

**MAPPING COLOMBIA: THE CORRELATION
BETWEEN LAND DATA AND STRATEGY**

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FOREWORD

In this monograph, Dr. Geoffrey Demarest addresses what—at first glance—seems to be an esoteric and inconsequential issue. The mapping of Colombian national territory, however, is fundamental to the problem of control of national territory. As a threshold matter, policy, strategy, and military asset management in contemporary conflict in virtually any unstable part of the world must deal with the problem of governance in “lawless areas.” Unless a central government such as that in Colombia can exert legitimate control and governance in the 60+ percent of the municipalities *not* under its control, there can be no effective judicial system and rule of law; no effective legal crop substitution programs; no effective democratic processes; and, only very little military or police action to bring law and order into unknown and difficult terrain.

Indeed, control of the national territory is a strategic paradigm for 21st century conflict. The state is under assault by a powerful combination of state weaknesses, “lawless areas,” and insurgent and criminal terrorism. All these contributors to instability and violence have a powerful effect on local, regional, national, and international security. As a consequence, this monograph is extremely salient. Colombia and other states experiencing conflicts that range from criminal anarchy to virtual civil war must understand that putting treasure and blood into a conflict situation without first establishing the strategic foundations of success only result in ad hoc, piece-meal, disjointed, and ineffective reactions to truly inconsequential problems.

The Strategic Studies Institute is pleased to join with the North-South Center in offering this monograph as part of our ongoing attempt to recognize and respond to the strategic realities of the current security situation in the Western Hemisphere, and reframe *Plan Colombia* and

related policy and strategy in a more workable context. This is critically important to the vital interests of the United States, Colombia, the hemisphere, and the entire global community.

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PREFACE

For the past 2 years, the Strategic Studies Institute and the North-South Center have engaged in an effort to bring creative thinking and analysis to the most challenging security problem in the Americas, the multifaceted conflicts in Colombia. This monograph by Dr. Geoffrey Demarest looks at an important issue, property rights, as bearing directly on the inability of Colombia to assert authority over its entire territory as well as to implement the social agenda of *Plan Colombia*.

The author appropriately cites the much-discussed latest work of Hernando de Soto, *The Mystery of Capital*. The Peruvian economist makes a strong case that development in less-developed countries does not take place, in large measure, not because the poor lack assets but because without recognized property rights they are unable to mobilize them. In Haiti alone, says de Soto, “the poorest nation in Latin America, the total assets of the poor are more than one hundred fifty times greater than all the foreign investment received since Haiti’s independence from France in 1804.”¹

In Colombia, Demarest points out in detail, large areas of the country are not even mapped. The implications, he points out, are enormous in terms of the government’s ability to deal with criminality as well as its ability to offer alternative development to combat reliance of the *campesinos* on coca cultivation. As for the support of *Plan Colombia* by the U.S. Government, he makes the case that such aid and the planning for it cannot properly be made in the absence of adequate information concerning property ownership and use.

1 Hernando de Soto, *The Mystery of Capital*, New York: Basic Books, 2000; p. 5.

The importance of property ownership, of course, is not lost on the FARC guerrillas, who aspire to become landowners, control territory, and collect “taxes.” In my own experience, I spoke with a Colombian whose farm in the rich Cauca Valley was sold under duress and through proper notarial act, to presumed FARC agents. The cash payment for the land was confiscated from him in Cali shortly after the sale by accomplices of the new owner (whereupon he took the next plane for Miami and safety.)

Nevertheless, the author makes the valid point that to succeed both in counternarcotics as well as the suppression of lawlessness, an indispensable starting point is the knowledge of ownership and value of land. He argues convincingly that the continuation of large amounts of informally owned and unregulated land are major impediments to progress. The objective, a “stronger Colombian State with a visible commitment not just to security but also to civil rights and open government” will be the result of dealing with the land problem.

This monograph is a valuable contribution to an understanding of the Colombian dilemma and should be read by policymakers.

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SUMMARY

This monograph highlights a shortcoming of U.S. and Colombian efforts attempted thus far to contain and reduce organized crime and terrorist violence in Colombia. Both governments acknowledge the importance that property rights play in long-term state legitimacy and in the short-term restraint of organized criminality. Nevertheless, inattentiveness to the condition of property rights, especially in rural areas, is both a cause and effect of a fundamental omission bearing on military operations: Colombia is not well-mapped, some of it not at all. For decades soldiers have been sent out to patrol in unmapped areas. This military inadequacy is overshadowed, however, by longer-term social implications. The country cannot hope to establish the rule of law without extending effective, formal land ownership, which implies creation of the maps and registries attendant to that ownership. While immediate military victory may be achieved without comprehensive mapping, establishment of a lasting, peaceful social order is unlikely. Ironically, in 1997 the United States removed its liaison to the Colombian national cartographic institute—one milestone of a transcendent failure to identify as essential the work of that piece of government. Cartographic inadequacy has weakened effective response to what has been (perhaps wrongly) the U.S. national preoccupation in Colombia—countering the industry of illicit drugs. U.S. programs have not been informed regarding who owns the land on which heroin poppy or coca is grown, or even what factors bear on the value of that land. Also overlooked is the powerful nexus between poorly enforced property rights and the violation of human rights. Good maps and registries are an essential tool for understanding the specific linkages between economics and land ownership, between land ownership and terrain control, and between control of terrain and terror. Property maps help define and visualize the vague

geographic boundary between lawlessness and civilization. Incomplete mapping, beyond hamstringing military operations against guerrillas and illegal paramilitaries, puts Colombia's social, economic, and security objectives at risk. And to the extent this is true for Colombia, it is all the more a reality in other countries of the hemisphere where property records are even less well-developed.

MAPPING COLOMBIA: THE CORRELATION BETWEEN LAND DATA AND STRATEGY

War is God's way of teaching geography.

Attributed to George Carlin

Bountiful Property.

Colombia's extravagant geography guides decision-making in that country more than in most. The history of Colombian conflict is a record of competition for control of lands and movement routes related to export products or their taxation.¹ Rebels, pirates, and their hybrids, arrayed against the Colombian state and each other, have forever fought over control of product sources, transportation routes, taxation, and fiscal policies bearing on Colombia's natural bounty.² While the current civil conflict differs in significant ways from those of the past, the correlation of outlaw strategies to agricultural and mineral geography is the same, often exactly the same.³ Leaders of today's Revolutionary Armed Forces of Colombia (FARC-EP or FARC), Ejercito de Liberacion Nacional (ELN), and Auto Defenses Unificadas de Colombia (AUC) intimately are aware of the effects that the control of "place" has on profit and on prospects for their long-term organizational health.⁴ Like the classic combat commanders, the Alexanders and Napoleons, a successful outlaw strategist recognizes the critical advantage of choosing favorable fighting terrain, protecting his lines of communication (LOCs) and compromising those of his enemy. In Colombia, he must also be sensitive to the relative commercial and industrial value of property and movement routes. Likewise, a winning government strategy to defeat an organized outlawry, or for that matter to establish long-term social peace, must recognize and respect the incremental worth of land. Even as a question of military strategy, Colombia's terrain should

be considered both in terms of maneuverability and according to specific material value. This reflects a difference between internal armed conflict and international war generally. In an internal war such as that being waged in Colombia, land is not only the space over which combat materiel might move, or firefights occur, it is also the engine of disposable wealth and wellspring of the war-making strength of all contending forces.⁵ The FARC may destroy a bridge or a high-tension tower, but is unlikely to destroy a bridge over which its own taxable products are moved.

Moreover, the performance grade given internationally to Colombia's armed forces always includes a human rights component, yet it is failure on the part of the Colombian State to give meaning to property rights that has led to human rights violations. If the Colombian armed forces are ever to clarify the human rights issue in their favor, they must better understand the contract between citizens and government that is called "property."

Dosn't thou 'ear my 'erse's legs, as they canters awaäy,
Proputty, proputty, proputty—that's what I 'ears 'em saäy.
Proputty, proputty, proputty—Sam, thou's an ass for thy
paaïns; Theer's moor sense i' one o' 'is legs, nor in all thy
braaïns.⁶

Alfred Tennyson
from "The Northern Farmer" (new style)

Paradoxically, a vast and growing public record exists in Colombia to measure the insidious invasion of lawlessness throughout the country. Perhaps to the reader's surprise, millions of Colombians claim ownership of land parcels, an ownership formally recognized in one of five cadastre systems (recorded property surveys and accompanying economic descriptions) and a separate national land ownership registry. A typical cadastral map of platted properties is shown in Figure 1.⁷ The cadastres, principal of which is maintained by the Instituto Geográfico Agustín Codazzi (IGAC, the nation's cartographic institute) have

existed more or less in their present form since 1940, and they include most rural and urban claims from the mountains west. Aside from their central role in equitable tax appraisal, the national cadastre is today recognized as a fundamental source of information for growth and conservation planning.⁸



Figure 1. Typical 1:10,000 Scale Colombian Cadastral Map.⁹

Developmental planners believe that protection of property rights through formal documentation, administrative transparency, and insurance will make a long-term material difference in much of the world. The fullest expression of this developmental belief can be read in Hernando de Soto's *The Mystery of Capital*.¹⁰ De Soto extends a line of free-market theory outlined in his earlier bestseller, *The Other Path*, for which he first gained international recognition.¹¹ De Soto and his team of researchers exhaustively documented that for the poor to advance materially, they need to be able to create capital,

and that in most developing countries they cannot. The reason for this inability to create capital can in part be found in a lack of formalized property regimes—the kind that in advanced economies surveys, records, protects, insures, and represents property rights of all kinds. The result of a failure to create precise, reliable documentation of property rights, property courts, title insurance, brokerage laws, and the like, is an invisible world of dead capital—assets worth literally and measurably trillions of dollars, but which cannot attract investment. De Soto’s perspective is a powerful, unavoidable challenge to any developmental strategy or project that does not embrace the question of broad-based capital formation. Furthermore, it has created an intellectual environment in which openness and availability of reliable land ownership data (popularly referred to as “transparency”) is assumed to be a necessary condition for the success of economic development projects.¹² Even traditional redistributive land reform proposals depend for their success on the fidelity and openness of ownership documentation. As a result of this developmentalist acceptance of the cadastre as a central institution and organizational technology for progress, a great deal of money has been devoted to extending and modernizing cadastral systems, including in Colombia.

The land records in Colombia can be used to trace ownership to national identification numbers and then to passports, telephone bills, etc. The application of land information for cross-referencing databases is doubly attractive because land records have inherent stability and reliability. People do, of course, cheat the records, often to avoid taxes, but such cheating is self-limiting, and can actually be helpful to law enforcement. The special characteristic of land records resides in the ultimate need of an owner to prove his identity in quiet-title court actions (actions in court to establish ownership). Since property is a contract with the state for the recognition and support of specific preferential rights, an ostensible owner cannot pretend he is someone else for very long, or indeed his

ownership preference will disappear. At any rate, the use of cutouts or dummy-owners is a red flag for the detective. There is rarely a legitimate reason to pretend someone else is the owner of your land.

While the forensic value of land ownership data is relatively obvious, not so obvious is the correlation between land data and military strategy, but this correlation precisely marks an essential attribute of successful counterinsurgent campaigns. A few illustrations will help. The Colombian FARC maintains wide dispersion of its subordinate units.¹³ This is done not only for reasons related to the autonomous, obstreperous nature of guerrilla commanders, but also as a method to deny the Colombian army the opportunity for battles of annihilation. For the 60-odd FARC fronts organized into seven blocks, logistics is a primary occupation. For some fronts the most lucrative activity may be taxation of coca farmers, but in others perhaps the control of kidnapping contractors, or movement of weapons is more important. The fronts are also encouraged toward the FARC's strategic objective of controlling urban centers. To achieve this, FARC fronts work toward systematically influencing and eventually controlling movement corridors (lines of communication) into assigned cities.¹⁴ Some cities, such as Medellín in Antioquia Department, are susceptible to being choked and extorted because their mountainous environs so constrict access.¹⁵ Much of the combat responsibility, as well as maintenance of discipline among the fronts, falls to mobile columns, which have a wider geographic range.

In order to maximize security and for economy of force, the FARC created networks of movement corridors within the blocks, and mobility corridors between the blocks. Some of these routes follow standard road and river transportation infrastructure and are used to move large quantities of illicit product. Secondary routes are more often used for the movement of units and materiel. In mountainous areas it is common that the routes follow ridgelines. The FARC has worked to control owners and

ownership of properties all along the movement and mobility corridors (it is suspected that this is especially true along remote ridge line routes), thus helping to assure operational security. Lately, the FARC is known to have assisted in the formalization of property holdings by peasants under their direct control in active drug cultivation areas, one being the Puerto Leguísimo area in Putumayo.¹⁶ Additionally, that the guerrillas have effectively purchased mineral mines has been rumored. Labor tactics, selective extortion, and bribery can be supported by using cutouts to gain control of licenses or by surrounding publicly-owned mineral extraction sites with peasant clients and then formalizing the ownership of those properties.¹⁷

When the Colombian army reentered San Vicente Caguan in the former clearance zone in February 2002, it found that fleeing FARC units destroyed government offices, with the exception of the land registry office.¹⁸ The records of land ownership did not show a rash of takings by the guerrillas and, apparently, land values had not changed appreciably (although they were extremely low to begin with). In Puerto Leguísimo, the local FARC commander accepted letters of introduction from the government to permit workers of the cartographic institute to complete cadastral formation for hundreds of agricultural properties in the area under FARC's immediate control. One has to ask why the FARC would be willing to have the government formalize property ownership. The answer is troubling, considering the natural inference that the Colombian government was involved in some level of accessorial behavior. If the FARC has control of the occupiers, it can enforce a sharecropping relationship, force sale or mortgage, tax, etc., all the while using government-provided records to facilitate and legitimize its actions. It also acquires options if the area is overtaken by government troops or by another outlaw entity. In case of some interim or final negotiated settlement, the outlaw leadership has put in place the basis of legally controlling population and

territory, the population controlled by feudal connections to the land, and the land controlled by a client population. The guerrilla leader thereby succeeds in becoming a great landowner, or *terrateniente*.¹⁹

The FARC does not enjoy widespread mass support in the Colombian population, even in rural areas. It has, however, carefully proselytized or terrorized in select locales related to its nation-wide, logistics-based strategy. Meanwhile, the AUC, a newer force, appears to have a varied and growing popular support base greatly exceeding that of the FARC—but less so along many of the movement corridors for which the AUC and guerrillas fight. Apposite to the property discussion is AUC heritage, the organization having been born of the frustration of ranchers at the failure of the government to protect their rural properties from the FARC.

Conceivably, the historical and geographic bases of the struggle between the FARC and the AUC could be painted using existing cadastral maps by tracing back to a handful of ranch properties. The property-based origins and purposes of the AUC logically drive it to augment formal ownership of land in areas it considers strategically important. This is not only true of rural areas. Recent urban combat among the FARC, AUC, ELN and lesser groups in the city of Medellín seem to attest to the selective importance of commercial property and its relationship to rural terrain. Recent urban combat between outlaw groups in Medellín broke out over control of the major land route to the Urabá Gulf and Atrato River Valley lowlands to the northwest.²⁰ The Urubá/Atrato area represents a major illicit logistics corridor. If the corridor were better controlled by the government, the fighting in Medellín would logically not have occurred. Urban contests between outlaw groups would be obviated if control of key military *and* commercial terrain in the rural region to the northwest belonged to the government. To attain control, the government will have to pursue a strategy that recognizes land ownership as a key information element. Formal, visible, and protected

property rights should be the foundation of long-term government presence in the area of Colombia facing Panama. Until that is achieved, the area will be outlaw in all respects, and Medellín will continue to suffer periodic violent eruptions. Meanwhile, the people of the Urubá/Atrato lowlands are likely to continue suffering forced displacements and mass killings.²¹

Along the same general axis in Antioquia, a secondary network of rural transportation routes runs through the Dabeiba, Peque, and Ituango municipalities to the west of the Cauca River. It is a major confrontation area between the AUC and the guerrillas. Warfare imposed and suffered in this mountainous subregion encapsulates the nature of the conflict in Colombia. Almost all combat, human rights cases, and criminal encounters relate to the dominance of passage routes used for illicit purposes. Putting a stop to intra-outlaw combat in the area will require a greater presence of government military force to physically deny use of the zone's passes for illicit product shipment. Pacifying the region in the long-term may require a change in the mix and quality of real property ownership. Few proven treatments exist for the kind of social poisoning that years of ruthless competition for the control of land causes, but one antidote is to redistribute populations and property ownership. The Colombian government may decide to embark on programs changing ownership of land in local areas most affected by the violence, perhaps by empowering ethnic communities and better securing communal land rights, or perhaps by encouraging private ownership by persons and organizations more likely and capable of resisting outlaw incursions. Regardless of the details, any land-oriented part of a solution will depend for integrity on precise, electronically available, complete records of ownership interests at key locations. Precision lends juridical strength to the documentation, as well as future market confidence. Electronic availability (transparency) helps protect the ownership documentation against fraud

and corruption, and allows individuals and nongovernmental organizations to monitor land policies.

The value of terrain for illicit uses is heightened in many locales, like the Peque-Ituango passes; nevertheless, many properties will be abandoned or subject to forfeiture. These need to be identified in detail, but they also need to be visible at a strategic level so that the evolution of ownership serves a peace-intending initiative of the government rather than outlaw competitiveness. If the government does not mount a national property strategy that helps placate the cycle of violence, property strategies mounted by outlaw groups will continue to catalyze it.

In Colombia the terrain calculus is intricate and local, each hectare presenting its own mix of military and economic value. Reconciling the two (what we might call the maneuver view of terrain and the economic view) for the purpose of shaping strategy is crucial. Fortunately, the government of Colombia, with U.S. assistance, can produce a comprehensive, detailed database of Colombian land use and ownership. To understand the specific utility of such a map, especially for the formation of military strategy, some foundational assertions are offered regarding what makes one piece of land more valuable than another.

A suburban American real estate broker might quip that three factors contribute to the square-meter value of a piece of property—location, location, and location.²² Of course, location dominates the value of Colombian rural land as well, even more so if we allow the definition to encompass productivity factors such as climate, soil, and rainfall. However, and this is the part that is too often overlooked, the single most important determinant of the value of real property is not its location, but rather the mix of theoretical rights associated with the land, along with the practical expression those rights are given through government endorsement. This is not an abstract comment on political philosophy. The market price of a piece of land depends on the contents of the basket of rights being sold. If we want to

sell Granddad's farm in American suburbia, we will get less for it if there is an easement for a power line across it, or if there is a zoning ordinance disallowing commercial construction, etc. The farm's longitude and latitude are important, but not as important as the mix of rights associated with the sale. Property is not a thing; it is not dirt in a place; it is the set of rights that regulates relations of persons to places. Just listing and formalizing the understanding of those rights, however, is not enough to give them their entire value. If the police cannot or will not prevent the use of an empty lot as a place where drug dealers convene, the market value of the houses nearby may plummet. If potential buyers of a Colombian farm cannot travel the road to the farm without the likelihood of being assaulted or kidnapped, the farm's market value will be almost nil.

The value of land speaks volumes about the degree to which rights are established, recorded, and enforced. The market for property describes in detail what an internal war does to the essential contract between government and the population.²³ That contract is supposed to be one in which the government creates the possibility of property. In other words, when the contract has practical effect, people can obtain a set of preferential rights, enforceable by the government and associated with a specific place. When the contract is not functioning, property is reduced by degree to the base state of possession by force. When that occurs, those in control of the most force are the most lords of the land.

Aside from their importance for capital formation and economic opportunity, formalized land records are becoming a central theme within the study of violence.²⁴ An increasing number of scholars recognize that those polities enjoying formalized, consistent property regimes are less likely to suffer internal conflict than those where informality in property ownership reigns.²⁵ Furthermore, the existence of formalized and maintained land records offers a variety of forensic possibilities especially related to

illicit use of terrain and to large sophisticated criminal enterprises, to wit, narcoguerrillas. A more highly developed property regime, in other words, would support all U.S. Government and Colombian visions of changing the underlying social and juridical conditions conducive to violence, diminishing Colombia's role as a producer and exporter of illicit crops, and improving the overall material well-being of the citizenry.

Putumayo Coca Eradication and the World War II Raid on Ploesti.

As a central tactic in U.S. counternarcotics strategy in Colombia (a dimension that was reinforced rather than diminished after the changeover to the administration of President Alvaro Uribe), aerial eradication merits special attention in the context of the property rights focus of this monograph. It is a conclusion that aerial eradication, like all counternarcotics and counterterror efforts in Colombia, will be less effective outside the context of a property-based overall strategy.

Allied war planners felt that a decisive raid on the Romanian oil fields around Ploesti could be a knock-out blow, possibly crippling German warmaking capacity and shortening the course of World War II in Europe.²⁶ Churchill called the Ploesti fields, producing more than half the crude oil imported into Germany, the taproot of the Nazi war machine. An ensuing operation on August 1, 1943, was costly—54 of 177 of the B-24 Liberators sent on the raid did not return, giving the raid its nickname, Black Sunday. There was no knockout blow at Ploesti; the immediate results were insubstantial, and, in terms of the overall outcome of World War II, the effectiveness of the raids is still debated. A resilient, determined enemy took countermeasures and found alternatives. Eventually, Nazi use of Romanian oil had been reduced by as much as 85 percent by the time the Russians occupied the fields in 1945. Hurting the Nazi resource base was a good idea, and the oil

bombing campaigns did speed the end of the war. The Battle of the Bulge, in which the final German offense stalled for lack of fuel, is an oft-cited proof. However, starving the Nazi war machine of Romanian oil was as effectively accomplished by railhead interdiction and destroying rolling stock as it was by bombing production facilities in the oil fields themselves.²⁷ The overall air effort in Europe can be said to have been most effective when it supported major allied ground operations by interdicting Wehrmacht operational reserves. The air campaigns had to be part of a broad effort that correctly identified various critical vulnerabilities and attacked as many as possible. For Nazi Germany to be defeated, the Allies had to close with and destroy the Wehrmacht on the ground.

Plan Colombia's Putumayo aerial eradication was a bit like the raid on Ploesti. The spray planes did not suffer a Black Sunday, but the strategies are analogous in that our massive aerial attack against the dense and extensive Putumayo coca crop was supposed to cause grave harm to the FARC's cocaine-based financial health—just as the raid on Ploesti was to deprive the Nazi war machine of its supposed lifeblood. The strategy identified Putumayo, hardly the geographic center of gravity of the war in the traditional military sense, as the locus of a significant amount of the FARC's overall warmaking strength. The long-term value of eradication spraying may, like the Ploesti raid, be ambiguous. Spraying achieves the immediately visible result of knocking out a lot of noxious and fiscally valuable vegetation. The extent to which the outlaws shifted to other income sources, protected other crop areas, dispersed cultivation, replanted, shipped from storage, increased kidnapping and oil extortion, exerted political pressure to end the spraying, or took other countermeasures will remain difficult to precisely calculate.²⁸ Outlaw countermeasures, however, beg the next question: How do we readjust when it appears that aerial eradication has achieved what it can, and yet the outlaw calculus in Colombia does not appear to have

sufficiently changed as a result? Aerial eradication makes it a little more difficult for the FARC, the ELN and the AUC to fund their respective wars, but they will do so.

Strategy is best devised when resources, method, and objective can all be reconciled at the outset. That is to say, there is no sense entering into a project undercapitalized or without a reasonable goal. A military strategy, furthermore, must support the larger political strategy. In these respects, the Putumayo portion of *Plan Colombia* was strategically correct. Given the amount of political and financial capital available, and given restraints (some artificial) as to the use of military resources, it was logical and appropriate to have identified Putumayo as the locus of U.S. assistance efforts—at the time. In 1999, crop surveys and remote sensor images of Colombian coca cultivation showed a dense blob in Putumayo department, while other maps showed something else. Guerrilla activity, displaced persons, land mine injuries, or almost any other indicators of internal conflict over the previous 10 years indicated that Putumayo was not at the center of Colombia's warfare.²⁹ The department was peripheral to “counterinsurgency,” and yet central to coca production. It was a place where the U.S. military could provide assistance while satisfying the politically preferable, if practically ludicrous, distinction between counterinsurgency and counternarcotics. Providentially, the Putumayo target selection was useful in another way. Putumayo lays between the zone ceded by the government (at the time known as the *despeje*) to the FARC and Sucumbios Province in Ecuador, an area used by the FARC as a cross-border support sanctuary. The Putumayo operation, in effect, increased government military presence across a major FARC line of communication.³⁰ It is not surprising that a map showing arms smuggling routes into Colombia at the time of the War of the Thousand Days at the turn of the 19th and 20th centuries would be strikingly similar to a current map of the same theme.³¹ Among the ancient smuggling routes are the same crossings into Sucumbios, Ecuador that appear to have formed a

major FARC line of communication that included pre-provisioned encampments for hundreds of fighters.

Neither the Black Sunday raid on Ploesti nor Putumayo eradication were abject failures, even if they were not decisive blows. The costly experience at Ploesti led to better planned and executed follow-on operations that evolved with the broader counter oil strategy. Like Ploesti, the oil field targeting may have been the result of the obvious. That is to say, like the coca blobs of Colombia, oil field infrastructure stuck out in aerial photos, prompting a planning momentum too impatient for the painstaking identification of less dramatic and more disperse transportation nodes and infrastructure. Had there been a methodology in place able to precisely scale the relative economic-military value of European terrain, then perhaps the Ploesti fields themselves might never have been rated as an optimal target as compared, say, to railheads. In Colombia, while drug traffickers will use all means at their disposal for product shipment, cost constraints have them employ roads and rivers, probably in a measure consistent with the carrying capacity of the route.

The Putumayo eradication strategy recognized a place in Colombia as particularly valuable economically to the outlaw enemy, and therefore a valuable military target. Fortunately, the eradication plan also assisted the government in compromising a major enemy line of communication (LOC). Unfortunately, the Putumayo spray plan, like the Ploesti bombing raid, was not based on a sufficient understanding of the relative economic value of terrain as a targeting guide. For instance, little was done, upon looking at the crop extension blobs, to find out in detail *who* owned the land on which those blobs appeared. Perhaps planners incorrectly assumed that all the land was no-man's land, or that knowledge of personal ownership was unavailable or unreliable. Furthermore, the Putumayo plan neglected to identify terrain that might have been more important in the overall value of the product than the fields themselves. The importance of the coca plant was

perhaps over-rated as an ingredient in the commercial value of cocaine. Consider another widely available product on which there can be some physical dependency—water. Bottled water is an extremely lucrative enterprise in the United States, and, as some note with chagrin, bottled water can sell for more money than the soft drink on the shelf next to it, even if the store has a public water fountain. This makes one question the value of sugar, but neither should we be fooled into thinking the price is associated with the quality of the H₂O. The plastic in the bottle is not worth much either. If we wish to choke off water profits from some ill-doing water trafficker, we might try drying up the sources of water, perhaps because we can identify an offending lake or water main. Still, that strategy seems unlikely to succeed. It would be more efficient to knock off the truck on the way to the store. Where is the most valuable geography in the bottled water industry? It is not the lake, but the bottling plant or some point on the road to the convenience store. The value of bottled water is the fact that it is found in a portable form *in the convenience store*, not that it is water. While this analogy is soon overdrawn, the question it highlights regarding relative geographic value—route vs. ingredient source—is valid.

The centerpiece of recent U.S. counternarcotics strategy in Colombia has been eradication, and, as argued earlier, this has not been an irrational approach. However, given that the impact of eradication efforts is likely to diminish over time in accordance with outlaw reactions, eradication should not constitute the concept around which U.S. counternarcotics in Colombia evolves. On the other hand, eradication programs can increase in effectiveness within the right strategic context and supported by the right kinds of intelligence. The selection of what and when to eradicate must be better informed, and the logic made more transparent. Aerial eradication, especially to the extent it is identified with the United States, should be armored against criticism of targeting decisions by incorporating absolute detail regarding land ownership, along with public

transparency regarding the targeting decisions. It is now practicable to establish a matrix of use, ownership quality, and applicable law that can indicate the most appropriate method and timing for eradication of illicit crops even in areas where *minifundios* (very small land holdings) dominate. Such data can also be used to reveal anomalies in market prices, ownership interests by outlaw organizations, and hidden political or familial associations, the ignorance of which might warp eradication decisions. It also provides legal and technical justification for taxation policy. Much of the information can be obtained now, although basic cartography, surveying, and registry will have to be accomplished in many areas where illicit cultivation is pronounced.

Giving Property Away.

In 1999, to find a way out of what the Colombian government claimed was an impasse, Colombian President Andrés Pastrana agreed to concede to the FARC a piece of Colombian territory the size of Switzerland. The government withdrew forces from the area as an assurance of security in order to resume another round of peace negotiations. The results were dubious: in 3 years the FARC gave up nothing, and in the meantime exploited the natural military advantages of safely occupying a huge zone situated near the heart of the country.³² Protected interior lines allowed the FARC to increase its effective presence in areas around the zone, expanding the territory under its control.³³ It especially helped secure the FARC's southern line of communication out of Colombia into Ecuador and Peru. Within the *despeje* (clearing) as the area was called, the FARC was able to hide and manage its inventory of hostages, accelerate terrorist training and even manufacture bombs and mines. In fact, three Irish Republican Army (IRA) members were captured in Colombia after having provided training to FARC members there.³⁴

By 2001, as it became obvious that the land concession to the FARC was a huge failure, the Colombian president prepared to give an even more valuable zone to the smaller ELN.³⁵ Aside from dominating the most important transportation route in the country, the proposed zone, commonly known as the *Magdalena Medio* (Middle Magdalena), included a major coca crop concentration, as well as oil-industry infrastructure. Asked by a newsperson about his decision, Pastrana answered, “The country needs to understand that the ELN is prepared to make peace, but if it doesn’t happen, it is prepared to make war. And it has a great terrorist capacity.”³⁶ In a nutshell, a national president stated that his countrymen must simply resign themselves to the fact of capitulation; if the Colombian president did not offer up the most important corner of the country to a group of outlaws, that group would hurt Colombian citizens.

The Magdalena River runs generally south to north between Colombia’s central and eastern mountain ranges to the Atlantic coast. It is the single most important transportation corridor in Colombia and the principal artery to Bogotá. The middle reaches of the Magdalena have always been of particular strategic value, and are more so today because of a concentration of oil industry infrastructure. The southern bulb of Bolivar Department is home to a huge coca crop concentration. In recent years, the area has been a battleground between the AUC and the ELN, with the AUC apparently having gained the upper hand. To dominate the area would be doubly advantageous for the ELN. Impunity in the zone would have allowed uncontested access to the favorite object of extortion for that group: petroleum infrastructure. Proximity to taxable coca harvests, as well as major transportation routes, makes it a near-perfect staging area for taxation and kidnapping sorties. Physical dominion in the zone would also have given the ELN a spatial advantage in terms of attacking into the heartland area of the AUC to the west. Incredibly, and in light of no appreciable benefit to the nation from the

experiment with the FARC's *despeje*, President Pastrana pushed to concede three counties to the ELN, two in the southernmost tip of Bolivar department and one in Antioquia just to the south of the others.³⁷ A militarily more valuable piece of ground could hardly have been chosen. The government plan to concede the area was blocked by protests from local residents, the inability of the government to deliver possession to the ELN because of AUC assertions, and perhaps indirectly because of the perception shift created by the September 11 attacks.³⁸

The Middle Magdalena has been prized territory for hundreds of years.³⁹ Assuring that the reaches of the Middle Magdalena are strategically denied to an enemy is one of the basic elements of Colombian military history, whoever the contestants. Trying to give it away is an anomaly. The Colombian government's move to engage the ELN in peace talks by way of ceding such a militarily critical place is hard to fathom. One is led to suppose that President Pastrana and his advisors assigned more power and terrorist capacity to the ELN than it actually had, were overly committed to the concept of negotiation, were under some unspoken duress, sympathized with the guerrillas or simply did not understand. While the AUC is a drug trafficking, terrorist organization that the government must defeat, it may have been strategically fortuitous for the government that the AUC rejected ELN occupation of the Middle Magdalena.

Comprehending the value and ownership of land as a function of divisible rights, rather than simple location, could offer a unique perspective on President Pastrana's policy. If the world had a map detailing particularized ownership interests in the Middle Magdalena, a whole new realm of understanding might attend the Pastrana position. If it were possible to view the whole picture of preferential rights in land that would have been transferred or jeopardized by a concession to the ELN, a better understanding might emerge of what was at stake. Most of the land in the region is privately owned and has been appraised.⁴⁰ Why there is an isolated blob of coca cultivation

and how that cultivation relates geographically to oil industry licenses and concessions should be of particular interest. These questions are not posed out of historical curiosity. The land remains under coca, and is still under outlaw dominance. It is possible, however, to obtain and display detailed ownership data for this region.

A president giving land away to outlaws in huge chunks is a rare occurrence. More common is programmatic give-away. Land reform, and especially agrarian reform, has been a staple of developmental and redistributive campaigns in Colombia for many years. Since 1962 more than 1,700,000 hectares of land ceded to, bought or expropriated by the national government has been turned over to campesinos and tribal peoples.⁴¹ More than 18,000,000 acres of government open land has also been redistributed.⁴² Curiously, while this seems to be a great deal of land, officials from the national agrarian reform institute (Incora) state that the distribution of land ownership in Colombia remains radically inequitable.⁴³ The validity of the observation may be the subject of considerable economic and social debate, but it is a debate conducted in the absence of needed data regarding what happened to all the redistributed land. Incora is able to show almost every acre of land distributed to whom and when. What it apparently cannot show, at least for redistributions done until the last few years, is exactly *where*. The Incora mandate has been to redistribute land, not to keep track of what was redistributed. For that reason, most Incora records indicate a precision of location only down to the county level. Apparently there has also not been any systematic effort done to determine the consequences of ownership or divestment during more than 40 years of redistributive activity.

Without asserting that the Incora land redistribution has been a failure or has contributed to violence, it is at least fair to say that the effect of programmed redistributions is speculative. Today, it is technically possible, using commercially available software, to match the Incora

database with cadastral and registry databases to determine the ownership results of the Incora programs and, more interestingly, to see what the geographic correlation of the redistribution programs has been to the incidence of violence in the countryside. It appears that some of the Incora land may have been redistributed more than once, especially in lawless areas.

Military Options.

At the time of this writing, it appears that counterterror has displaced counternarcotics at center stage in our policy toward Colombia.⁴⁴ Accordingly, one supposes that our principal military objective in Colombia is not to help reduce the amount of illicit drugs leaving the country. Now it is to establish the security conditions necessary for the development of an allied country where liberty and property are protected, and where material progress is a reasonable expectation for the majority. If this does not misrepresent the dominant current of U.S. policy, it means we are back in the business of assisting an ally with internal security. Countering illicit drugs becomes a subordinate mission, but remains an indispensable objective. The Uribe Velez administration has set Colombia on a course toward defeating the FARC and ELN. How his administration will deal with the AUC is less certain. By the time this monograph is published, the Congress of the United States may have formally acceded to the idea that counternarcotics monies be spent on counterterrorism endeavors of the Colombian armed forces.

The question remains if stopping narco-trafficking should be our main contribution to defeating the outlaws, or if we should launch headlong into counterterrorism. Loss of drug income would logically accelerate the demise of any of the outlaw groups. Still, while true that the outlaws benefit militarily from drug income, trafficking in drugs is not their only source of financial strength. Reducing coca production might reduce the overall terror capacity of the FARC, but

destroying the FARC would logically have a greater impact on the coca industry. Maybe U.S.-Colombia strategy has been inside out. U.S. counternarcotics efforts have been counterguerrilla to the extent they have been based on the theory that, by reducing drug income from Putumayo coca, the FARC would be weakened and therefore encouraged to yield in peace negotiations. At least part of the idea was to harm the traffickers by reducing their profits. Now we will attempt to reduce the amount of product by more directly harming the traffickers. Which would be more efficient, reducing traffickers by eradicating drugs or reducing the drug flow by eradicating traffickers? A change toward the latter could indeed prove more effective in decreasing the quantity of illicit drugs sent to the United States from Colombia, but the optimal contribution that the United States can make toward ridding Colombia of its outlaw enemies may still be to proceed on the basis of a primarily counternarcotics strategy. This leads to another subquestion: If the United States is to contribute to the Colombian government's prosecution of the war by way of counternarcotics programs, is aerial eradication an optimal use of counternarcotics money? If, in fact, it is better to de-emphasize eradication and instead create a system of internal route control and LOC interdiction, to do so would require a better mapping effort.

An interrelated issue is that of paramilitary forces and how the government should confront them as compared to the traditional guerrilla groups. The spawning of the anti-guerrilla paramilitary forces is an outgrowth of the failure or inability of the state to meet an obligation to protect persons and property from outlaw predation. It can be cogently argued that a system of local paramilitary defense structures is, if not a requirement for winning an irregular war, at least an historically successful element.⁴⁵ The debate regarding the establishment of a disciplined community defense system is beyond the purposes of this monograph; nevertheless, the question of civil self-defense rarely fails to enter debates about what kind of strategy

should apply to Colombia's war. The observation that guerrilla forces, at the moment of potential government victory, universally slouch back into a latency of civilian garb and popular protection impels the argument for community organizations that can spot and report guerrillas organizing and metamorphosing. As imposing as this historical tendency may be, the political and propagandistic climate in Colombia does not yet appear ripe for re-engagement of civilian communities in such a way. Having said that, an apparently grassroots movement of resistance to guerrilla violence has bloomed in a few areas, and this phenomenon may present a vehicle for local organized resistance to outlaws in select areas.⁴⁶ The question, therefore, of local militias has not dissipated, and U.S. posture regarding their creation must be better informed by facts on the ground.

The existence of the AUC is attributable in some measure to the failure of the government to establish effective discipline and to crisply delineate the authority and range of initiative accorded to civil defense groups. The juridical turn in Colombia against legal establishment of militias is generally attributed to excesses in their vigilantism, to put it coldly. Moreover, the virulence of the self-defense movement can be associated more broadly with two factors. One is the failure of the Colombian state to defeat and remove the guerrillas, which have become the *raison d'être* of the AUC. The second is the early lack of commitment to destroy the illicit drug industry, which provides autonomous financial power to outlawry and corrupts the enforcement regime. Had the government of Colombia reformed the controls and linkages over the several types of authorized militias, and maintained a participation in their existence and discipline, it is unlikely they would have as close an intermarriage with drug trafficking that they now do. Because many in and outside Colombia consider the establishment of a militia system to be an effective and legitimate part of counterguerrilla strategy, it behooves U.S. planners to be informed about the

home communities and memberships of any future militia. Such information can be optimally gleaned from cadastral and land registry records.

Mapping.

It is hard to understand how, after 30 years of internal conflict, there is so much unmapped territory in Colombia, and that the existing maps are so out of date. Partly to blame is a bureaucratic distancing of the state's geographic interest and function from military identity. Until 1950, the Colombian national geographic institute was called the Augustín Codazzi Military and Geographic Institute (*Instituto Geográfico y Militar Augustín Codazzi* or IGAC). The name change followed the movement of Colombia's mapping responsibilities out of the defense ministry in 1940, thus creating South America's first civilian geographic institute.⁴⁷ The change permitted growth of an institutional attitude that correlates technical objectivity with neutrality in the face of the guerrilla war—not showing favoritism toward either the guerrilla or the army. Such a construction of objectivity is anathema to the wisdom that a governmental strategy must be integral, employ all strengths and prerogatives of the state, and establish conditions under which the causes of disaffection can be positively resolved. An institutional attitude that eschews identity with the army under a claim of scientific nonpartisanship is, in this case, especially damaging to a war effort because the product of the geographic institute is central to the prosecution of so many other government functions. The geographic work of the state must be both loyal and active in the promotion of state authority. As it stands, the cadastral function of the Colombian government has at times favored the sovereign challenges of the guerrillas, not opposed them.⁴⁸ The cadastral office and all the cadastral records must be made to represent the contract that the government has with the people to uphold rights in land. Winning an internal war requires that the whole gamut of government enterprises and every aspect of

a nation's power be used to a common end. In the context of an internal war, when it comes to the cartographic function of the state, there can be no logical distinction between military and nonmilitary effort.⁴⁹ Cartography supports the whole range of state interests, from the most immediate combat needs to long-term pacification and development, but it must in any case be comprehensive and current.

The developmental importance of cadastral mapping is not lost on Colombians in a position to know. The chief of the cadastral office of the Colombian geographic institute wrote a 2001 essay outlining the long-range goals of his office and asserting the importance of his organization's mission.⁵⁰ The InterAmerican Development Bank, in turn, has supported the government of Colombia, although haltingly, with generous loan agreements. Work on the modernization of the cadaster has proceeded, but at an inadequate rate.

Cadastral coverage, responsibility, and authority in Colombia is divided into five major parts, the national cadastral office and four independent cadastral offices (Federal District of Bogotá, Antioquia, Medellín, and Cali).⁵¹ The existence of the independent cadastral offices is related to historic anti-federalism. The offices are politically, administratively and fiscally independent, but they take technical guidance from the national cadastral office and follow the same general technical protocols. Technical and professional conditions among the cadastral offices are not uniform, and unification of the offices is not foreseen.

The cadastral offices are responsible for appraising land values as these appraisals are the basis of equitable taxation. The tax rates vary as a percentage of market value and no general figure for the relationship between the appraised value and market value would be broadly accurate. According to many familiar with the system of appraisals and the market for real property, an appraisal of around 50 percent of market value would be typical in a normal (not affected by the violence) market. The cadastral

offices keep records of the size, location, use, potential use, and tax currency of all properties. In order to fulfill all the requirements of Colombian administrative law, a seller must produce a certification from the cadastral office showing the precise boundaried description and location of land to be sold, as well as any tax debt. This process seems to be followed as an exception, however, in many rural areas, and often in the city.

The cadastral offices, meanwhile, are not the official record of ownership of a property. That function belongs to the registry offices of a separate ministry, the Superintendency of Notaries and Registries.⁵² In the course of transactions in land, new owners consider it sufficient to register a bill of sale in the registry, but often without consulting the cadastral office or having received a certificate of description and tax appraisal from the seller. The cadastral records, while determinant of the location, shape, size, and tax value of a piece of land, are not sufficient to establish legally definitive ownership. Furthermore, an unknown percentage of the land sales in rural areas are legally insufficient (might not be ratified or enforced by the courts).

The cadastral office records historically have not been compatible with the registry files. That is to say, until recently there was no common field of data that made the two sets of files reconcilable. Even descriptions of location and size have not always been of the same type in both record sets. It may be that in the course of reconciling the two sets of land records, thousands of inconsistencies arise. Recent efforts by national and international agencies to systematize the cadastral and registry files did not establish a method of records reconciliation. Today, at least there is a technical intention and a technical method for so doing. Each of the millions of properties listed in the registry file carries an identification number, and this number is gradually being assigned to corresponding properties in the cadastral files. This process promises some quantity of legal

challenge and dispute; however, it is generally conceded that, in the long run, the two files must be reconciled.

Creating basic ownership and survey data in unmapped areas is an additional challenge, especially where security for surveyors and interviewers is complicated. Still, the opportunity to do original cadastral formation in areas of greatest illicit cultivation should be seen as golden.⁵³ There is no place in Colombia where cartography, cadastral formation, and digitization of registry files cannot be speedily accomplished, although in some areas this may require direct military or police escort for the protection of administrators, surveyors, and other technicians. While the creation of files and precise mapping does not assure effective government presence and authority in outlaw areas, the creation of digital files (with their characteristic permanence and visibility) provides a useful tool for extension of government presence and authority.⁵⁴

The Colombian government is attempting to formalize land ownership throughout the country and to digitize the related data.⁵⁵ As it is now, results of that effort will not be realized for several years at best. Moreover, there is a strong possibility that the resulting data will not be totally transparent, or not provided in a timely and comprehensive manner to U.S. Government agencies. A multi-agency program of assistance can be implemented to accelerate the Colombian government cadastral program, foster and monitor transparency, and gain timely use of digitized and digitally mapped description, ownership, use, and value data for property throughout Colombia. Most of this data would be necessarily unclassified, openly obtainable, and could be made available to the full range of participating agencies. A portion of the data could be made available on a public Internet site for use by interested scholars.

U.S. Government decisions regarding Colombia, whether related to counternarcotics, counter-terrorism, economic development, military operations, long-term peace or otherwise, are not

well-taken unless fully informed regarding the ownership of real property. Only a few years ago such an assertion would have been not only curious but unreasonable—not so much because property ownership did not influence political actors in foreign countries, but rather because such intelligence could rarely be had. Even if U.S. decisionmakers would like to have had better information about who owned what in foreign countries, the intelligence challenge was generally insurmountable, at least beyond the most immediate and anecdotal investigation. Today, property data can be collected, organized, analyzed, and presented in ways that can support foreign policy and strategy. A convergence of new technologies, including global positioning satellites, and expanding technical protocols such as the National Spatial Data Infrastructure, makes provision of detailed property information practicable.

The Upshot.

Among the uses of real property information discussed above were support to military tactics and territorial control strategies, asset forfeiture or denial; precision eradication of illicit crops; prediction and prevention of human rights violations; corruption limitation, long-term capital creation, alternative development contract monitoring; and improved understanding and expression regarding the ultimate effect of policies and projects. Other uses include money-laundering tip-off, avoidance of collateral damage in military operations, improved disaster relief planning, support to ecological protection strategies, and equitable tax assessment practices.

Of all the uses of property data, however, perhaps the farthest-reaching derives from the potential to map market values. Almost all the individual holdings in Colombia have been assigned a tax appraisal that responds to the essential purpose of the cadastre as a tax base record. It is feasible to obtain detailed market assessment appraisals throughout most of the country that would allow a comparison of

market prices to the tax appraisals. With such information we could create a map that would reflect the condition of human rights in Colombia. As argued earlier, real property is a set of rights (and duties) associated with a place. The fuller the set of rights, the more valuable the place. The more stable and better protected the rights, the more valuable the place. Not only will land values rise generally in Colombia when the war is over, but the value of individual pieces of land will increase or decrease in relation to the quality of rights enjoyed. If persons can travel and live safely, the market prices of their lands will increase. We will be able to see on a map, in color and in detail, the quality and stability of rights as they improve or diminish. Of course this is important for knowing if civilization is winning or losing against outlawry, but it may be more important as an engine for a sea change in U.S. foreign policy. The inhumanities that energize American foreign policy are the violent consequences of underlying conditions, conditions that by themselves failed to generate emotional energy. Violent symptoms rather than underlying causes become the focal point of policy. By better appreciating property, we can consider a broader range of contested rights and duties that lead to grave violations of human rights. Even in relation to the most serious human rights abuses, property issues will be identified as causes. Few abuses are not rooted in competitions for property. Unfortunately, when dealing with international human rights, the problem becomes one of metering the status of human beings not only to the extent that their property rights are being protected, but to the extent that they themselves are being treated as property.

In every civilized society property rights must be carefully safeguarded; ordinarily and in the great majority of cases, human rights and property rights are fundamentally and in the long run, identical; but when it clearly appears that there is a real conflict between them, human rights must have the upper hand; for property belongs to man and not man to property.⁵⁶

Theodore Roosevelt

Accepting President Roosevelt's observation, U.S. foreign policy toward Colombia and elsewhere need not veer away from human rights discipline, but should refocus on the erosion of liberty and property that precede gross violations. A map of the quality of rights in Colombia can be made, and that map will show progress (or lack of it) against the underlying causes of gross human rights violations there.⁵⁷

Colombia's government has not done enough to make land ownership precise and transparent, and therefore not enough to control corruption and reduce disillusionment. The problem may owe to an underestimate of the importance of formalized land ownership as a fundamental mechanism for social peace and honest government. Recently, Colombians overwhelmingly elected a candidate who announced his intention to mobilize the Colombian nation to take an aggressive stance against the guerrillas. His treatment of the AUC is more of a question mark. In the face of U.S. desire to assist Colombia to rid itself of all terrorist groups and to curb corruption, the United States needs new, more detailed information—not just anecdotal, but strategically relevant, comprehensive data about who gains and loses in Colombia when major decisions are made.

Success for Colombia in dealing with organized outlaws, and in establishing the conditions for long-term peace, depends on gaining a better understanding of the details of ownership in Colombia. To influence the course of Colombian change, the United States would be well-served to know who specifically benefits from the redistribution of interests in land. To succeed at counternarcotics, the United States must know more about who owns illicit cultivation and how, and about geographic values beyond the crop areas themselves. A complete map of Colombia is needed, one that comprehends ownership and assists in the creation of stable property. The United States can support its creation and encourage its transparency.

The measures of effectiveness applied in determining the success or failure of U.S. and Colombian government policies also need to be improved. It will be useful to keep track of quantities of illicit drugs grown, shipped, or sprayed. Effectiveness in healing the Colombian state and society, however, must be measured in other ways. One indicator ought to be the value, in detail, of Colombian land.⁵⁸ When Colombia begins to enjoy widespread, regular increases in rural property values, it will be one of the surest indicators that its war has been won.

The upshot of these observations about the nature and significance of property and property mapping in Colombia is clear. The government of Colombia, at U.S. insistence backed by U.S. aid, should formalize all land ownership in Colombia as soon as possible, make land ownership and value information completely and readily available, challenge concentrations of ownership in the hands of outlaws, and incorporate real property purchases and distribution into its own counternarcotics and counterterrorist strategy. All this will contribute to a stronger Colombian State with a visible commitment not just to security, but also to civil rights and open government.

To restate:

A positive correlation between formal land ownership and material progress exists;

A complementary relationship between formal land ownership and social peace exists;

Informally owned and unregulated land ownership favors illicit land use and violence;

Property manipulation is an overlooked dimension of outlaw political and military strategies;

Collection of property information on a strategic scale is practicable because of new technologies; and,

Property information supports law enforcement, military, developmental, economic, and diplomatic decisions and programs.

Therefore, if we are to expend more human and financial capital on Colombia, we should assure that Colombian land is thoroughly mapped.

ENDNOTES

1. On the history of agricultural and extractive products as a factor in Colombian conflict, see, for instance, Frank Safford and Marco Palacios, *Colombia: Fragmented Land, Divided Society*, New York: Oxford University Press, 2002. See also, generally, Indalecio Lievano Aguirre, *Los Grandes Conflictos Sociales y Economicos de Nuestra Historia*, Bogotá: Círculo de Lectores, 2002.

2. This theme of conflict over cash products and their geography is not at odds with another common thread in the literature of Colombian conflict—the struggle for control of labor. Colombian labor sources, whether indigenous populations, imported slaves, or otherwise, have been variously courted and abused for the purposes of exploiting product or controlling terrain. Thus the two themes are interwoven and complementary. The political assumptions and preferences of Colombian authors seem often to correlate with one theme or the other. Those Colombian authors focusing on human exploitation tend to favor socialist solutions. See, for instance, María Clemencia Ramírez, *Entre el estado y la guerrilla: identidad y ciudadanía en el movimiento de los campesinos del Putumayo* (Between the State and the Guerrilla: Identity and Citizenship in the Campesino Movement in Putumayo), Bogotá: Instituto Colombiano de Antropología e Historia, 2002; Orlando Fals Borda, *Historia de la cuestión agraria en Colombia*, Bogotá: Carlos Valencia Editores, 1982; Margarita González, *El Resguardo en el Nuevo Reino de Granada*, Bogotá: El Áncora Editores, 1992.

3. The author does not cite illicit drug profits as the characteristic distinguishing the current struggle from those of Colombia's past, although this is clearly important to the scale of the problem. Rather, the key difference between today's civil conflict and its predecessors is the imported nature of the ideological base of the rebel (FARC and ELN) projects. The ostensible argument of the guerrillas is not rooted in the traditional Colombian federalist—anti-federalist—debate, but rather in class struggle. It may be that the un-Colombian nature of the argument is part of the reason that the guerrilla has seemed to lose ideological compass. Interestingly, there is a new and growing body of

political literature in Colombia that emphasizes regional and territorial issues, advocating the reshuffling of administrative political units of the state. Even those writings inspired by socialism seem less taken by class-consciousness than by the traditional Colombian centrifugal quarrel. See, for instance, “Conflicto, Autonomía Regional y Socialismo Ecológico” (“Conflict, Regional Autonomy and Ecological Socialism”) or “Descentralizar para Pacificar” (“Decentralize to Pacify”) in Agenda Ciudadana, *Las claves territoriales de la guerra y la paz, desarrollo regional, participación ciudadana y agenda de paz* (The Territorial Clues to the War and Peace, Regional Development, Citizen Participation and the Peace Agenda), Bogotá: Agenda Ciudadana y Cátedra para la Paz, 2000; Jaime Castro, *La Question Territorial*, Bogotá, Oveja Negra, 2002; and Orlando Fals Borda, *Kaziyadu: Registro del Reciente Despertar Territorial en Colombia* (Kaziyadu: Record of the Recent Territorial Awakening in Colombia), Bogotá: Ediciones desde abajo, 2001; Alejo Vargas, “La guerra por el control territorial” (“The war for territorial control”), *El Espectador*, November 17, 1998, p. 4A; “Guerrilla exigirá derecho a gobernar territorios” (“The Guerrillas Will Demand Right to Govern Territories”), *El Espectador*, November 16, 1998, p. 6A.

4. The roots of these two communist guerrilla groups reach back to at least the early 1960s. See, on the history of the Colombian guerrillas, Michael Radu, *Violence and the Latin American Revolutionaries*, New Brunswick, 1988; Russell W. Ramsey, *Guerrilleros y Soldados*, Segunda Edición, Bogotá: Tercer Mundo Editores, 2000; Cordillera Editores, *Historia de las Fuerzas Militares de Colombia: Ejército, Tomo III*, Bogotá: Planeta Colombiana, 1993, pp. 124-141; Eduardo Pizarro Leongómez, *Las FARC: 1949-1966*, Bogotá: Tercer Mundo, 1992; Carlos Medina Gallego, *ELN: Una historia de los orígenes*, Bogotá: Rodríguez Quito, 2001. The AUC is another illegal, armed irregular force popularly described as “paramilitary” and as “right wing,” although it has made few ideological statements beyond opposition to the communist guerrillas. For more on this organization, see David Spencer, *Colombia’s Paramilitaries: Criminals or Political Force?* Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2001; Mauricio Aranguren Molina, *Mi Confesión: Carlos Castaño revela sus secretos*, Bogotá: Editorial Oveja Negra, 2001; “Place” as used here alludes to a body of theory in the study of geography, a centerpiece of which is called “central place theory,” that considers competitive weeding-out and survival of businesses. Associated normally with urban economics and geography, place theory has obvious application in Colombia. See, in this regard, <http://geography.about.com/cs/centralplace>.

5. For a brief description of Colombia’s current “contending forces,” their methods, and goals, see generally Max G. Manwaring, *Nonstate*

Actors in Colombia: Threat and Response, Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2002.

6. Alfred Tennyson, *Alfred Tennyson Selected Poetry: Edited, with an Introduction by Douglas Smith*, New York: Random House, 1951, p. 307.

7. The type and quality of tenancy, mortgager, renter, sharecropper, etc., often arises in analyses of Colombian agricultural reform, and tenancy conditions are highly varied even within a single department. Quality of land ownership in Nariño is typically varied, as a thematic map of tenancy there indicates. See Instituto Geográfico Agustín Codazzi, *Análisis geográficos: Aspectos geográficos del sector Andino Nariñense*, Bogotá: Instituto Geográfico Agustín Codazzi, 1982, p. 26.

8. Yovanny Arturo Martinez and Nyrian Angelica Ubáque, *El catastro del nuevo milenio*, Bogotá: Instituto Geográfico Agustín Codazzi, 2001, p. 1

9. This is actually a digitized composite of two cadastral maps featuring the county seat and surroundings of Tablón (a *municipio* or county) in Nariño Department in southwestern Colombia.

10. Hernando de Soto, *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*, New York: Perseus Books Group, 2000.

11. Hernando de Soto, *The Other Path: The Invisible Revolution in the Third World*, New York, Harper & Row, 1989.

12. On the subject of public information transparency, see Luz Estella Nagle, *The Search for Accountability and Transparency in Plan Colombia: Reforming Judicial Institutions — Again*, Carlisle, Pennsylvania: Strategic Studies Institute, U.S. Army War College, 2002. “Transparency and accountability are essential to good governance. They will discourage nepotism and curb the bestowing of favors on family and friends.” *Ibid.*, p. 8.

13. Numerous unclassified maps of FARC dispositions have been published in recent years. Among the best are Alvaro Valencia Tovar, “Ubicación Cuadrillas FARC” in *Inseguridad y Violencia en Colombia*, Bogotá: Universidad Sergio Arboleda, 1997, p. 126; “Localización de los frentes guerrilleros, 1995,” in Jesus Antonio Bejarano Avila, *Colombia: Inseguridad, violencia y desempeño económico en las areas rurales*, *ibid.*, p. 119; Angel Rabasa and Peter Chalk, “Figure 4.3, Areas of Expansion of FARC Activity, 1996-1997,” in *Colombian Labyrinth: The*

Synergy of Drugs and Insurgency and Its Implications for Regional Stability, Santa Monica, CA: RAND, 2001, p. 49; a map image is also available only from “The Center for International Policy’s Colombia Project,” at <http://www.ciponline.org/colombia/farcmap.htm>.

14. See Thomas Marks, *Colombian Adaptation to FARC Insurgency*, Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2002, p. 16.

15. A 1961 U.S. Army Field Manual on irregular war states that, “Surface lines of communication which have proved particularly vulnerable to attack and sabotage should be abandoned, at least temporarily, if at all possible. Long surface lines of communication cannot be completely protected against a determined irregular force without committing an excessive number of troops.” Department of the Army Field Manual (FM) 31-15, *Operations Against Irregular Forces*, Washington: Headquarters, Department of the Army, 1961, p. 23. However sound this advice might have been in the context of the conflicts contemplated by the authors at the time, this would be disastrous advice for the Colombian situation and is rejected here. Colombia’s urban centers depend on a limited number of long-haul road routes. Colombia has the material wherewithal to not abandon legal commerce to its fate on the nations major highways.

16. Personal interview of the author in February 2002 with government officials who requested anonymity.

17. Colombia’s outlaws have property-awareness. They know what property is most valuable and they know that property is a relationship between land, people and government. They know further that accurate records help govern. Outlaw leaders, especially guerrillas, understand property as a contract between government and people—but they want that contract to exist between Colombia’s countrymen and themselves, not the democratically constituted government the United States supports.

18. On the clearance zone or “*despeje*,” see Geoffrey Demarest, “In Colombia: A Guerrilla Sanctuary?” *Military Review*, March-April 2002, pp. 48-50.

19. The translated denotation of the word *terrateniente* is landowner, but the connotation, especially in Colombia, is of an arrogant holder of more land than justice should permit.

20. “Milicias se pelean a Medellín,” *El Tiempo*, May 23, 2002, pp. 1, 2.

21. The Atrato area has been an especially unfortunate victim of mass civilian suffering and death. One of the worst human rights offenses of the war occurred in late April 2002 at Bojayá in Chocó Department. In the context of a battle with the AUC for control of the area (the same general confrontation as that in Medellín), the FARC launched a gas cylinder mortar/rocket that detonated in a packed church killing at least 110 persons. See “Crece la pesadilla en Bojaya,” *El Tiempo*, Bogotá, May 8, 2002, p. 1.

22. On the nature of property ownership, see Wesley Newcomb Hohfeld, *Fundamental Legal Conceptions as Applied to Judicial Reasoning*, New Haven: Yale University Press, 1919, reissued 1964; Reinold Noyes, *The Institution of Property*, New York: Longmans, Green and Co., 1936.

23. See, for instance, Jesus Antonio Bejarano Avila, Director of Research, *Colombia: Inseguridad, violencia y desempeño económico en las areas rurales*, Bogotá: Universidad Externado de Colombia 1997, p. 225. This work includes extensive presentation of the relationship between violence and rural land use and markets in Colombia.

24. In this vein, a U.S. Agency for International Development (USAID) initiative stemming from the Summit of the Americas, the Inter-Summit Property Systems Initiative (IPSI) calls for the governments of the Americas to incorporate alternative dispute resolution mechanisms into their plans. It is understood that successful local judicial and nonjudicial resolution of property conflicts depends on reliable, open information regarding ownership. Assuring the fidelity and permanence of public records is an obvious start point for building systems for quieting title, ending dispute over ownership by court decision. See “Virtual Office for the Inter-Summit Property Systems Initiative” <http://www.property-registration.org/Documents/IPSI.htm>.

25. Parallel works, such as John P. Powelson’s *The Story of Land: A World History of Land Tenure and Agrarian Reform*, Cambridge, MA: Lincoln Institute of Land Policy, 1988, highlight correlations between civil violence and informality in systems of property ownership; see also Geoffrey Demarest, *Geoproperty: Foreign Affairs, National Security and Property Rights*, London: Frank Cass, 1998. In this book, the author deals with the foreign policy and strategy aspects of property and ownership theory. Of the American failure to attend to the question of property in international affairs he states,

If, in all the lands where the United States regularly cites grave human rights inadequacies, one were to ask simple questions

about landlord-tenant laws, title registry systems, zoning ordinances, mining stakes, paving contracts, street gang territories, paternity laws, or water courts, two judgments would be reached. First, that powerful linkages exist between violent abuses of human rights and contested property rights. Second, that U.S. intelligence collectors, analysts, and policymakers are indifferent to details of the ownership environment.

26. Michael Hill, *Black Sunday: Ploesti*, London: Schiffer Publishing, 2001; see also B. H. Liddell Hart, *History of the Second World War*, New York: G.P. Putnam's Sons, 1970, pp. 607-608; U.S. Air Force Museum, *WWII Combat Europe, Ploesti, Rumania Mission Details*, online at <http://www.wpafb.af.mil/museum/history/wwii/ce10.htm>.

27. Except perhaps later in the war, when a comprehensive, near simultaneous campaign against production facilities within Germany had a devastating effect on supply. Therein, too, may lie an important lesson. Eradication will be more successful in hurting guerrilla finances to the extent it can be done massively and simultaneously throughout the county. This may be practically impossible until the expanse of crop areas and the complexity of the outlaw logistics routes are reduced.

28. These responses also show that eradication is having an effect, and more than mere annoyance. Still, the effect could be worse than the cure. See, for example, Juan Londoño M., "Violencia, peor que la broca" ("Violence, Worse than the Blight"), *El Tiempo*, December 5, 2001. Describing the effect of the war on the traditional coffee growing region, the *eje cafetero*, Londoño reports on an increase in violence, including the robbery of whole shipments of coffee beans by the guerrillas. Such acts may be compensatory means of reacting to diminished coca revenues. They raise a question about fencing. To convert coffee beans to cash, the guerrilla organization must have in place the correct set of owned or extorted businesses, and/or the right array of government bribes.

29. For a relevant series of maps, see *Geografía de la guerra*, online at <http://www.disaster.info.desastres.net/desplazados/geografia/indexmap.htm>.

30. In addition, a sizeable percentage of the money spent on the counternarcotics military portion of *Plan Colombia* was for helicopter purchases. Helicopters, perhaps the single most accepted and significant machine for overcoming terrain and time disadvantages in irregular warfare, are to some extent fungible. Giving helicopters for the

purpose of counternarcotics frees others for different uses. In addition, the semantic warp of counternarcotics vice counterinsurgency may, as hoped, be ending. The helicopters will be available for broader, counteroutlaw use.

31. Compare “Figure 3.2 Arms Smuggling Routes Into Colombia,” in Angel Rabasa and Peter Chalk, *Colombian Labyrinth: The Synergy of Drugs and Insurgency and Its Implications for Regional Stability*, Santa Monica, CA: RAND, 2001, p. 36, citing the Colombian Ministry of Defense, with Carlos Eduardo Jaramillo, “Principales rutas . . .,” in *Los Guerrilleros del Novecientos*, Bogota: Fondo Editorial CEREC, 1991, pp. 286, 293.

32. One of the natural military advantages the FARC gained included interior lines, rear area security, protected lines of communication, protected financial resource bases, marshaling areas, training areas, and access to strategic corridors, including into the federal district of Bogotá. The propagandistic value cannot be understated, either, propaganda and operational strategy being at some point linked. The FARC has long made explicit arguments in favor of belligerent status under international law. See, for instance, “Beligerancia,” *FARC-EP Documentos* at <http://www.farc-ep.org/>. As the FARC points out, application of the conventions (and with it a strengthened argument for separate and legitimate international identity) includes a requirement that the dissident armed force “exercise such control over a part of its territory as to enable them to carry out sustained and concerted military operations. . . .” More important still is the very fact of participating in a peace process while carrying on its violent activities. Sitting at a peace negotiation lent the FARC both legitimacy and media profile, especially overseas. Without the peace process, the FARC image is diminished. The *despeje* and the Pastrana peace process were so linked that elimination of the *despeje* meant the end of the process and the political benefits to the FARC that went with it. See Armando Borrero Mansilla, “La Importancia Militar de la Zona del Despeje,” *El Tiempo*, October 19, 2001, online at <http://eltiempo.terra.com.co/19-10-2001/prip118531.html>.

33. See Scott Wilson, “Colombian Rebels Use Refuge to Expand Their Power Base: FARC Pushes Boundaries of Government-Backed Safe Haven,” *The Washington Post Online*, October 3, 2001, p. A25, at <http://www.washingtonpost.com/>. “Envisioned as a way to end Colombia’s nearly four-decade civil war, the FARC’s safe haven instead has become the guerrillas’ single biggest military advantage in the widening conflict, according to senior army officers and defense analysts in Colombia.” *Ibid.*

34. "Colombia details fresh IRA link to guerrillas," *Financial Times*, September 17, 2001, online at <http://ft.com>. See also "IRA Denies Sending Trio to Colombia," *Agence France Presse*, Wednesday, September 19, 2001, online at http://www.prairienet.org/clm/clmnews_files/010919AFP01.html>. The long-standing issue of Cuban government sponsorship of Colombian subversive groups should regain currency. See, for instance, Ninoska Pérez Castellón, "The Cuban Connection," *Latin American Special Report*, Vol. 12, No. 11, September 30, 2001, p. 1.

35. "Mi Única Prioridad no es la Paz." Interview with President Andrés Pastrana, *Semana*, February 26, 2001, p. 30.

36. *Ibid.*

37. These counties are Yondó, Antioquia; Cantagallo, Bolívar; and San Pablo, Bolívar. The Magdalena River itself was not to be included and, according to President Pastrana, the time would be limited to 9 months. For a detailed description of outlaw competition for the area, including a series of maps describing *Magdalena Medio*, see Vicepresidencia de la República, *Programa Actual del Magdalena Medio*, Current Program on the Middle Magdalena) online at http://www.derechoshumanos.gov.co/observatorio/04_publicaciones/04_03_regiones/magdalenamedio/index.htm. For a chronology of the Pastrana government's policy regarding the ELN, see also Departamento de Comunicaciones, Oficina del Alto Comisionado de paz, Santa fé de Bogotá, Colombia, *Hechos de Paz (Peace Facts)*, online at http://www.hechosdepaz.gov.co/es/load.php/uid=0/leng=es/5/cronologia_eln00.htm.

38. Vicepresidencia de la República, *Ibid.*

39. Thrusts to seize control of the big river mark most of Colombia's civil wars. Typical was an early incursion by Liberal (rebel) forces at the outset of the War of the Thousand Days. On October 24, 1899, at a mid-river turn called Los Obispos, a group of rebels led by Baranquilla doctor Julio Vengoechea sank one of their own paddleboats and watched the government gunboat *Hercules* sink the rest. The rebel plan to wrest the Middle Magdalena was well-conceived, but botched. See Geoffrey Demarest, "War of the Thousand Days," *Small Wars and Insurgencies*, Vol. 12, No. 1, Spring 2001, p. 7.

40. Knowledge of ownership by plat in southern Bolívar Department would not likely point directly to those responsible for drug cultivation, although it might indeed. It is more likely that ownership information such as residency of absentee owners or hometowns of mortgage banks

might tend to prove or disprove territorial theories concerning the lack of material progress in the area. One popular hypothesis holds that the departmental capital is simply too distant from the southern cone of Bolívar. It would be interesting to see, by way of the property ownership records, what the relative connection of the agriculturalists in the area is to the departmental capital of Cartagena on the Atlantic coast. See Orlando Fals Borda, *Región e Historia: Elementos sobre ordenamiento y equilibrio regional en Colombia*, Bogotá: Tercer Mundo, 1996, p. 9.

41. Instituto Colombiano de la Reforma Agraria—Incora, *Colombia Tierra y Paz: Experiencias y caminos para la reforma agraria, alternativas para el siglo XXI, 1961-2001*, Bogotá: Incora, 2002, pp. 174, 175. This work contains several essays relating the agrarian reform efforts of Incora to social problems, including violence, facing Colombia. The essays should be compared to those in an earlier Incora publication, Marta Rojas, editor, *Tierra, Economía, y Sociedad*, Bogotá: Incora, 1993.

42. *Ibid.*, p. 187.

43. Author interview of Colombian government officials who requested anonymity. Incora is the acronym of the Colombian Institute for Agrarian Reform, Instituto Colombiano de la Reforma Agraria.

44. The policy of the Clinton administration was formalized in Presidential Decision Directive/NSC 73, dated August 3, 2000, that stated in relevant part,

The primary focus of the Colombia initiative is to provide support for Colombia's intensifying counterdrug effort. As a matter of Administration policy, we will not support Colombian counterinsurgency efforts. We will, however, provide support, in accordance with existing authorities and this policy, to the Government of Colombia for force protection and for security directly related to counterdrug efforts, regardless of the source of the threat. This Administration remains convinced that the ultimate solution to Colombia's long-standing civil conflict is through a successful peace process, not a decisive military victory, and believes that counterdrug progress will contribute to progress towards peace.

For a more recent U.S. government statement regarding the Colombian situation, except in counterterrorism terms, see U.S. Department of State, *Patterns of Global Terrorism*, Department of State Publication 10940, Washington: Office of the Secretary of State, 2002, pp. 45-47.

45. See, for instance, Spencer; *Ibid.* note 4.

46. See Susannah A. Nesmith, "Colombian Rebels Face New Adversary," *Associated Press*, Thursday, January 3, 2002, online at http://www.prairienet.org/clm/clmnews_files/020103AP01.html; "Rebeldes con causa," *Semana*, November 19-26, 2001, No. 1020, p. 32; "La Resistencia," *Ibid.*, p. 54.

47. Instituto Geográfico Agustín Codazzi, Agustín Codazzi Geographic Institute, Bogotá: IGAC, 2002, institutional information folder.

48. Failure to pull in one direction is not limited to the Colombian government. If the U.S. Agency for International Development embarks on an alternative crop development project, the goals are both developmental and counternarcotic. If a deal is made with local agriculturalists in which agricultural and financial assistance is exchanged for a promise not to grow coca, the United States should be fully informed regarding the nature of the deal. What exactly are the rights in land held by the individual farmer? Is he a sharecropper? Is he beholden for rent, or is he subject to an unregistered mortgage? To whom is he beholden for protection of his basic rights of peaceful possession? Are all interests in the land registered and verifiable? No aid project could be useful to the strengthening of the contract between the duly constituted government and the population if that project serves a different contract—a forced contract between the peasant and the outlaw. Nevertheless, it appears that many U.S. aid programs are underinformed regarding the status of local property. In some project areas not even basic cartography exists, and the property contract of the peasants appears to be with the guerrillas or paramilitaries rather than with the government.

49. Other observers have noted that the Colombian state is at odds with itself and so is its war effort. See Dennis M. Rempe, *The Past as Prologue? A History of U.S. Counterinsurgency Policy in Colombia, 1958-66*, Carlisle, PA: Strategic Studies Institute, 2002. "The violence in Colombia requires an integrated strategy that addresses the social, economic, political, and military dynamics of the problem." *Ibid.* p. 31; "We can talk of nothing until the government actually exercises its writ within its national territory. This will come about only through a combination of military and socio-economic means." Marks, *Ibid.*, note 18, p. 31; "Colombia as a system is not involved in its own struggle. Though commendable initiative has been shown by some government organizations, others . . . have proceeded as though an internal war was not raging." *Ibid.*, p. 32.

50. Yovanny Arturo Martinez; *Ibid.*, note 10.

51. The national cadastral office is a directorate of the national cartographic institute, *Instituto Geográfico Agustín Codazzi*, which is a dependency of the Ministry of Interior and Public Credit, *Ministerio de Hacienda y Crédito Público*.

52. Real property registrars are named to all of the departmental capitals and to a number of other cities. Registrars to the departmental capitals are named directly by the President of the Republic. Registrars are subordinate administratively to the Superintendency of Notaries and Registries, *Superintendencia de Notarios y Registros*, and those registrars named to nondepartmental capitals are generally named by the Superintendent, who is in turn appointed by the President. The Superintendency is subordinate to the Ministry of Law and Justice, *Ministerio de Justicia y Derecho*. The registrars direct the registry offices, known as Offices of the Registry of Public Instruments, *Oficinas de Registro de Instrumentos Públicos*, which are organized into what are called Registry Circles, *Círculos Registrales*, and into which may fall several to many counties, *municipios*. That is to say, only about one in ten counties has a registry office.

53. Original ownership adjudication presents the government with an opportunity to create property in the hands of persons most likely to oppose invasion by illicit interests. This opportunity, however, has not been exploited. Agrarian land redistribution decisions mostly have not been guided by counternarcotics, counterterrorist, market, or for that matter, even ecological considerations. Land redistribution programs should be made to fit into the overall government counternarcotics, counterterrorist and land-use strategies. Failure to do this has been a critical (and, unfortunately, willful) omission on the part of the Colombian government.

54. Developing a modern, formal land ownership regime is a larger, more difficult objective than that of creating or obtaining property data. A modern property regime includes mechanisms for trust-building and for market fluidity. These mechanisms include title insurance; a regulated brokerage profession; professional property inspectors and appraisers; statutorily specific “quiet title” actions; clearly delineated occasions for self-help in regaining possession; enforceable punishments for unlawful self-help; enforcement of restraining orders and eviction; transparency of ownership files; well-publicized statutes-of-fraud that require transactions in real estate to be in writing, signed, notarized, and registered; requirement that mortgages and encumbrances of all kinds be recorded or be without state enforcement; and so on. This litany of needs is included to underline an

important disclaimer: creating property data (even if is technically exact, judicially correct, and accessible) is not the same as creating a property regime similar to that known in the United States.

55. Cadastral maps and data do not constitute all the government property data readily available in Colombia. A variety of government offices maintain other geographically referenced data. For instance, ECOPETROL, the national petroleum company, maintains a variety of map data layers that include pipeline easements, exploration licences, areas of geologic promise, etc. INGEOMINAS, the national mining and mineralogical institute, has similar map data on valuable minerals. Other agencies maintain ecological and agricultural data, and the National Police keeps a massive geographically coded database of incidents that could be displayed on a common map with the property information using software such as ESRI ArcGIS.

56. Theodore Roosevelt, speech at the University of Paris, April 23, 1910, found in Daniel B. Baker, ed., *Political Quotations*, Detroit: Gale Research Inc., 1990, p. 201.

57. Violations of human rights most decried by our government and by private citizens working through nongovernmental organizations include lack of habeas corpus, torture, organized rape, extrajudicial execution, forced exile, disenfranchisement, and genocide. Any situation involving the violation of human rights could be expressed in ownership terms, but with reference to these most serious violations, the use of property terminology might sterilize or routinize descriptions. At that point, the relative utility of a property-based description of events and conflicts would be exceeded. Observation of the close linkage between denied property rights and evolution of basic human rights abuses is most important in defending broad attention to property rights in the analysis of national and international security affairs.

58. Colombia has a sufficiently competent and knowledgeable quantity of land appraisers, organized into a national professional federation, that it is feasible to implement a methodology for determining market values of land in most areas of the country.

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