

Your Rights, Your Future: Scaling Fit-for-Purpose Land Tenure in a Post-COVID World

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“Tenure and its governance are crucial factors in the fight against inequality and discrimination, for sustainable use of the environment, social stability and resilience toward the overall achievement of the SDGs.”

—FAO, Why Land Rights Matter, 2020

“If people lose their land, they have nothing. You lose your land—you lose your culture, you lose self.”

—Richard Gere

KEYWORDS

Land rights, fit-for-purpose technology, COVID-19, land administration, community mapping

SUMMARY

According to a 2020 Property Rights Index study, more than 1 billion people around the world fear being forced out of their homes against their will in the next five years.¹ This level of tenure insecurity results from a complex set of realities, with the backdrop of an estimated 70% of land in developing economies considered to be unregistered.

A lack of functioning land systems, weak land policies, corruption, discriminatory local practices, and inter-familial and community conflict contribute to high levels of inequality and tenure insecurity, especially among women and youth, depriving communities of more sustainable progress and stability.

According to studies conducted by the FAO, the COVID-19 pandemic has increased these inequalities even more, particularly among the most vulnerable, for example, Indigenous Peoples, the elderly, women, youth and children, migrants, and refugees. These groups are most likely to have insufficient access to productive assets, including land and other natural resources, adequate housing, economic opportunities, savings, insurance or alternative sources of income.²

The pandemic has shone a harsh spotlight on the urgent need for every person to have a secure place to call home, live, and work. Tackling tenure insecurity and its negative impacts is no longer an option. The ongoing and future disruptions caused by climate change, inequalities, youth unemployment, housing evictions, and land and resource grabs will continue to put

¹ Prindex, A Comparative Report: A global assessment of perceived tenure security from 140 countries, 2020.

² Examining the Impact of COVID-19 on Tenure Rights, FAO, 2020. <http://www.fao.org/tenure/news/news-articles/examining-the-impact-of-covid-19-on-tenure-rights/en/>

pressure on governments to ensure fair and equitable land governance. Land and resources are foundational to achieving the Sustainable Development Goals by 2030 and building a more equitable and sustainable future.

The purpose of this paper is to share a practitioner's view of how the Cadasta Foundation's global work to support the advancement of land and resource rights has progressed over the last five years and what the organization has learned in the process. The intent is to share the successes and lessons learned in order to accelerate the systematic inclusion of fit-for-purpose approaches to securing land and resource rights as a first step to more efficient, effective, and equitable land administration and governance.

The hope is that these approaches are relevant not only for the land sector, but also for sustainable development efforts in which land and resources are fundamental: food systems, conservation, climate protection, women's equality, youth empowerment, and protection of Indigenous Peoples and community rights. Scaling up efforts to advance land tenure globally will contribute to a more just and thriving planet.

PLATFORM TO ADDRESS LAND DATA AND TECHNOLOGY GAPS

In 2015, Cadasta was founded to address critical gaps, particularly around the need to capture and manage land data at scale, provide access to reliable and appropriate technology, and build the capacity of local and national stakeholders to systematically document and secure land and resource rights for millions of people left out of formal land systems. By making technology and training available to these communities, the idea was to provide bottom-up solutions to some of the bottlenecks preventing more equitable land rights.

Today, Cadasta is the leading global technology and services platform enabling vulnerable communities to affordably and easily document, map, and secure inclusive land and resource rights at scale. Cadasta and its 70+ partners have mapped and documented the land rights of over 5 million people—over half of them women, across 33 countries. Cadasta's [Global Impact Dashboard](#) documents the geographies, use cases, document types, gender, and other attributes of the data spanning over 1,500 communities and nearly 12 million hectares of land.

FIVE YEARS OF LEARNING

Building and scaling Cadasta has been a process and hasn't been without its challenges along the way. Examining three areas—technology, partnerships, and services—will shed light on what contributed to the current successes, the challenges and lessons learned, and areas in which Cadasta is still learning as it grows and develops through the COVID-19 pandemic.

Technology

Community-led mapping is not new; it has been in practice, with or without technology, for decades. As technology becomes more and more available, communities are able to improve digital data collection using a variety of tools and platforms to meet their needs. Some are completely offline and intended to manage a wide range of community knowledge, and are not

necessarily intended to formalize land claims. Other mapping efforts engage social businesses offering land titling services for a fee, without the need for community access to or use of the data beyond that purpose. There is a broad mix of open source, proprietary, commercial, and mixed technology stacks available. However, few, if any of these efforts have scaled beyond a particular geography or sector.



Appropriate technology is always contextual and must address the following considerations:

- Connectivity – availability and reliability of Internet connection
- Specific requirements for the end result – a government-issued land document, informal community data, parcel or community level demarcation, baseline data needs, etc.
- Skill level of the partner organization in IT, GIS, or more sophisticated technologies
- Availability of adequate mobile devices, such as smartphones and tablets
- Number, size, density of parcels or areas to be mapped
- Availability and accuracy requirements of satellite or drone imagery
- Literacy and language proficiency

Technology is only one tool in a large community toolbox to address land and resource claims. Each community and use case has particular needs; the challenge is to deploy technologies that are flexible enough to address each situation, but robust enough to be scaled and linked to government land information systems where formal recognition is desired. If technology can meet the needs of all communities and use cases needing better tools, then it is possible to use it to systematically change the systems to be more inclusive and effective. Flexible and effective technology can also help communities and governments overcome the restrictions imposed by COVID-19, for example, by mapping community health resources, or areas where lack of services hinder effective community response.

Early Platform

Cadasta's early years between 2015-2017 were focused on building a brand new software platform using open-source tools with a commitment to open data and free tools and services. The idea was to build a flexible, easy-to-use platform that would be appropriate across all use cases and needs, keeping the most vulnerable populations in mind, often with the most limited

connectivity and exposure to GIS technology. These efforts were important because they allowed for testing, iterating, and learning more about client needs.

The challenges of this approach were many. As with any new software development effort, it required significant user feedback and testing to build new features, address ongoing bug fixes, and continually maintain the technology stack. Privacy and security needs from the household level to national governments required a robust infrastructure to handle large amounts of data and offer a responsible data governance infrastructure that could hold up to scrutiny under growing data protection laws.

In addition, strong data visualization and analysis tools were needed to support client's efforts to formalize tenure and advocate with stakeholders. Building out these capabilities would require significant development and financial resources. Finally, communities and partners using the platform needed higher levels of training and support to effectively meet their needs. Cadasta's team was heavy on developers but needed to focus more on building the capacity of users and clients to support platform uptake and scaling.

Technology Pivot

After two years, due to the significant investment needed to make the product robust, scalable, and responsive to user needs, Cadasta's leadership undertook a strategic technology pivot. The decision was to build on and configure commercially available software that would better meet client needs and also allow Cadasta to shift resources from software development toward local training and support of organizations on the ground.

To that end, Cadasta defined its requirements and selected the leading geospatial mapping company, Esri, as the technology backbone. As a nonprofit partner, Cadasta would be able to provide low-cost licenses and make them available to Cadasta clients. With both commercial and open source tools, the Esri stack would give Cadasta the ability to build on and integrate with other technologies, and to focus its energy and resources on partner training and support.

In March 2019, Cadasta relaunched its new platform and strategy, Cadasta 2.0. In using Esri's technology, Cadasta is able to make its tools more affordable and flexible to accommodate various tenure types along the land rights continuum, and be supportive of the social tenure domain model and its various facets. High-accuracy geospatial data, smartphones, tablets, antennas, and digital survey apps help speed up data collection for a fraction of the time and cost of traditional surveying. This approach helps partners bypass the often lengthy and costly process of figuring out the type of technology to use or coding new software and tools from scratch.

By offering affordable access to the world's leading software, Cadasta has been able to focus less on software development, maintenance, and upgrades and more on helping partners configure existing tools to meet their needs. Not only has the use of high-quality software upgraded the quality of partner interventions, it has built stronger capacities around data visualization, analysis, and has allowed compatibility with government land systems. Data

collected using Cadasta's Esri-based tools can be collected to meet government standards for the recognition and issuance of official land documents.

Partnerships

Cadasta's success is a reflection of the collaboration and work of talented and resourceful partners on the ground. Cadasta does not collect data, but rather enables partners with the tools and training to lead their own efforts. This is the only way to promote local ownership and agency and to build the capacities needed to leverage the valuable commodity of local data.

Many of our 70+ implementing partners over the last two years have been national or local NGOs spread across 33 countries. This invaluable work offered learning and demonstrated impact on the rights and tenure of community landholders. Some partners were large and achieved greater scale, for example Tata Trusts, in partnership with the government of Odisha State, India, where over 1 million informal settlement dwellers were documented and have either received or are on track to receive a formal land title and a range of public services through urban upgrading.

As Cadasta grows, it is shifting toward partners able to access resources to support scale and impact through their networks and influence, while still reaching critical local organizations and communities. Cadasta's key partner segments include implementing partners, global organizations, large INGOs, governments, private sector, and donors.

Key Partner Segments

Implementing Partners: Implementing partners, seen as our core customers, use our tools with target households and communities and manage data on the Platform. Cadasta engages them in business-to-business (B2B) mode, and less often, B2B to Government (B2B2G), or B2G, where Cadasta performs direct advisory services under government contract. Customers range from large INGOs, such as Mercy Corps, Habitat for Humanity, Earthworm, and Solidaridad Network, to national and local NGOs and firms, such as Pradan in India; COLANDEF in Ghana; Daemeter in Indonesia; Green Advocates International in Liberia; Universidad Javeriana in Colombia; and FUNDAPAZ in Argentina, among many others.

Global and Sectoral Network Agents: Cadasta has built partnerships with large global membership organizations and INGOs with multi-country portfolios, such as Tenure Facility, International Land Coalition, Tata Trust, Habitat for Humanity, and GIZ, among others. Cadasta is actively growing this segment and is already in productive discussions with several large actors in climate and conservation, agriculture, and urban development. In addition, Cadasta is partnering with groups like the Young Surveyors Network of the International Federation of Surveyors (FIG), Youth Initiative for Land in Africa (YILAA), and the International Land Coalition (ILC) to deliver training and build a training and volunteer network.

Governments: Cadasta is working with over 20 government agencies across its portfolio and will continue to grow this segment to catalyze scale, impact, and positive changes in land systems. For example, there are signed agreements with the Ugandan Ministry of Land,

Housing and Urban Development and four district governments within Uganda; the Office for the Administration of Stool Lands, Ghana; and the Sekondi-Tokardi Municipality in Ghana. They participate in Platform training, planning, data collection, and issuance of land documents. Cadasta has been awarded projects from Lantmäteriet (Sweden) to deliver business advisory services and training in Botswana, Kenya, and Rwanda.

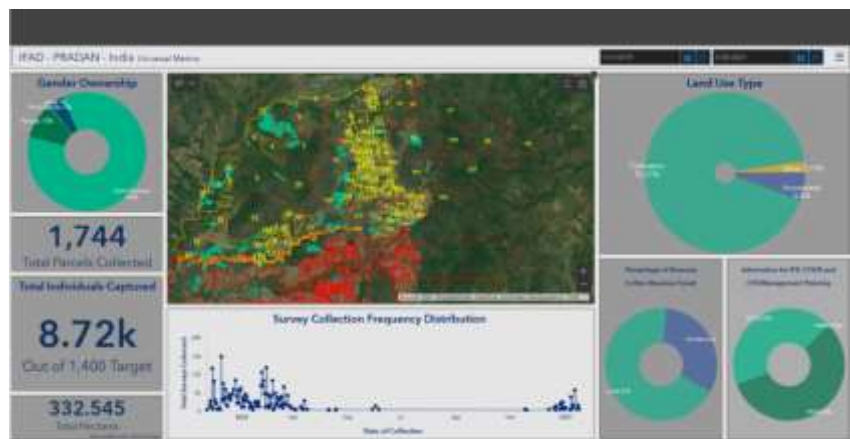
Private Sector: Companies and private sector-led groups working on responsible investments and supply chain transparency engage with Cadasta to solve land constraints. Cadasta also collaborates with firms on project bids, technology innovations, and thought leadership and communications.

Donors: Core support from Omidyar Network and DFID (now FCDO) has been instrumental in Cadasta's success. Cadasta's donor diversification strategy has resulted in support from USAID, IFAD, Lantmäteriet, David Weekley Foundation, and others, including several major gifts and fee-for-service agreements with customers. The Land Rights Challenge Fund remains a donor mechanism to support local organizations and spur innovation and growth.

Partner Use Cases

India

Partners like Waatavaran, Arch Vahini and Pradan in India are leveraging Cadasta's tools to efficiently map and collect community spatial and household data for Scheduled Caste and Tribal Communities living in the forests. Currently, these communities lack any form of formal records or proof of their communal and individual forest rights. Once documented, the community and individual claims will be submitted to local village councils for the first step of approval of their formal individual and community forest right titles under the Indian Forest Rights Act (FRA) of 2006.



Kenya

In Kenya, Pamoja Trust worked with Cadasta to map and halt the eviction of 71,000 people from informal settlements in Nairobi in the spring of 2020, at the peak of the COVID-19 lockdown. Had the evictions not been halted, these already vulnerable communities would have been left homeless and put at an even greater risk of contracting and spreading COVID-19.

Uganda

Supporting the Ugandan Ministry of Lands, Housing and Urban Development, Cadasta tools are being used across ten districts for the documentation of customary land rights. Over 1000

households have been documented to date, with Customary Certificates of Ownership now being issued to the first 600 families in April 2021.

Mozambique

Cadasta works in a number of different contexts in Mozambique - from providing the technical guidance and tools serving as the backbone of the Community Based Natural Resource Management Network Information System across a network of NGOs consolidating data on land use and rights, conservation measures, and local governance using common standards, to supporting partners in formalizing land rights. Our partners in Mozambique, are able to leverage beyond just securing rights however, but are actively using data to enhance smallholder productivity, or disaster recovery, our work with NCBA CLUSA on documenting women's land rights is



currently the subject of a World Bank Gender Innovation Lab assessment.

Colombia

Partners in Colombia are using Cadasta tools in a variety of contexts - both in urban and rural communities. This includes collaborations with Afro-Colombian and indigenous women's groups documenting and managing resources, to monitor land recognition of indigenous rights with the Ethnic and Indigenous Land Observatory at the Universidad Javeriana. With Habitat for Humanity, Cadasta is working in urban environments for the collection of data on housing and land use.

Brazil

In Brazil, Cadasta partners are leveraging our technology in a range of ways. Working in urban environments with Espacio Feminista and in partnership with local government, teams are leveraging drone technology and Cadasta tools to formalize the rights of marginalized communities, with an emphasis on women. Elsewhere, our work is more closely aligned with indigenous land rights and value chains, where our partners work on both traceability of commodities while ensuring local communities land rights are understood, respected and protected - even in the absence of formal recognition.

Training and Services

Cadasta empowers users by training them in the use of appropriate technologies to map land and collect data. Cadasta emphasizes local ownership and use of data to achieve community objectives. Cadasta helps its clients determine the best data models and workflows, and how to manage, use, and store data in a way that protects that privacy and security of households and communities.

The engagement of community youth, women, and men in data collection is key. Cadasta's train-the-trainer modules and workshops equip local actors to cascade training to local groups

involved in participatory mapping and household surveys. This has proven very effective in solidifying community buy-in and engagement particularly where strong verification and conflict mitigation steps are necessary for legitimacy. Partners lead these efforts due to their roles as trusted entities and implementers. Cadasta plays a support role to encourage inclusion, gender-sensitive approaches, and transparency.

The table below describes the types of services Cadasta delivers:

Cadasta Services	Description
Assessment	<ul style="list-style-type: none"> • Rapid partner and project assessment • Basic project design and budget preparation • Assess hardware/software and imagery options to identify best tools • Assess national land governance frameworks & align approach
Training	<ul style="list-style-type: none"> • Lead and/or support stakeholder engagement workshops • Deliver demand-driven topics, such as land concepts, GIS, community-based mapping, gender strategies, fit for purpose approaches, data quality assessment and verification; dispute resolution; land administration system; use of hardware; use of mobile apps; dashboards and analysis; workforce and workflow management; mapping system administration; use of data for advocacy and decision-making; training of Cadasta Trainers • Provide free online Training and Support Center modules and resources
Technical Assistance	<ul style="list-style-type: none"> • Create & test data collection forms, design workflows • Configuration of customized apps and tools • Data digitization or migration • Creation of dashboards, reports, thematic maps, analytics, or Story Maps
Grants	Land Rights Challenge Grants are offered in partnership with donors to support partners with in-kind equipment and support for data collection
Data Hosting and Platform Support	<ul style="list-style-type: none"> • Remote and/or on-site assistance before, during, and after data collection • Platform and data management and hosting

Service Roadmap and Process

It is important to work with each partner to determine a clear roadmap for how technology and the above services fit into their interventions. A partner onboarding process includes these steps:

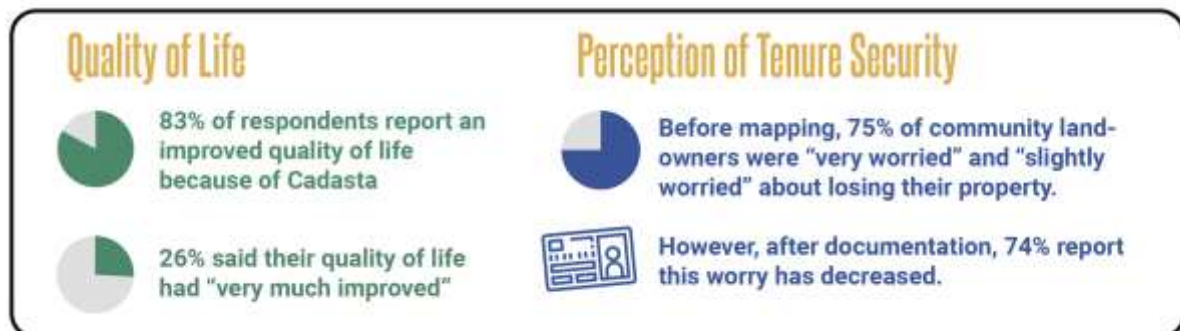
- Partner intake form: determines the focus, size, scope, geography, and desired outcomes of the proposed project.
- Project selection criteria: assesses a range of criteria, including funding, target geography, potential for impact at the community and systems level, partner technical capacity, and sector/use case before it takes on a partner.
- Partner agreement: defines the scope of work, budget, and terms and conditions of partnership.
- Onboarding: determines the technical, technology, and training requirements of the project to set it up for success, including equipment and technical specifications and pre-training configuration.
- Training: Delivered remotely or in-person to partner staff, community leads, government officials, and other stakeholders. Training of trainers builds local capacity
- Assistance during data collection and community training: support partners with troubleshooting or questions during training and community data collection.
- Data visualization and analysis: train and support partners on tools needed to visualize, share, and use their data to achieve their objectives.
- Government formalization support: technical support for government land information staff to migrate data and/or create documents for issuance of official titles or other forms of recognition.
- Ongoing technical assistance and data hosting: partners own their own data and store it based on their needs, either locally or in the cloud on Cadasta's platform.
- Partner feedback loops: gather client data on how to improve services and technologies
- Post-project results dissemination: share results and learning in global fora, social media, websites and press to catalyze broader systems change around fit for purpose approaches.

Cadasta's Service Roadmap



Evidence of Impact

As part of a systematic effort to learn directly from partners and community landholders, Cadasta commissioned an independent, third-party impact assessment to better understand how its tools and services impacted people’s lives in India in a forest rights project led by Pradan, using Cadasta’s platform. Employing a “lean data” methodology, the evaluation firm 60 Decibels conducted interviews with data collectors and project participants in Odisha and Jharkhand States, India. The study found that documentation on the Cadasta’s Platform improved the quality of life of community landholders and decreased tenure insecurity for those who feared losing their land. Cadasta tools were found to improve the efficiency, accuracy, and workflows of data collectors. Using a popular business tool to measure customer satisfaction called the Net Promoter Score (NPS), Cadasta received the highest NPS in the land sector based on customer feedback.





What our data collectors are saying:

"My workflow and process has improved because I used to do the chain system. It was slow and inaccurate...The efficiency has improved a lot for me because in the old technique, I was not able to understand a lot. But now when I reach the plot, with one click, I get all the details..."

WHAT CADASTA HAS LEARNED

1. Technology is not an end in itself.

Technology plays a small but critical part in efforts to strengthen land and resource rights. However, many other activities and approaches are central to achieving lasting impact. Local partners bring a deep understanding of local needs and context, engagement of local actors, and offer a wide range of interventions around livelihoods, conservation, productivity, health and well-being, and other activities. How well technology aligns with these broader activities will determine how much impact securing tenure will ultimately have. Technology must not detract from the core work, but rather, must facilitate workflows, ease data collection and sharing, and link to the final outcomes for users--whether improved conservation or defending land claims.

Flexibility, ease of use, speed, and affordability of the technology are the most important features and should meet the needs of the least tech-proficient users. Where more complex tech is needed, for example, using remote sensing data to integrate land data with forest alert systems, or large-scale feature detection using machine learning, tech tools should also be able to deploy higher level functions, such as Artificial Intelligence, overlaying of multiple data layers, data analysis, and integration with government land systems and other relevant technologies. Data visualization tools such as dashboards, reports, Webmaps, and others are an important part of equipping communities with what they need to advocate for and achieve more secure rights.

2. Meet partners where they are.

To be most effective and build sustainable local capacity to manage data in a way that improves lives, service providers must determine and meet partner needs. This includes working with a partner's technological and technical capabilities and understanding how to advance them along the land rights continuum. Informal community rights mapping has vastly different requirements than groups applying for a government-issued title or certificate.

Cadasta learned that setting up users for success includes pre-data collection support, such as equipment selection and set-up, training on basic topics, such as land concepts, GIS, digital literacy, gender strategies, and building on community knowledge. Addressing language and cultural norms is also critical.

3. Build a partner ecosystem for impact and scale.

Cadasta works with partners at the community level to advance community land and resource rights. Outcomes are measured at the community level. However, to scale impact beyond individual, dispersed communities requires working with implementers (users) and with multiplier organizations, such as larger networks and donors that can replicate community-level efforts across larger geographies and across multiple countries. Government partnerships are also critical to achieve the granting of formal rights and changing land systems and practices over time. Building a global ecosystem for land rights mapping requires linking users and partners, sharing results and learning, and demonstrating evidence of impact to promote replication, influence policies and practices, and ultimately to catalyze broader systems change.

THE FUTURE

Lessons from COVID-19

Like many organizations, Cadasta learned what teams can do while under a lockdown without the ability to deliver in-person training or services. This was a reckoning for some international organizations which discovered the depth of competency of local talent and resources and the unnecessary level of international staff's presence to deliver on their missions.

Cadasta's model already supported local partners as the leaders and protagonists of their own development, so the shift to an all-remote environment was less drastic. The team focused on how to do remote training and support more effectively by using highly interactive training methods, creating accessible online resources, and focusing on training local trainers early on who could provide on-site support during group training. During this time, Cadasta onboarded 25 new partners and trained 40 partners. It also launched the Global Impact Dashboard 2.0 and an online partner Training and Support Center.

Positioning Land as a Lever for Climate, Food Security and Women's Empowerment Outcomes

Those working in the land sector understand the inherent links between land tenure and broader development outcomes. As governments scale up funding and efforts around climate, sustainable food systems, and gender equality, land rights organizations must more effectively frame their work to align with the priorities of these sectors.

There is growing realization that more resources for climate, food systems, Indigenous Peoples and community lands (IPLCs), conservation, and equitable development will prompt enormous demand for land and resource mapping--not as an extractive exercise to gather data--but as an

empowering one that involves communities in their own data collection and use. Tools like the Cadasta Platform will be needed to respond to the uptick in investment in these areas.

To better position its efforts, Cadasta is shifting to a stronger regional focus on **East Africa, South Asia, and the Amazon**, where it has current partnerships and resource opportunities. High-priority countries include Uganda, Kenya, Tanzania, Rwanda, Mozambique, Indonesia, India, Brazil, and Colombia. The team will select projects using refined criteria, starting with alignment of mission and priorities, potential for funding, a favorable enabling environment, and strong partners on the ground. Other regions and countries may be included, depending on demand and available resources.

Cadasta will target three verticals: **Cities, Farms, and Forests**. These correspond to urban development in informal settlements; food systems; sustainable supply chains; and forest conservation, including protection of Indigenous Peoples and Community Lands (IPLCs). Themes cutting across these target sectors include **gender equality, climate action, and youth opportunities**. Cadasta will provide land tenure solutions as well as land-adjacent solutions, such as traceability (Farms/Forests); and land use management (Farm/Forest); municipal LIS (Cities); and geospatial intelligence platform as a service.

Learning from others' fit for purpose approaches to land governance over the last decade and from Cadasta over the last five years provides ample evidence for these approaches to become standard in addressing systematic land regularization and community land governance. Cadasta hopes that providers of land technology solutions will promote technology in ways that enhance community agency, meeting them where they are in their tenure status and technology capacity, and building an ecosystem of governments, communities, civil society groups, and businesses that can replicate and scale these approaches. Catalyzing these actions will not only strengthen global land and resource rights, but will also contribute to more sustainable food systems, climate protection, and women's empowerment for a more just and healthy planet.

BIOGRAPHICAL NOTES:

Amy Coughenour Betancourt, CEO of Cadasta Foundation, oversees a global team advancing land and resource rights. Cadasta has grown its portfolio by 150% and strengthened its impact for 5.2 million people with 72 partners in 33 countries. Amy was the COO of International Programs at the National Cooperative Business Association-CLUSA, leading a team of 800 and a tripling of the resilience, food security, and rural development portfolio in 20 countries. Amy was Deputy Executive Director, Pan American Development Foundation; Deputy Director of the Americas Program, Center for Strategic and International Studies; and has held senior roles and board positions in various social sector organizations for three decades.

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