

Article

Application of FFPLA to Achieve Economically Beneficial Outcomes Post Disaster in the Caribbean

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Abstract: Fit-for-purpose mechanisms for developing land administration systems have been posited to be especially effective in resource strapped economies since these mechanisms quickly create the settings for economic as well as social and environmental development. Competition for depleted resources in the face of recent deleterious events such as climate change, Covid-19, hurricanes and other natural hazard impacts, and global economic crises, among other challenges, should nudge many developing countries toward the application of Fit for Purpose Land Administration (FFPLA) as opposed to costly and lengthy standard methods. Problems arise in convincing states of the benefits of applying the FFPLA. This paper explores how fit-for-purpose methods for establishing and upgrading land administration infrastructures have become increasingly imperative to developing countries, particularly small island developing states (SIDS) of the Caribbean, in light of declining economies. The experiences of Caribbean countries, with a focus on Trinidad and Tobago, Barbados, Saint Lucia, and Jamaica, in implementing adjudication and titling for their land administration, are compared to FFPLA guidelines in terms of major objectives, supportive legislation, and method of application. Based on the outcomes of the evaluation, it is suggested that including more facets of the FFPLA, primarily for progressing the process toward economically beneficial success, would be an advantage.

Keywords: fit-for-purpose land administration; cadastre; FFPLA



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1. Introduction

Systematic adjudication and titling are theoretically the ideal method for establishing a comprehensive cadastral component of the land administration in a jurisdiction [1–4]. A comprehensive cadastre is posited to result in benefits to the country such as land market growth, and invigoration, reduction in conflict over land rights, increased well-being of the society, and increases in agricultural productivity, as well as benefits to individual landholders such as security of tenure, and access to credit [3,4]. The veracity of the economic benefits and return on the significant expenditure accruing to a specific jurisdiction, however, is highly dependent on a multiplicity of localized factors including market opportunities, credit availability, and cultural approaches to credit risks as has been previously examined [1,2,4] including recently in Rwanda, and Ethiopia [5,6]. Individual studies have tracked the outcomes of these programmes over time with varying results as contextual factors, and stated objectives may differ. If economic, social, or environmental benefits are to be experienced, however, the parcel fabric and attribute ownership information should be comprehensive, or nearly so, over the jurisdiction so that transparency and access and thus confidence in the database is achieved and land governance and management decision-making strategies can be employed.

The assumption may be made that social benefits may accrue more readily if the coverage is complete and focused on formerly informal or tenure insecure communities while economic benefits may more readily result from an emphasis on capturing areas with more marketable properties. Decentralisation of the process of establishing a land

administration system has been explored by, for example, Ho et al. [7]. It is therefore conceivable that a comprehensive cadastre may be established for a region or community for a specific purpose. Given the need for comprehensive coverage over a jurisdiction or community, different methods, as proposed in the Fit for Purpose (FFP) approach and Fit for Purpose Land Administration (FFPLA) [8,9], are appropriate for quickly and cheaply capturing land administration data. This paper concentrates on the characteristics of FFPLA [8,9] that would lead to acquisition of comprehensive parcel location and tenure data for a jurisdiction with a focus on maximizing economic, timely, and cost-efficient outcomes.

The main issue restricting the application of FFPLA for many developing countries, including those of the Caribbean, is achieving the acceptance of the state, including institutions, technocrats, professionals, and politicians, and also the beneficiary population, that the merits of conducting an FFPLA development process outweigh the cost, time, and labour implications of the standard high-precision procedures previously promoted as the ideal. States may sometimes believe that the quality of an FFPLA product is inferior to that produced by the more rigorous processes. This evaluation examines the experiences with adjudication and titling being undertaken by Caribbean countries and determines how closely the methods being currently used fit the FFPLA tenets and whether there is correlation between the methods used and the current status of the countries in development. In the following sections, the paper first describes the current status of land registration in the Caribbean, then presents the evaluation methodology, and, after analysis of the extant available data, suggests the way forward for land administration to achieve an economically beneficial outcome both from the anticipated outcomes of the process and the minimising of the cost of the registration activity.

2. Land Registration in the Caribbean

The FFPLA approach, as proposed by FIG and UN-Habitat [7,8] promotes the achievement of security of tenure but in a cost-effective and time sensitive way. FFPLA focuses on flexibility, inclusiveness, participation, affordability, reliability, attainability, and upgradeability. To achieve all of these requirements, the process must be performed to attain efficiency by using as few resources as possible to obtain only as much as is absolutely necessary for achieving a specific beneficial goal.

There are other cost-conscious tools available such as the Pro-Poor Land Recordation Tool (PPLRT) [10,11] that are largely applied in rural contexts and in large informal community settings where civil governance is strong. These can also be applied together with and as a complement to the FFPLA. However, the countries of the Caribbean are small with very little distinction between rural and urban areas and with small informal communities interspersed among the formal areas, making it difficult to apply community managed tenure systems without a lot of support and intervention from the state and state institutions. The Social Tenure Domain Model (STDM), for example, has been successfully piloted in Saint Lucia and in St. Vincent and the Grenadines, but has not been scaled up to other communities in those countries [12].

The 'land administration' in FFPLA is defined variously but generally centres around systems, institutions and databases that organize, manage, acquire, and disseminate tenure, value and use data related to individual land units [8,9,13]. For most countries, and certainly for Caribbean countries, the land administration is taken to be the cadastre for the spatial boundary information and the legal registry for the formal tenure information. With few exceptions, the English-speaking Caribbean countries, in recognition of their similar, and fairly recent, British colonial history, still retain constitutional monarchies, with the Queen as the titular head of state and the privy council in England as the final court of appeal. This may have implications for the reluctance to adopt more flexible and appropriate tenure laws that deviate from the legal regimes with which the countries are most familiar.

Some of the Caribbean English-Speaking countries (Anguilla, Antigua, British Virgin Islands, Cayman Islands, Montserrat, Saint Lucia and the Turks and Caicos Islands), as

shown in Figure 1 and Table 1, have successfully registered 100% of their parcels in relatively quick and efficient three-year long compulsory systematic adjudication and titling projects to install English-type titling land registration which involves low precision demarcation maps, and unique parcel IDs. The others have generally attempted to continue voluntary sporadic Torrens type titling alongside their largely voluntary deed registration systems. This is as shown in Table 1 [14] where the percentage of parcels registered in deed or title or dual systems is provided.

The Caribbean

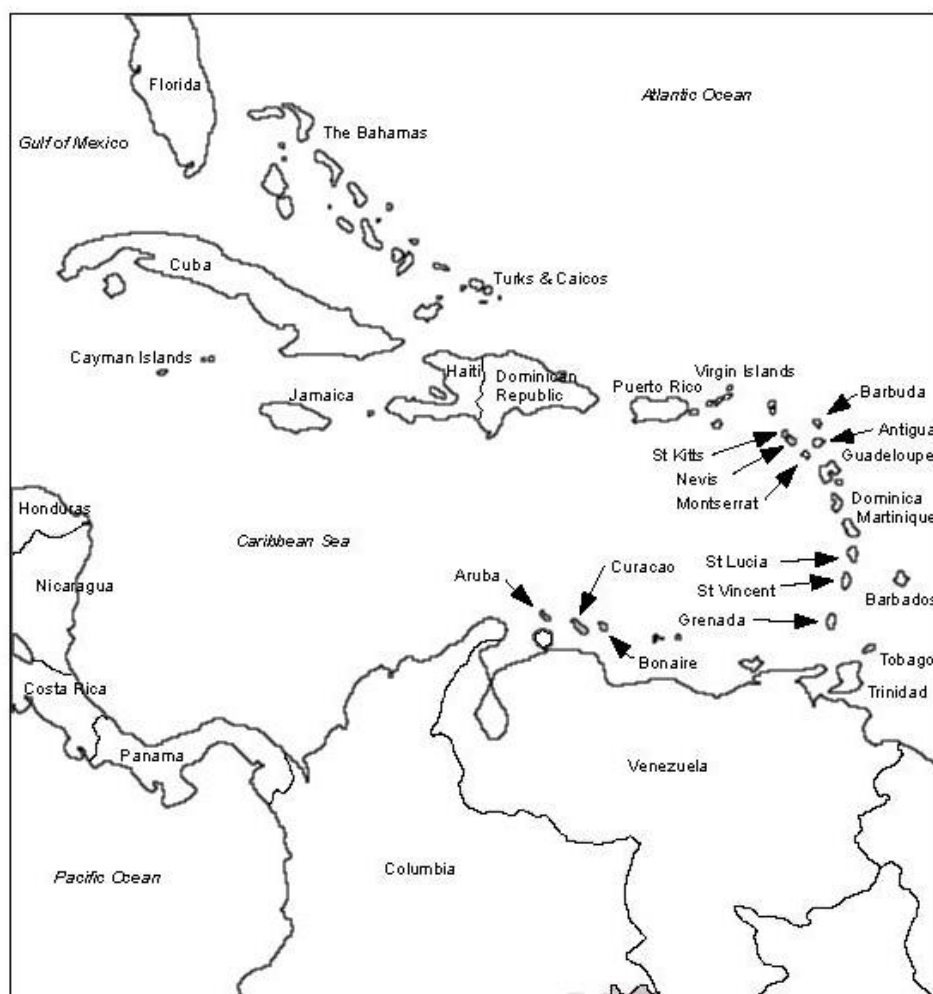


Figure 1. The Caribbean countries in context.

As indicated by the question marks, many countries can only estimate the number of parcels that are recorded, as the systems are not structured to be parcel based nor are they integrated land information systems that can be queried for this type of information. It should be noted that these estimates do not define the term ‘parcel’ so it is not stated whether legitimate, community or state acknowledged, contested or adversely possessed land is also included in the total estimated parcel count. Some of the systems are majority deeds based with the registration of deeds not being mandatory but serving as evidence of priority in the presence of any contesting claims. Deeds registration in these countries serve the purpose of supporting the majority of transactions and, because of the confidence imposed in the systems through use over time, it is difficult to convince landowners to voluntarily convert to the registration of title.

Table 1. Land registration in the English-speaking Caribbean adapted from study by Johnson [14].

Country	% Registered
Anguilla	100
Antigua	100
Bahamas	?
Barbados	~10
Belize	~60
Bermuda	?
British Virgin Islands	100
Cayman Islands	100
Dominica	50
Grenada	?
Guyana	?
Jamaica	45
Montserrat	100
St. Kitts-Nevis	50
Saint Lucia	100
St. Vincent and the Grenadines	?
Trinidad and Tobago	50
Turks and Caicos Islands	100

The FFPLA approach, as applied to several countries with completed parcel databases, even when this term was not solidified in use, has therefore been shown to result in a timely and comprehensive land database. This fact begs the question of why the other countries have not followed the same or a similar process.

3. Materials and Methods

This evaluation examines the experiences with adjudication and titling being undertaken by countries of the Caribbean in general with specific examples from Trinidad and Tobago, Barbados, and Jamaica, and others where a comprehensive land administration has been proposed and initiated but has not yet been achieved. Evaluation criteria used were: firstly, the presence and applicability to FFP of defined objectives, secondly, how supportive the legislative structure and therefore the process of implementation is to the FFP, and thirdly, experiences in application in relation to FFP guidelines. Data was compiled from published documents, legislation, and press statements made by officials responsible for the land administration in Caribbean countries. Some of the data emanates from the various land management, land administration, and several other land related projects that have been embarked on over several years in the Caribbean as funded by international aid agencies or regional governments to address the significant challenges that the countries have experienced while grappling with climate change, including the effects on the intensification of natural hazard impacts such as hurricanes. Global economic crises including energy market upheavals surrounding oil and gas and the most recent Covid-19 pandemic have also intensified the need for examining where the limited resources need to be applied.

Land policy and land policy related documents in the Caribbean, accessed and reviewed for compatibility with the vision of the FFPLA, include:

- The National Land Policy of Saint Lucia of 2007 [15];
- The Saint Lucia Land Policy Issues Paper of 2013 [16];
- Land Policy and Management in the Caribbean [17]
- The St. Kitts/Nevis Land Policy Issues Paper of 2013 [18];
- The National Land Policy of Jamaica of 1997 [19];
- A Methodological Framework for Comparative Land Governance Research in Latin America and the Caribbean [20]; and
- The Barbados Growth and Development Strategy 2013–2020 of 2013 [21].

These documents give an indication of the status and background of individual Caribbean countries and their specific direction and vision regarding land development. From these, the ability of the FFPLA to allow the countries to achieve their land related goals can be discerned.

Land titling and regularisation legislation, accessed and reviewed for compatibility with the suggested procedures of the FFPLA, include:

- The State Land Regularisation of Tenure. Act 25 of 1998 of Trinidad and Tobago [22];
- The Registration of Title to Land Act 2000 of Trinidad and Tobago [23];
- The Land Adjudication Act 2000 of Trinidad and Tobago [24];
- The Land Tribunal Act 2000 of Trinidad and Tobago [25];
- The Land Adjudication Amendment Act No. 10 of 2018 of Trinidad and Tobago [26];
- The Registration of Titles Cadastral Mapping and Tenure Clarification (Special Provisions) (Amendment) Act 2020 of Jamaica [27];
- The Land Adjudication Regulation 2019 of Trinidad and Tobago [28];
- The Land Adjudication of Rights CAP228A of Barbados [29]; and
- The Saint Lucia Land Adjudication Act No 11 of 1984 [30]

These items of legislation prescribe broadly how the land registration and tenure arrangements are to be implemented and these can be compared with FFPLA implementation guidelines.

Documents that demonstrated outcomes related to the land registration and titling of the countries in the Caribbean that were assessed for compatibility with the outcomes posited by the FFPLA include:

- Assessing the formal land market and deformalization of property in St. Lucia [1];
- The Impact of Land Titling on Land Transaction Activity and Registration System Sustainability: A Case Study of St. Lucia [2];
- Key challenges and outcomes of piloting the STDM in the Caribbean [12];
- Building the Cadastral Framework: Achievements and Challenges in the English-Speaking Caribbean [14];
- Doing Business 2020 [31]; and
- The National Land Agency of Jamaica's website; [32]

While documentation on the outcomes in a quantitative assessment is scarce, some qualitative information can be indirectly gleaned from current documents on land issues.

4. Results

The FFPLA is a relatively recent statement and application for achieving quick results in land administration reform, primarily in state-led systematic adjudication, land titling and registration processes, so that it can better support development. This section presents the results of comparison between existing land registration activities in the Caribbean and the fundamental tenets of the FFPLA.

4.1. Defined Objectives

A significant tenet of the FFPLA focuses on defining an objective of the process and this being not only fit for purpose but having fitness of purpose. This is described as being the 'what' of the process [8]. Countries in the Caribbean are conflicted about specifying a priority purpose for establishing their land administration and, especially with resource constraints, wish the system to achieve all beneficial outcomes at once: economic, social, and environmental. The FFPLA indicates that focus should be on the purpose, which is always achieving security of tenure for all [8]. However, mention should also be made that security of tenure leads to further beneficial development, i.e., social, environmental, and economic outcomes depending on how and where the project is instituted. The FFPLA can therefore be applied 'as little as possible, as much as necessary' in different regions of the country to achieve the purpose of comprehensive security of tenure. Success at achieving security of tenure may or may not lead to successful further achievement, if that is the aim.

Many of the land administration projects and pilot projects are fully or partially funded by international loans or grants with no guarantee of the ability to continue or maintain the project. The project must therefore attain all possible goals at once. Without a clear focus on the priority need, the project will flounder and success is elusive as energies and resources are dissipated in different directions. Very many projects end after the pilot projects, with no state resources to upscale the project into a sustainable programme.

A country's priority in its land governance should be stated in its documented land policy so that specific goals and intermediate success indicators can be derived. The fitness of the purpose for land administration improvement should derive from the research and examination that goes into the development of the land policy document. Conversely, much of the data that is required for the development of the land policy should be gleaned from querying the land administration data, which is usually lacking and therefore a target of improvement. Many Caribbean states do not have a documented land policy nor one that indicates their goal specifically. Saint Lucia is one of the few states in the Caribbean with a documented land policy, albeit one dated 2007 [15]. A revision to this is still in discussion and comes out of an in-depth examination of land issues in the country [16]. A major initiative supported by the Australian Agency for International Development (AusAID) from 2012 to 2014 and managed by the Organisation of Eastern Caribbean States (OECS), with technical input from the Global Land Tool Network (GLTN), the University of the West Indies (UWI) and stakeholders within the countries, focused on building the states' capacities to develop land policy that could result in achievements in economic, social and environmental development and also in poverty reduction [17]. As a result of this project, the OECS countries produced background papers as a forerunner to developing land policies [16,18]. However, only draft land policies were possible during the short term of the project and the countries were responsible for concluding and formalising the policies in a longer-term participatory process. The larger countries outside of the OECS were also not party to the project.

Jamaica's national land policy is dated 1997 [19]. Land policies should adapt to changes in the economic and social environment and be informed by completed successes so should be periodically revised to maintain currency of focus on new goals. Jamaica's 1997 land policy clearly prioritizes the establishment of a comprehensive land information system to support the data-driven management and planning of land [19]. Overall land use sustainability and land resource allocation are stated to be high on the agenda, so if there has not been a change in policy direction since the time of this published land policy, then boundary location precision is low on the list of specifications for the land administration. The fitness of this purpose for the country can be justified by the need for the country to preserve the environment, as it is dependent on tourism for livelihoods and income. Identified parcels and land uses are the priority data capture requirements here.

Saint Lucia's 2007 land policy states in its vision that the priority is to support economic development in various spheres of activity including agriculture, tourism, and trade [15]. Saint Lucia, however, has already completed its comprehensive land administration database in the 1980s by undergoing systematic adjudication and titling.

Barbados does not have a documented land policy and neither does Trinidad and Tobago nor any of the other Caribbean countries still struggling with establishing their land administration. However, looking at other evidence of actions implemented by the state can allow a discernment of land policy without a specifically constructed document. Barbados can be discerned to have a land policy focused on economic outcomes [20,21]. Like Jamaica, the country is dependent on tourism for economic sustenance. Barbados does have some informal occupation but it is not at the level experienced by some of the other Caribbean countries as it is deemed to be affecting less than 1% of the area of the country [14]. The focus of the registration programme may therefore be centred on areas of marketable and touristic properties. FFP mechanisms should revolve around capturing sufficient identification of parcels to allow quick transactions to occur. Success in this goal was seen early on in the land registration as indicated by Maynard [33]. The drastic

reduction in speed and cost of transactions as attained by the introduction of the land registration is remarked on. This early success can be expanded on by using an FFPLA approach to the land registration in progress, with a focus on the areas where transactions are concentrated. Building awareness of this impact through capacity building of the professionals and technocrats charged with developing land policy direction will therefore have positive economic benefits.

Legislation derives from land policy and, while there is not a current land policy document for Trinidad and Tobago, the presence of pro-poor legislation to prevent eviction of squatters on state land [22,23] and the current absence of property tax would support an assumption that social outcomes are the priority in land action. The fitness of a social tenure purpose is unquestionable as the population of informal occupants on state land is high and deemed to be 240,000 in number out of a national population of 1,300,000 [34,35]. A previous document called the Government's Land Policy is subtitled A New Administration and Distribution Policy for Land and focuses on policies surrounding the administrative processes within the state institutions for allocation of state lands to private individuals by lease for agricultural purposes [36].

Table 2 synthesises the status of the selected Caribbean countries with respect to their land policy. Where there is a documented land policy, the objectives of the policy are listed in the table. Where there is no land policy, the land related goals are derived from other actions and documents. It would be helpful to the achievement of successful land administration development if Caribbean countries were to construct clear land policy that directs the land management institutions to identify specific land administration content in order to support implementation of the policy.

Table 2. Presence of a Land Policy.

Country	Presence of Land Policy	Defined Objectives	Fitness of Objectives
Barbados	No	Economic	Livelihoods, economy
Jamaica	Yes	Environmental	Tourism
Trinidad and Tobago	No	Social	Informality
Saint Lucia	Yes	Economic	Tourism

4.2. Legislation

After the 'what' is decided, the 'how' can be addressed to achieve the goals in an efficient way. The structure for the process of constructing or upgrading land administration by adjudication, titling, and registration is supported by legislation. The FFPLA proposes flexibility in the process which requires registration and titling legislation that prescribes relaxed precisions for defining boundaries, and possibility for tenure registration along the continuum. Legislative development follows the development of a land policy. If the land policy is unfocused or misdirected toward a purpose that does not have fitness for the specific jurisdiction within the social, economic, and cultural context, then the legislation may also be fit for purpose but have no fitness of purpose.

The legislation to support the adjudication and titling programme in Trinidad and Tobago was first passed in 2000 with a typical package of a Registration of Title to Land Act [23], a Land Adjudication Act [24] and a Land Tribunal Act [25]. The programme has not yet begun although 20 years have elapsed since the passage of the legislation. During the intervening period amendments were made to the Acts to remove the ability of an occupant to acquire absolute title to state land even after 30 years' occupation, which had been prescribed in the previous version of the Act. This change to the process, when implemented, will have the effect of rendering an estimated 60,000 parcels of state lands, that are currently occupied by informal households, insecure in their documentary tenure even after the programme is completed. The occupant must apply to the Land Tribunal to decide the process to a title. This variation will also increase the resource requirements for determining each instance and slow down the process of regularizing the informal tenure that is prevalent in the country.

The reluctance to part with large volumes of encumbered state land that cannot now be utilised for any other purpose demonstrates the state's commitment to retaining ownership of large quantities of state lands despite the negative perceptions of international agencies toward this practice. Deininger [37] advocates for the devolution of state lands through outright grants, auctions, and sales, or, in default of this, through very long-term leases. Figure 2 shows one of the many informal communities on state land that are of long standing and which will not immediately benefit from the titling as a result of this segment of the legislation. On the positive side, the Land Adjudication Act now, after amendment in 2018 [26], affords persons in occupation of non-state land the ability to acquire absolute title if they have been in occupation for more than 16 years. The Act also allows provisional title for occupation and documentary evidence that does not meet the criteria for absolute title. Systematic titling legislation should seek to title or otherwise facilitate the tenure of informal occupants including family land occupants and squatters on both state and private land. This would involve the flexibility and inclusive characteristics required of the FFPLA.



Figure 2. One of the long-standing informal communities, called Bangladesh, established on state land.

Jamaica, since 2000 has been attempting to perform comprehensive registration using sporadic, voluntary methods under their existing Torrens based title legislation, but since the process did not meet the inclusiveness characteristic of the FFPLA, the attempt has not yet been concluded. Under the process, applicants are required to pay for their processing, which does not serve those who are unable to afford the cost. In 2011 systematic adjudication and titling was attempted in specific areas but, again, since this process required payments by individual land holders and also required precise surveys, it did not sufficiently advance the process. Jamaica in 2018 has, however, decided that the previously voluntary sporadic programme called the Land Administration and Management Programme (LAMP) would now become systematic adjudication and titling managed by the National Land Agency [38,39]. The Registration of Titles Cadastral Mapping and Tenure Clarification (Special Provisions) (Amendment) Act 2020 now allows for absolute titling to those occupants found in possession for more than 12 years [27]. This meets the flexibility requirement advised by the FFPLA.

To address whether the legislation supports flexibility in spatial location, the prescriptions for mapping may be examined. Jamaica's Registration of Titles Cadastral Mapping and Tenure Clarification (Special Provisions) (Amendment) Act 2020 [27] requires that the surveyor 'prepare or cause to be prepared a cadastral map of parcels of land in the systematic adjudication area'. The Director of Surveys, however, is authorized to determine the precisions of the mapping. The Land Adjudication Regulation 2019 [28] of Trinidad

and Tobago allows for the preparation of a demarcation map and identification of parcels via a unique ID and also allows for the use of general boundaries of physical features such as a ‘fence, hedge, wall, ditch or other physical feature, whether natural or artificial’. The Barbados Land (Adjudication of Rights and Interests) CAP 228A [29] also authorizes the Chief Surveyor to prepare the demarcation map for a declared district. Bestowing the authority for determining the precision of the mapping supports flexibility that can lead to the use of aerial photography or satellite imagery. See Table 3 for the relevant legislation in the selected Caribbean countries.

Table 3. Legislative Support for Titling and Registration.

Country	Legislative Support
Barbados	Systematic Adjudication, Titling, and Registration—CAP 228A
Jamaica	Torrens. Systematic Adjudication, Titling and Registration laws from 2018
Trinidad and Tobago	Torrens. Systematic Adjudication and Titling laws from 2000 not yet implemented to date
Saint Lucia	Systematic Adjudication, Titling and Registration

4.3. Application of FFP Principles

The FFPLA guiding principles [8] indicate that the key characteristics are purpose, flexibility and incrementality, having a clear goal, being flexible in the tenure forms accepted and understanding that there can be gradual improvement with advances in technology and changes in fortunes. The FFPLA goes on to indicate that the main goal is tenure security for all. However, a country’s main purpose for developing its land administration may be an economic one that may not be centred on tenure security for all but that, nevertheless, requires a comprehensive parcel information database as a support for intensified land transactions of sale and mortgage, as well as land and property taxation. While the immediate purpose may be economic, the eventual intention may be to benefit society by reduction of poverty. Similarly, where the purpose may be environmental and related to land resource governance, the eventual beneficiaries may be society. Low levels of conflict and high levels of perception of security may reduce the need for documentary security in the form of a land title but in these instances a complete land information system is still necessary to encourage economic development. Table 4 indicates how the country is applying its land titling and registration process, and also indicates where the FFP principles can be seen to be a positive theoretical characteristic of the programme. While the NLA of Jamaica can be demonstrated to be transparent and accessible, allowing information on ownership and value to be searched and viewed online, the other countries do not have the same accessibility. The detailed application and interpretation by the land related responsible national institutions may still not encourage the flexibility which is possible.

Table 4. Application of FFPLA principles.

Country	Process	FFP Principles
Barbados	Formal Adjudication, precise surveying,	
Jamaica	Formal Adjudication, precise surveying	Integrated institutional framework, Transparent land information
Trinidad and Tobago	Formal Adjudication, precise surveying	
Saint Lucia	Formal Adjudication, general demarcation	Physical boundaries, accuracy related to purpose

Jamaica, at 11,000 square kilometres in area is the third largest island in the Caribbean after Cuba and Hispaniola and is therefore the largest English-speaking island in the Caribbean. It is estimated to contain approximately 800,000 parcels but despite having established its land titling process since 2000, it has not significantly advanced the number of new parcels titled since then. The cadastre is primarily more fiscal than juridical so that parcels are considered completely registered when they have gone through the titling and registration process and are on the valuation roll with a tax ID. The tax ID of the individual or entity liable for paying the property tax is also the person’s unique ID indicated on the

title documents. Table 5 presents the rate of registration in the different parishes in Jamaica over the six years from January 2015 to January 2021. These data are derived from accessible search forms available on the National Land Agency's website at <https://www.nla.gov.jm/> accessed on 31 March 2021.

Table 5. Registration progress in Jamaica.

Parish	Registered Parcels at January 2015	Registered Parcels at January 2021	Total Parcels	Percentage Registered	Percentage Change
Kingston	12,751	12,651	13,824	91.51%	0.62%
St. Andrew	82,962	84,388	98,279	85.87%	0.61%
St. Thomas	16,343	17,796	38,347	46.41%	2.88%
Portland	12,623	14,083	33,906	41.54%	0.94%
St. Mary	20,877	24,060	50,044	48.08%	1.29%
St. Ann	31,487	37,190	67,442	55.14%	1.18%
Trelawny	15,874	17,948	32,782	54.75%	0.94%
St. James	43,759	48,503	59,564	81.43%	2.52%
Hanover	10,677	12,475	23,702	52.63%	5.23%
Westmoreland	23,186	25,515	43,642	58.46%	3.26%
St. Elizabeth	23,784	28,888	69,514	41.56%	1.58%
Manchester	30,447	35,120	69,501	50.53%	4.45%
Clarendon	41,112	45,884	95,597	48.00%	3.64%
St. Catherine	108,153	115,238	156,778	73.50%	1.74%
Total	474,035	519,739	852,922	60.94%	3.03%

As Table 5 indicates, the number of new parcels registered in the five years from 2015 to 2021 has increased by only 3% overall. Placed in context, the smaller countries, such as Saint Lucia, have previously performed the entire programme of systematic adjudication and title registration in four years. In that instance, over 33,000 parcels were registered over the four years [1]. It is noteworthy that the capital parish, Kingston, and its close neighbour, St. Andrew, have the highest percentage of registration and this can contribute to economic development in these urban areas. The more rural parishes of Hanover and Manchester have the highest rate of registration in keeping with the land policy focus on environmental management.

Barbados is 430 square kilometres in area and, like Jamaica, can be said to be supported by a fiscal cadastre rather than a juridical cadastre as its valuation roll contains 99 percent of the parcels and the rate of informality is relatively low in comparison with other Caribbean countries. Barbados introduced the land registration application in 1988. The World Bank in its Ease of Doing Business assessment for 2020 determines that the quality of the land administration index in Barbados ranks at 10.5 on a scale of 0 to 30 where Latin America and the Caribbean score at 12.0 and the high-income OECD countries score at 23.2. After years of implementation, only 10% of the parcels were determined to have been titled by 2003 and currently only 15% are estimated to have been titled [14,20]. However, it should be noted that while the fiscal cadastre does not contain precise surveys, it is a sufficient index to support the land administration.

Trinidad and Tobago, with an area of 5100 square kilometres and an estimated number of parcels of 500,000 should focus on achieving security of tenure, as the large number of persons in insecure tenure requires. The application is proposed to be, in the initial pilot project, focused on the island of Tobago, which is noted for having a large number of informal 'family land' parcels. This application is therefore in keeping with the fitness of purpose ideal of the FFP. For the application to be fit for this purpose, participation is key.

Table 6 gives the funding and estimated expenditure on land registration and titling for the selected Caribbean states. The costs identified for the projects exceed the immediate funding available. To this must be added the anticipated inflation over the anticipated time required for adjudication and titling using conventional surveying, as well as opportunity costs for allocating the funds toward this process as opposed to other developmental

purposes. A reduction in the project cost is therefore immediately economically beneficial. Land market benefits were modest at the end of Saint Lucia's adjudication and titling process [1,2] and may also be underwhelming for these countries even at completion of these projects.

Table 6. Expenditure on Registration and Titling.

Country	Funding Source	Cost/Parcel in \$US
Barbados	Recurrent state expenditure,	No data
Jamaica	National Housing Trust (indirectly State)	934 (only \$13 million identified for this) [39,40]
Trinidad and Tobago	Inter-American Development Bank	1100 (only \$25 million identified for this) [41]
Saint Lucia	USAID and Govt. Saint Lucia	250/parcel, total 8 million

The evaluation of the general procedures being implemented by the Caribbean countries for upgrading their land administration through the tool of adjudication and titling indicates that FFPLA approaches are possible but have not generally been adopted. Seven countries have used FFP like approaches between 1967 and 1987 to complete systematic adjudication and titling. Subsequent programmes have largely persisted with sporadic Torrens type titling in slow, tedious and expensive procedures with mandatory boundary surveys that are precise in spatial location and rigid adjudication for rights determination. Some have begun true English type systematic adjudication and titling with the use of demarcation maps and unique parcel IDs, but this implementation has still been very slow and has not emulated the FFPLA.

Even though much of the legislation may be interpreted to allow the application of more flexible tenure acceptance, this is only in terms of informal occupation on private land through typical adverse possession rules for different duration of occupation. More flexible tenure rules have not been incorporated into the process such as titling of 'family land' or automatic conversion of occupation on state land to absolute titles or leaseholds. Flexible tenure rules for flexible recordation as a key principle of the FFP approach should also extend to incorporating existing deeds registries as these are considered to be reliable for the current majority of transactions and, in the cases of Barbados and Trinidad and Tobago, cover the majority of parcels currently registered. Adding a unique identifier to parcels held by deed registration can immediately upgrade the registration without the cost and time required for converting to title registration.

Flexibility of spatial location, while supported by the revised legislation, has not been implemented yet to reduce the lengthy processes. Most countries have relatively recent aerial imagery that can be used to create demarcation maps rather than insisting on precise surveys using professional cadastral surveyors. In most instances deeds are also available that can support in large measure a more relaxed and participatory adjudication, or be acceptable for direct entry into the information system.

The recommendations for the countries, as derived from the key principles of the FFP approach [8,9] are indicated in Tables 7–9.

Table 7. Recommendations for advancing the spatial framework. Adapted from FFPLA [8,9].

Spatial Framework Item	Recommendation
Visible boundaries rather than fixed boundaries	Use walls, fences, to update cadastral index as these exist.
Aerial/satellite imagery rather than field surveys	The countries have recent imagery that can be used
Accuracy relates to purpose	Existing legislation authorises Chief Surveyors to decide on accuracy of the demarcation map. These should be based on existing cadastral index accuracies.
Demands for updating and opportunity for upgrading	Upgrading may be a longer-term requirement.

Table 8. Recommendations for advancing the legal framework. Adapted from FFPLA [8,9].

Legal Framework	Recommendation
Flexible framework	Acknowledge the critical mass of parcels in informal occupation (T&T) and registered in deed registries, and allow for mass migration into one land administration
Continuum of tenure	Integrate family land, leaseholds, and other tenure
Flexible recordation	Integrate informal occupation housed at Land Settlement Agency (T&T) or fiscal cadastre (Barbados) by linking the existing data together
Ensuring gender equity	Begin recording gender as an attribute on transactions, as this is not generally done.

Table 9. Recommendations for advancing the Institutional framework. Adapted from FFPLA [8,9].

Institutional Framework	Recommendation
Good land governance	Review recommendations for treating with large quantities of state land
Integrated institutional framework	Support use of parcel identifier in all agencies as a low-cost step of integrating data
Flexible ICT approach	
Transparent land information	Emulate Jamaica's example of freely accessible land information

In all the countries, there are sufficient walls, fences and other visible boundaries that can be demarcated on the most recent imagery to fill in the existing cadastral index. The aim is to achieve comprehensiveness of the cadastral index. Since the authority is given by the legislation to the Chief Surveyor or Director of Surveys to determine demarcation map precisions, it is up to these professionals to acknowledge that lack of resources within the public institutions will obviate a speedy conclusion to the demarcation process. Upgrading can occur subsequently to the completion of the project as individuals who wish to access credit or otherwise transact in the newly registered land will be required to pay the cost of surveying to normal cadastral survey rules, including precision.

Trinidad and Tobago should acknowledge the large critical mass of parcels in informal occupation particularly on state lands as these lands are already lost to the state without costly and traumatic relocation of communities. Much data exists in separate locations of the land administration institutions that can be taken to support rights that have existed over a period of time and can be acknowledged.

Land management on the large quantities of state lands held by Trinidad and Tobago, in particular, has become ponderous and difficult. Close scrutiny has to be made of the fundamental governance and land policy reasons for retaining state lands before determining how this should be addressed.

5. Conclusions

The assessment of the processes being undertaken by the selected countries of the Caribbean to comprehensively register all land parcels, in keeping with the tenets of the FFPLA, found that a lot of time, money, and effort had already been expended without a predicted time of completion. While some of the smaller countries had accomplished the process successfully prior to the development of the FFPLA application, subsequently countries had moved away from the process. With the current existence of technical tools such as imagery and mobile GPS, it is possible for the countries to improve the rate of roll out of registration by the use of FFPLA principles of reduced accuracies and acknowledgement and integration of separate recording and registration data. However, an important aspect of achieving economically beneficial results is for the country to first identify and publicise a clear objective to be achieved in land that requires the land administration to be effected. Economically beneficial outcomes can be derived from both achieving a low-cost solution to the completion of the comprehensive land registration as well as from the benefits of the use of the completed cadastre. These economically beneficial outcomes, however, appear to be weighted in favour of the savings to be derived from the

low-cost solutions rather than from income from land market transaction increases that may be predicted to occur.

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