	75.0%	100.0%	40.0%	4.3%	100.0%	93.1%	100.0%	0.0%	90.0%	98.7%	95.6%
Head of Population/Estimated Property	0.705	2.052	1.424	4.921	1.699	1.968	2.025	0.000	1.166	1.911	1.843
Offices/10,000 sq km (country)	12.17	0.70	9.33	0.33	1.69	0.11	0.03	0.58		1.71	8.95
Registered Properties/Office	85,714	910,000	19,692	18,000	1,411,687	704,667	2,500,000	119,434	1,545,954	64,068	75,397
Transactions/Office	22,699	684,333	4,465	977	93,140	206,396	-	3,902	-	76,201	15,440
Transfers/Office	301	50,333	1,170	121	41,886	-	-	2,037	-	3,922	3,667
Total Staff/Office	16	80	12	62	255	62	550	45	36	11	26
Management/Admin/Other Staff/Office	5	23	5	53	105	19	-	27	18	1	9
Registration Staff/Office	11	40	6	2	70	22	250	17	13	4	10
Survey Staff/Office	-	17	1	7	80	21	300	1	5	6	7
Registered Properties/Management etc staff	15,873	39,000	4,063	340	13,408	36,448	-	4,375	85,886	82,221	8,604
Registered Properties/Registration staff	7,937	22,750	3,200	9,000	20,167	32,030	10,000	7,151	120,464	16,444	7,354
Registered Properties/Survey staff	-	54,600	18,286	2,571	17,615	34,097	8,333	155,055	309,191	9,867	10,842
Transfers/Registration Staff	28	1,258	190	61	598	-	-	122	-	1,007	358
Transactions/Registration Staff	2,102	17,108	726	489	1,331	9,382	-	234	-	19,558	1,506
Transfers/Registered Property	0.4%	5.5%	5.9%	0.7%	3.0%	0.0%	0.0%	1.7%	0.0%	6.1%	4.9%
Transactions/Registered Property	26.5%	75.2%	22.7%	5.4%	6.6%	29.3%	0.0%	3.3%	0.0%	118.9%	20.5%
Expenditure (USD PPP)/Est. Property	3.01	9.69	12.68	10.21	30.61	13.21	0.00	0.00	0.78	27.01	0.63
Expenditure (USD PPP)/Registered Property	4.01	9.69	31.70	238.19	30.61	14.19	0.00	36.10	0.87	27.38	0.66
Expend (USD PPP) (Est. Mgmt etc Salaries)/Regis. Prop.	1.12	1.05	3.95	115.43	6.10	2.36	0.00	8.49	0.36	1.28	0.20
Expend (USD PPP) (Est. Reg Salaries)/Regis. Prop.	2.24	1.81	5.02	4.36	4.06	2.69	0.00	5.20	0.26	6.42	0.23
Expend (USD PPP) (Est. Surv Salaries)/Regis. Prop.	0.00	0.75	0.88	15.25	4.64	2.52	0.00	0.24	0.10	10.70	0.15
Expend (USD PPP) (Non-Salaries)/Regis. Prop.	0.66	6.07	21.85	103.15	15.81	6.62	0.00	22.17	0.15	8.97	0.08
Revenue (USD PPP)/Registered Property	9.59	482.54	10.34	93.65	30.11	20.16	0.00	6.44	0.00	207.64	121.83
Ratio Revenue/Expenditure	2.39	49.79	0.33	0.39	0.98	1.42	0.00	0.18	0.00	7.58	185.06

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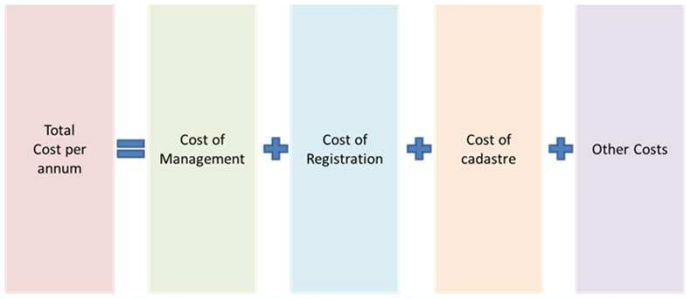
CoFLAS: Running a LAS



Total Cost pa/ Registered Parcel	Management	Registration	Cadastre	Other
Represented by	Salary costs excluding estimates for registration and survey staff/ Registered parcels	Estimated salary costs of Registration Staff/ Registered parcels	Estimated salary costs of survey staff/ Registered parcels	All other costs/ Registered parcels
All country case studies (USD PPP)	0.97 to 6.10 (excl. Lesotho & Rwanda)	1.10 to 5.02	0 to 4.64	0.66 to 21.85 (Lesotho 103.15 Rwanda 0.15)
Established systems (USD PPP)	0.97 to 6.10	1.10 to 4.06	0.75 to 4.64	1.59 to 15.81

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CoFLAS: Running a LAS

	Salary Expenditure (US$ PPP)			Other Costs (US$ PPP)
	Management/Admin/ Other	Registration	Cadastre	
Denmark	1.05	1.81	0.75	6.07
	Central agencies without branch offices.	Single registry. Data in digital form available online.	Cadastral surveys by private sector. Partial self-financing.	Includes contract IT, housing expenses and operational costs.
Netherlands	6.10	4.06	4.64	15.81
	Single agency, with 6 regional offices. Significant investment in computer systems.	Computerised system. Rationalising offices. Strong unions.	Cadastral surveys undertaken by Kadaster.	ICT is undertaken in-house; other responsibilities such as land consolidation, reference system, GIS products, other registers, Kadaster International
New Zealand	0.97	1.10	1.03	1.59
	LINZ single agency, regulatory role. HQ plus two data centres. Significant investment in cadastre, computer systems.	All dealings registered online by private lawyers. LINZ maintains database.	All surveys lodged online by private surveyors. LINZ maintains data base.	Substantial work out-sourced – conveyancing, geodetic surveys, cadastral surveys, valuation. Supported with a strong online IT system.
Sweden	1.28	6.42	10.70	8.97
	LAS provided through 7 registration offices and 70 cadastral offices operated by Lantmäteriet and cadastral services in 38 of the 290 municipalities.	Registry information is digital and is available online. Registration is available in 77 offices nationally.	Cadastral data is digital and available in the offices. Cadastral surveys undertaken by Lantmäteriet and 38 of the 290 municipalities.	Major non-salary expenditure is on consumables and materials with some development costs as well.

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CoFLAS: Running a LAS

USD (PPP)/ Property	Management	Registration	Cadastre	Other
1	Single agency, central back-office. Flat organisation structure. Significant investment in IT system with on-line registration capability.	Central back office. Agency adopts regulatory role with data entry/update by private parties.	All cadastre digitized. Surveys undertaken by private surveyors. Survey plans lodged electronically.	Agency solely focussed on LAS. Valuation, tax collection, planning undertaken by LGAs or private sector.
2	Single agency with limited branch offices (<10). Flat organisation structure. Significant investment in IT.	Central back office. Registration updates undertaken by the agency.	Cadastral surveys undertaken by private surveyors. Survey plans lodged manually.	Agency focussed on LAS and providing most LAS services in-house.
5	Multiple agencies, and/or significant regional network (~50 offices). Limited attempt to flatten organisational hierarchy.	Multiple offices, traditional processing of registration without optimising resources (no back office/front office). IT used for processing (no B2B or C2B interface).	Cadastral surveys undertaken by government surveyors. Significant investment on support of reference frame, NDSI, etc.	Agency largely provides LAS in-house. Agency also responsible for other tasks not directly associated with LAS.
10	Multiple agencies, regional network (~100 offices). Traditional bureaucratic structure.	Multiple offices, traditional processing of registration without optimising resources, emphasis on paper lodgement and processing.	Cadastral surveys undertaken by government surveyors. High survey standards, requirement for extensive mapping (buildings, land use, etc.) Significant mapping program.	Agency responsible for a broad range of tasks.

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CoFLAS: Revenue from a LAS

The information from the questionnaires:

- The property turnover ranged from 3.0% in the Netherlands to 6.1% in Sweden
- The revenue from registered transfer as a percentage of total revenue ranged from 52.2 to 67.6% of revenue (67.6% in the Netherlands, 52.2% in Peru and 54.0% in Sweden).
- The revenue from registered mortgages as a percentage of total revenue was
  - 30.9% in the Netherlands (excluding survey and other revenue),
  - 32.9% in Peru
  - 37.4% in Sweden (excluding capital gain/stamp duty and other revenue).

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CoFLAS: Financing LAS

- Possible sources of revenue to government:
  - Annual property taxes
    - Effective identification of properties and assessment of taxes
    - Efficient collection of taxes
  - Transaction taxes, fees and charges
    - Need to balance affordability with cost
  - Sale/licensing of data/information
    - Can limit use of LAS data for NSDI and SEG

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CoFLAS: Financing LAS

- Governments with development partner support can fund the development of LAS – but the maintenance/operations need to be sustainable
- Possible strategies for financing LAS:
  - Full funding by government as a public service
  - Setting fees and charges to fully or partially recover the cost of providing LAS services
  - Transferring core parts of LAS delivery to others such as local government or private sector service providers
  - Separating the regulatory and service provision LAS functions > PPP

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CoFLAS: Financing LAS

Factors to be considered prior to PPP:

- The feasibility of including systematic registration in any public-private partnership
- Appropriate allocation of risk - alignment of the estimated cost of the investment to the projected revenue from providing LAS services
- Clear measurable indicators for service, cost and access to be:
  - agreed up-front
  - regularly monitored during implementation
- Government must be able to manage and monitor the performance of the private operator
- The private party to be very familiar with the social and political sensitivities in providing LAS services
- The need to ensure that any contracting for a public-private partnership is conducted in an open, transparent manner

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CoFLAS: Next Steps

- Need complete the internal review
- Pilot CoFLAS in 2-3 countries
- Refine tool in light of experience
- Broaden tool, perhaps in:
  - Broader range of tenure types (crowdsourcing, STDM, etc)
  - Include planning
  - Broaden and elaborate the financing options

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