

# INARI:

## A PROPOSAL FOR FINANCING SUSTAINABLE LAND USE AT SCALE

by

Lou Munden<sup>1</sup>, Peter Holmgren<sup>2</sup>, Rosalind Reeve<sup>3,4</sup>, Peter Riggs, Ravi Prabhu<sup>5</sup>, Benedick Bowie<sup>1</sup>, Benjamin Deljurie<sup>1</sup>, Sunil Subbakrishna<sup>1</sup>, Emelyne Cheney<sup>2</sup>

(1) The Munden Project

(2) Food and Agriculture Organization of the United Nations

(3) Ateneo de Manila University School of Government

(4) Chatham House (Associate Fellow)

(5) World Agroforestry Centre

*The views expressed in this document are those of the author(s) and do not necessarily reflect the views of the Food and Agriculture Organization of the United Nations, the Ateneo de Manila University School of Government, Chatham House or the World Agroforestry Centre.*

*The Munden Project's initial scoping work for financial mechanisms that drive good climate and development outcomes was supported by the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). The views expressed in this document cannot be taken to reflect the official opinions of these agencies, nor the official position of the CGIAR or ESSP.*

*The Munden Project's work beyond the initial scoping phase was contributed pro bono as a part of the company's 2012 efforts to promote decentralized financial systems that achieve sustainability.*

## Foreword

*Whether in agriculture, forestry or elsewhere, the challenge with sustainable land use is not so much determining what to do, but rather, how to pay for it and change the incentive structure necessary to achieve a quantum shift in practices on a large scale.*

*Existing investment schemes, both public and private, do not match the practices that drive sustainable land use.<sup>ii</sup>*

*We have written this paper to propose the development of an innovative finance mechanism to address these problems. This mechanism, which we christened “Inari”<sup>iii</sup>, draws on our collective expertise in finance, science, governance and rural economic development.*

*We designed Inari to drive financing to sustainable producers in a way that improves their livelihoods and protects the environment. It would accomplish this by aggregating payments from those producers into investment grade<sup>iv</sup> securities that offer a compelling risk-reward profile.*

*Making Inari a reality requires public support, both for the remaining research needed to develop the concept into something ready for implementation, as well as to drive down the risk of investment in a way that enables extensive private sector participation.*

*Our goal is to catalyze significant transformative changes in agriculture and land use. But this paper does not have all the answers. Taking Inari from concept to reality will require broad collaboration.*

*We hope this paper will offer a basis for that collaboration to begin, with an eye towards implementing Inari in 2014.*

## Inari's Design

Inari is a network-based system designed to finance sustainable land use at a global scale. If developed and implemented properly, Inari would be truly groundbreaking, attracting large investments of private capital into land management while maintaining quality standards for sustainability and governance.

We have designed Inari to support diverse land use practices. In particular, we have focused on investment in sustainable production activities in agriculture and forestry, as well as the infrastructure that transforms the outputs of those activities into market-ready products.

This means that Inari's investment activities will have much greater breadth than usual. Inari might invest in a system of rice intensification in Mali<sup>v</sup>, a combined heat and power community sawmill in Mexico, a maize/fruit agroforestry operation in Zambia<sup>vi</sup> or rehabilitating mangrove forests to support sustainable livelihoods through beekeeping and fisheries in Vietnam<sup>vii</sup>.

As standalone prospects, these investments seem too risky. This underpins our rationale for a networked financing approach: the aggregated cash flows of these operations may represent a significantly underappreciated investment opportunity. The inherent diversity of their operational risks, target markets, customers and home currencies create a compelling risk mitigation story – and that is before one considers the advantage diverse practices will have in mitigating and adapting to climate change.

All that is needed is an intelligently designed system to fuse them together. We offer Inari with that purpose in mind.

### *Matching Small Producers to Big Capital*

The first challenge Inari would face is matching diverse production activities to investors' preferences for standardized financing schemes.

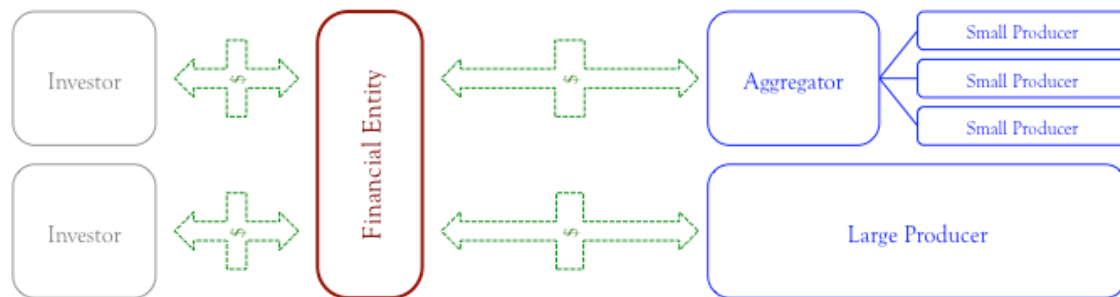
Again, the land use choices that Inari would promote in the field would tend to be extremely varied<sup>viii</sup>. This diversity is as it should be, since these activities are suitably adapted to local circumstances and consequently more resilient.<sup>ix</sup>

But we also want Inari to attract large-scale investors, who generally prefer standardized investment opportunities. They gravitate towards investments which are “liquid” – that is, traded in a market with large numbers of buyers and sellers. In liquid markets it is easier to dispose of an asset when needed. It is also easier and cheaper to assess the risk in these markets.

It would be senseless to deal with this mismatch by forcing one of these two models to accommodate the other<sup>x</sup>. Instead, Inari needs to accept the differences between producers and investors and find the right way to connect them.

### *The Financial Entity and Aggregator*

Inari would bridge that gap through a tight network of intermediaries which stand between investors and producers, as illustrated here:



The most prominent intermediary would be a Financial Entity. This non-profit organization would be tasked with driving loans to diverse producers in agriculture, forestry and other major land-use sectors.

Any producers in receipt of a loan would agree to a repayment plan and would operate under stipulated conditions. The loan would be disbursed in stages and if these conditions were not met then the credit line would be cut. Given the key role played by small- and medium-sized operations, the Financial Entity would use Aggregators (such as regional banks or farmers organizations) to deliver credit to those operations.

Whether directly to a producer or via an Aggregator, the Financial Entity would offer loans with three key advantages:

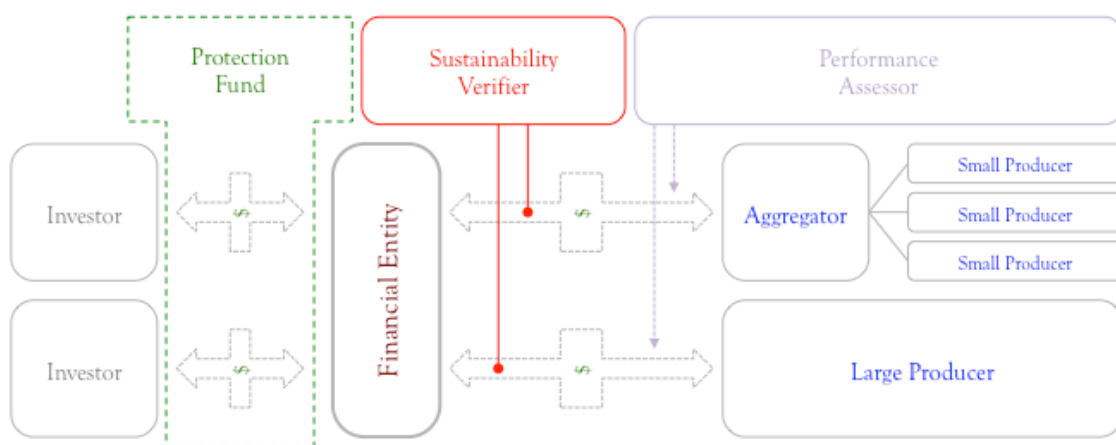
1. Longer maturities
2. Lower interest rates
3. Flexible repayment schedules

(We explain the rationale for this from a producer perspective on page 7 and illustrate the method by which these loans could be made to interest investors on page 12.)

Each of these loans would generate a stream of repayments from the producer to the Financial Entity. Once a sufficient number of loans are made, that pool of payments would be securitized using a public-domain software program that would arrange the payment flows into optimally low-risk combinations.

In order to facilitate the sale of the resulting securities to investors, the public sector would provide a Protection Fund. This capital pool would guarantee timely and complete payments to investors under certain scenarios (which are described more completely on page 14).

Public support could only be justified by the delivery of sustainable outcomes at scale. Thus producers and Aggregators would need to submit to audit and verification requirements. The Sustainability Verifier would ensure sustainability outcomes while the Performance Assessor would assess the performance of Inari's institutions. Both the Verifier and Assessor are independent entities whose roles are explained in detail on pages 19 and 21.



This design concept raises significant questions. We address the most prominent of these in the following sections, which are divided into four categories:

- Section I (Page 6): General questions about Inari's overarching design and rationale
- Section II (Page 11): Financial questions about how Inari's investment scheme would work
- Section III (Page 17): Sustainability questions, especially about how Inari defines and ensures good practices
- Section IV (Page 21): Governance questions, not only about the places where Inari invests, but also about how Inari would police itself

We recognize that the answers offered in these sections are not enough to justify implementing Inari immediately. That is why, in closing, we also offer a look at the questions Inari will need to have answered in order to be ready for implementation.

These will set the tone for our work on the Inari system in 2012 and 2013.

# I. General Questions

## What Makes Inari Different?

Inari differs from other financial approaches in its unique combination of six attributes:

1. **Portfolios.** Inari's portfolio approach is quite novel, and should be diverse enough to reduce risk and enhance predictability for investors. The differing size, location and crop cycles of the various borrowers can be used to reduce the risk from any single project as well as smooth the overall cash flows of the portfolio.
2. **True Sustainability.** Sustainability is a major factor in selecting projects for the portfolio. We will specifically target projects that either currently employ, or have a clear path to the establishment of sustainability practices. General financial concepts, like asset-backed securities, are indifferent to this consideration.
3. **Investment, Not Speculation.** The resulting instruments are tailored for investment, not speculation. This implies a longer-term return perspective on the part of the funders, which enables the borrowers as described above. This differs from proposals for land-based carbon markets<sup>xi</sup>.
4. **Global Scope.** The focus is on sustainability in general, not restricted to either the developed or developing world. Sustainable land use is a universal issue, and this global perspective enables us to look at more options in constructing a portfolio of projects.
5. **Technology.** We are proposing an approach that leverages technology in a very different way. From a technology perspective, Inari is based on a network of nodes: investors, borrowers and intermediaries. Technology enables the significant parallel communications required for network participants while also housing the algorithms needed to generate the securities we propose (more details on who will own this technology is on page 23).
6. **Credit Markets.** Finally, Inari targets a large pool of money instead of relying on the creation of a new and different asset class. This is important, insofar as size of credit markets matches the enormous scale of the finance required for sustainable land use. Just the amount of securitized loans outstanding - US\$15 trillion, a narrow sliver of the credit markets<sup>xii</sup> - dwarfs the potential size of mechanisms like emissions trading.

## How Would Inari Drive Sustainability?

Two reasons stand out. First, Inari's employment of longer maturity credit is not just about finance. It would also drive performance.

One of the major obstacles to sustainable land use – particularly in agriculture – is that credit is extended on such short timeframes that sustainability becomes an “externality”. Even if a lender wanted to drive sustainable land use in its portfolio, there is no basis upon which to require performance.

Inari changes this picture. By providing credit on a longer timeframe, and in stages, it also provides the basis for ongoing performance incentives. For example, fulfilling the operating conditions could result in lower interest payments for the producer or greater access to supplementary credit for expanded operations.

Conversely, non-performance would be cause to restrict or deny access to Inari, and its considerable benefits in the future, whether or not the full loan amount had been dispensed.

Second, Inari has another feature that leaves it uniquely placed to drive performance: it is designed to invest widely. Particularly where climate finance is concerned, large projects and bilateral initiatives have a perverse political incentive: they cannot be allowed to fail, creating a sort of well-intentioned moral hazard.

Inari avoids this problem by building one large initiative out of many small ones. No single loan, country or production line would be so important that Inari could not afford to exclude it from the system.

## Why Would This Make Sense for Farmers, Forest Owners, etc.?

Inari would employ a unique aspect of credit – flexibility – to maximum effect. When we refer to the ‘flexibility’ of credit, we are referring specifically to three attributes: maturity, repayment frequency and interest rate.

- **Maturity** is the duration between the moment the loan or bond's face amount is disbursed and the time by which full repayment (interest included) is supposed to have been made<sup>xiii</sup>.
- **Repayment frequency** denotes the interval (annual, semi-annual, quarterly, etc.) at which payments are made on the bond or loan.
- **Interest rate** is the price that the borrowers agree to pay in return for the money they are borrowing. This is usually expressed as an annual percentage of the bond or loan's principal amount, which is the amount of money that the borrower initially receives.

Inari is designed to provide financing at longer maturities of up to 15 years. We consider the more conventional model of matching operating loans to single growing seasons to be inherently ill suited for sustainable land use.

To cite one example, research from Zambia shows that it took 4 to 6 years for farmers to see yield improvement after planting *Faidherbia albida*. These trees need time to install their root systems, which together with their nitrogen-rich leaves improve the soil<sup>xiv</sup>. Under a short-maturity approach, financially sustaining this sort of activity is impossible. Even from a financial perspective, this is clearly dysfunctional given that the yields of maize and other staples in the Zambian project showed massive improvement over 4-6 years.

The objective is to provide financing that will continue until yields have improved or other benchmarks of productivity and efficiency have been met. In this way, loans can be repaid out of the profits derived from the investment.

We think Inari should – and can – tailor repayment frequencies to borrowers’ needs. Beneficiaries should be able to repay loans (interest and principal) at irregular intervals, using the profits derived from the investment.

This can, for example, protect the producer from extreme weather events like droughts. Even if the producer loses a single harvest under these circumstances, they may avoid default by using the profits of their next successful harvest.

Additionally, sustainable practices do not operate according to entirely predictable time frames. A maize producer implementing organic fertilizer systems may see relatively immediate results but it may take a longer time to maximize productivity, and the flexibility Inari offers allows that producer to get there either way.

Inari is designed to make interest rates as low as possible, since beneficiaries of the loans will not be able to sustain high levels of indebtedness. If interest rates are too high, borrowers will default on their loans, and the demand for credit may be too low to make a real difference. The reason this can be done in a way that interests investors is explained on page 12.

### **Why Doesn’t Something Like Inari Already Exist?**

The ideas that form Inari are not novel concepts. The basic importance of extending affordable finance to rural areas is well understood, as is the idea of promoting sustainability via public investment. And the importance of returns in attracting private investment is elementary to all finance.

The problem lies, not with these individual points, but rather in our inability to address their respective shortcomings through an approach which synthesizes their advantages and imperatives. Doing so requires attacking three problems:



1. Private financial systems in rural areas are not working
2. Public resources to fill this gap are lacking
3. Most investors are required to seek return on capital, not social, governance and environmental impact

With respect to the first issue, we have to recognize that the financial system is not designed to service the rural economy. It prefers standardized, quick and clean investments, which is why the International Food Policy Research Institute noted in 2010 that:

*Most rural households lack access to reliable and affordable finance for agriculture and other livelihood activities. Many small farmers live in remote areas where retail banking is limited and production risks are high. The recent financial crisis has made the provision of credit even tighter and the need to explore innovative approaches to rural and agricultural finance even more urgent<sup>xv</sup>.*

This would be easier to solve, but for the fact that public resources are scarce. In particular, public institutions in OECD countries are under extraordinary pressure due to alarm about high debt levels. Additionally, emerging economies either lack the political consensus or balance sheet strength to make these investments at scale.

This means that sustainable land use requires private investment. Here, we run into a third problem: private investment will not flow on a large scale to sustainable practices because they are the right things to do. They will only do it for profit.

Outside the financial sector, many make the tacit assumption that investors deploy their own capital. In reality, most investors have investors of their own to satisfy and can be fired at will if they fail to perform. This explains their laser-like focus on returns, and means that an advantageous balance between risk and reward is the only way to draw their capital into sustainable land use.

### **Doesn't This Require Political Support?**

Yes - and here, we see a promising context. Numerous international initiatives address the issue of spurring investments in sustainable agriculture and land use.

For example, REDD+<sup>xvi</sup>, a mechanism negotiated under the United Nations Framework Convention on Climate Change (UNFCCC)<sup>xvii</sup> to reduce emissions from deforestation and forest degradation, is a well-known global attempt to finance transformations in the way we use the land.

At the December 2011 UNFCCC Conference of Parties in Durban, South Africa, delegates committed to devote more attention to drivers of deforestation, including agricultural expansion, and agreed to develop a work program on agriculture.<sup>xviii</sup> This epitomized the increasing recognition that the problem does not lie with agriculture or forests in particular, but with land use in general.

What's lacking is an approach like Inari, one that recognizes the distinct needs of private investors, the public and – most importantly – the producers who we all need to deliver truly sustainable outcomes.

## II. Finance Questions

### **What Kind of Investment Would This Offer?**

Inari would offer securities backed by diverse pools of payments from the credits that the Financial Entity and its associated Aggregators extend to producers. This differs from many climate finance approaches, in that both the composite asset and its underlying components are familiar to investors.

This is important because, regardless of their success in delivering public goods, sustainable land use activities remain unfamiliar to investors. This presents a major impediment to accessing their money.

Inari's use of cash flows derived from credit would break down this barrier. From the mechanics of lending to risk modeling, credit is a well-understood area of finance with a large pool of existing investors. The language of credit is global, and as a result, the task of demonstrating the value that Inari's securities would have would become infinitely easier relative to other possible investment opportunities<sup>xix</sup>.

### **What Type of Investors Would Inari Appeal To?**

We have not focused this design on socially responsible investment (SRI) because that group of investors does not control enough capital to support the system's end objectives. This is not to say that SRI is not a potential market for Inari, but the Wall Street Journal suggests that SRI funds, at more than \$100 billion are "still tiny compared with the \$7 trillion invested in all stock mutual funds and ETFs<sup>xx</sup>."

To access larger pools of capital, Inari will need to have a purely financial appeal to investors who are only interested in the bottom line. Not only do we believe that our design blends the right elements to do this, but we think the current context makes it likely that Inari will find a more receptive audience.

Understanding this context starts with the fact that major central banks such as the Federal Reserve (US), Bank of Japan (Japan) and European Central Bank (EU) have set their benchmark interest rates at rock-bottom levels. This approach is sometimes known as "zero interest rate policy", or ZIRP.

ZIRP has had a major impact on investors holding bonds, leading the Global Head of Foreign Exchange Strategy for French bank Société Générale to say in late 2011 that:

*From here, bond market returns are about as attractive as following a plague of locusts across a field of corn. You're not going to get rich buying 2yr Notes at 0.3% yields (indeed, you're just going to guarantee to get a bit poorer) and I don't think you're going to achieve much if*

*you picked up 0.25% yields in this morning's 2yr Schatz [a German government bond], either<sup>xxi</sup>.*

Bonds are particularly important investments for pension funds seeking returns for retirees who are living longer. As those funds struggle to make good on commitments to future retirees, ZIRP has created a sustained – and unprecedented – opportunity to attract capital away from traditional bond markets.

In 2011, pension funds struggled in many countries, with the average fund in the United Kingdom gaining just 3%, that in the United States just 1.7% and the average Japanese pension fund losing more than 2.7%<sup>xxii</sup>.

And this was not a trend restricted to G8 countries: after posting an average return of more than 8% for the previous decade, 2011 saw China's National Social Security Fund advance 0.84%, far less than its rate of inflation.

These pension funds, which represent some of the largest capital pools in the world, find themselves in need of a large number of investment opportunities. At the same time these opportunities need to carry comparably high returns, at the same time as having relatively low risks.

On all three counts, we believe Inari can be constructed to deliver the right product.

### **Other Than Context, What Makes You Think Investors Would Be Interested in This?**

First, we believe that investing in sustainable land use across a large number of diverse practices and countries generates a comparatively favorable risk profile.

Inari would extend credit to the widest possible range of sustainable practices: organic rice storage in Vietnam's Mekong Delta, agroforestry production of maize and medicinal trees in Malawi, a community forest collective carrying out sustainably intensified cattle ranching in northern Brazil or polyculture operations in the American Midwest.

We think that the risk of these investments in sustainable land use has been substantially mispriced, especially outside of the G8. Our modeling estimates indicate that the difference in interest rate environments is quite large. Based on central bank rates (which set the context for all other interest rates in a country), a representative portfolio of emerging markets can pay as much as 14 times more than a representative portfolio of Canada, the European Union, Great Britain, Japan and the United States.

Therefore, even when providing lower interest, Inari can deliver a relatively high return for investors.

Second, we think that it will prove possible for Inari to offer a smooth, consistent flow of coupon payments<sup>xxiii</sup> to the investors, while maintaining ample room to maneuver at the producer level.

To demonstrate how this would work, we provide a simplified example using six different countries (Brazil, Ghana, India, Kenya, the Philippines and Thailand). Note that it is possible to construct a scheme in which the payments for individual producers shift from high (in green) to low (in red) while maintaining a consistent payment level in USD:

	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
Brazilian Réais	None	None	R\$ 3,950	R\$ 11,850	R\$ 3,950	None
Ghanaian Cedis	None	GH¢ 1,892	None	GH¢ 1,892	GH¢ 1,892	GH¢ 1,892
Indian Rupees	165,555₹	220,740₹	165,555₹	None	165,555₹	None
Kenyan Schillings	85,668Ksh	None	257,004Ksh	None	85,668Ksh	171,336Ksh
Philippine Pesos	86,972₱	86,972₱	None	None	43,486₱	86,972₱
Thai Baht	63,234฿	31,617฿	None	31,617฿	None	94,851฿
Value in USD	\$8,000.00	\$8,000.00	\$8,000.00	\$8,000.00	\$8,000.00	\$8,000.00

### But What Guarantees These Currencies Will Retain Their Value Over Time? Isn't There Still Major Foreign Exchange Risk?

Yes. In fact, investors presented with this opportunity will immediately realize two things:

- They have their own investors, who give them money in “hard currencies”: euros, US dollars, British pounds, Japanese yen
- But the farmers give them payments in a “local currency”, which can be anything from a Colombian peso to a Kenyan schilling to an Australian dollar

For an investor from the US, this is a problem when the dollar appreciates against something like the Indian rupee or Mexican peso – because the payments stay the same amount in rupees or pesos, but the exchange rate change means less dollars for the investor. This is similar to problems with fertilizer or fuel costs, only in reverse.

The essential point is that we need to figure out a way to help investors manage this risk. This can't all be done by governments, because of limited public funding capacity – so what should Inari do?

We believe that Inari's portfolio approach handles this elegantly and effectively. A simple illustration using Value at Risk (VaR)<sup>xxiv</sup> measurements over five days with a 99% threshold demonstrates this point. For purposes of communication, we have provided a visualization of this example in Appendix B on page 32.

## Why Is Public Support Needed?

We have an investment theory, not an investment fact. Demonstrating that our idea can work in practice will require tangible public support. This involves funding Inari's construction and offering targeted support for its ongoing operation.

Initially, this support will come in the form of targeted support for the research and development required to take Inari from the concepts described in this paper to an actual, implementable system. We feel strongly that the condition for those investments should require that those involved in the research and development process:

- ✓ Commit to releasing any and all innovations (such as the securitization software described above) into the public domain
- ✓ Refrain from any investment in securities that Inari might generate
- ✓ Refrain from having Inari invest in any production operations (i.e. a farm or forest) they own or control

We intend to develop specific proposals for this research and development process in the coming months. These proposals will target the questions raised by this document, but in a time-sensitive way that focuses on producing a practicable result no later than 2014.

The second form of public support Inari requires is for the securitization process. Specifically, Inari should adopt a 'belt-and-suspenders' approach that asks the public to provide both default insurance (the belt) to cover the risk of non-payment and external credit enhancement (the suspenders)<sup>xxv</sup> to ensure timeliness of repayment.

## How Would the Protection Fund Work?

The Protection Fund would act as a form of guarantee, offering compensation to investors who lose their investment due to default or delayed repayment. This would significantly improve the risk/return profile for investors<sup>xxvi</sup>.

Indeed, a dedicated Protection Fund established by the public sector is likely to be very attractive to investors. Such a fund would be especially important in the early stages when there is no operational record of accomplishment to draw on – and consequently, no concrete indication that the bonds will provide a return.

Still, this is not a giveaway. Investors buying the securities would still bear risks that should reasonably remain in their purview. We can draw the line by asking two questions:

- i. Can the investor reasonably quantify and understand the risk?
- ii. If so, is the risk so large that the investor will be unable to invest?

Let us assume the existence of an investor who specializes in infrastructure, specifically bridges. The investor targets a specific country in which to build some freight bridges, where the costs are defrayed by tolls levied on goods transported across the bridge. Now assume that the public needs this new freight bridge to be built in a risky area. In this scenario, public money should be targeted towards taking some of the risks off the table, but not all.

If the bridge is in a conflict zone, the public might help by providing protection against it collapsing due to sabotage. On the other hand, if the bridge collapses because the investors squeezed their contractors or used substandard labor, they need to bear that loss. And if the bridge does not pay off because not enough freight is being hauled across it, that risk also properly belongs to investors.

In other words, Inari would provide a sensibly delimited form of public support - not a bailout covering all possible losses.

### Who Would Back the Protection Fund?

This is an important question, since the quality of any default insurance or credit enhancement depends entirely on who provides it. Accordingly, this is reflected in credit ratings agencies' methodologies<sup>xxvii</sup> and we have spent considerable time examining these to form an opinion on how Inari should work in this regard.

Especially at the beginning when Inari is building its track record, it is important that this support be provided by highly rated international entities, such as public institutions, credit insurance institutions or (potentially) even sovereign wealth funds.

If Inari's pool of support is provided by strong entities, the risk to the overall investment is reduced. We have seen examples of this in practice: for instance, the use of USAID agricultural credit enhancement in Afghanistan has significantly increased access to credit in a risky context<sup>xxviii</sup>.

We envision the Protection Fund blending default insurance with multiple forms of credit enhancement, both internal and external. Its specifics might look something like this:

Type	Description	Provider(s)
Default insurance	Provides coverage to Financial Entity's bondholders in the event the Financial Entity cannot repay its bonds.	Public
DSCR (Debt Service Coverage Ratio) guarantee	An insurance that the money available to the borrower will always match a pre-determined percentage of each debt repayment	Public
Overcollateralization	The process of posting more collateral	Financial Entity and

	than is needed to obtain or secure financing.	Aggregators
Weather indexed insurance	Facility designed to insure producers against disruptions due to climate events	Public or private

To complement the Protection Fund, public sector investment should also be used to leverage existing insurance facilities such as<sup>xxix</sup>:

- Non-commercial guarantees (in effect risk insurance) for investors and lenders provided by the World Bank’s Multilateral Investment Guarantee Agency (MIGA)<sup>xxx</sup>;
- Credit guarantees (enhancements) for local currency debt exposures in emerging markets provided by GuarantCo, a private–public financial institution<sup>xxxi</sup>;
- Political risk insurance for REDD+ projects provided by the US-based Overseas Private Investment Corporation (OPIC) (the first product was signed off in November 2011)<sup>xxxii</sup>;
- Special insurance for small and medium-sized enterprises (SMEs) and cooperatives, which otherwise find access to such facilities difficult, e.g. provided by companies established to improve financial flows to forestry<sup>xxxiii</sup>.

Dedicated facilities could be established within MIGA and/or GuarantCo that are streamlined and less expensive for investors to use, for example through subsidized insurance (or guarantee) premiums for investors<sup>xxxiv</sup>.



### III. Sustainability Questions

#### **How Does Inari Deliver the Right Outcomes?**

Without specifying and verifying sustainability outcomes beyond financial returns, Inari could be used to drive investments towards unsustainable activities that are simply “greenwashed”, a completely unacceptable outcome.

This is a challenge. Financial outcomes are easily measured through profit. However, environmental, social and governance outcomes are easier to define than they are to measure<sup>xxxv</sup>. We specify three sustainability outcomes that encompass social, economic, environmental and governance aspects:

- Improved rural livelihoods, including economic development and community resilience;
- Enhanced environmental integrity, including improved biodiversity and reduced environmental impact of agriculture/land use; and
- Enhanced food security, focussing especially on sustainable intensification of agriculture.

As outcomes, these are easily understood and resonate well with development goals expressed at international and country levels. We see no controversy in stating that the mechanism should, along with the objective of generating financial returns, contribute to positive developments for each of these outcomes. However, it is critical for the finance mechanism to define and assign roles for their verification and assessment.

Effective verification and assessment of sustainability outcomes, as well as assessing performance of the institutions involved in delivering them, are vital. These functions not only are important for maintaining the integrity of Inari; they are instrumental in calibrating and refining the mechanism.

We see this happening through three entities: the Sustainability Verifier, the Performance Assessor and the Aggregator.

#### **How Does Inari Ensure Genuine Sustainability?**

The Sustainability Verifier is envisioned as providing evidence to investors, public institutions and all other engaged stakeholders that both the mechanism and the individual Aggregators are delivering sustainability, as defined by steady improvements over time for each of the outcomes. It will, for example, be expected to produce regular audit reports and conduct site inspections.

This monitoring challenge is compounded by a history of complex indicator systems in sustainable development theory and politics. Deploying these systems can be prohibitively

expensive and may not necessarily provide clear measures of progress<sup>xxxvi</sup>. These examples therefore provide a poor starting point for effective verification approaches for the mechanism proposed here.

Yet, effective and transparent verification is a necessary condition for scaling-up financing for sustainable outcomes in agriculture and land use. To be effective and transparent in this case, verification will require:

- Confirming the defined sustainable outcomes to the investors, involved public institutions and all other stakeholders using a minimum set of measurable and unambiguous parameters that can be applied anywhere and at all scales;
- Applying established methods of sampling to find cost-effective solutions to the monitoring of these parameters, while ensuring reliability and accuracy; and
- Ensuring that the approach and results are transparent and easily understood by all stakeholders.

### **How Would Inari Measure “Sustainability”?**

Our initial proposal is to use two variables that correlate, at a general level, with the sustainability outcomes, and can be readily and cost-effectively monitored:

1. Income of producers; and
2. Amount of biomass and organic matter present in the landscape.

In making these initial suggestions, we are well aware of (a) potential limitations in how well the parameters actually represent the outcomes, (b) the need for continued scientific evaluations – especially regarding the validity of the proposed parameters in relation to biodiversity, (c) the need to consider other potential parameters, including a parameter to measure improvement in producer institutions and (d) the need for further specification of the actual metric to be applied for each parameter.

At the same time, we see value in making a substantive initial proposal to stimulate an open debate of sustainability metrics for the mechanism. The table below indicates correlations between outcomes and proposed parameters:

	PRODUCER INCOME	BIOMASS & ORGANIC MATTER
Improved rural livelihoods	<b>VERY HIGH</b> Indicates economic development	<b>HIGH</b> Indicates resilience to climate variation/extremes
Enhanced environmental integrity	<b>MODERATE</b> Indicates capacity to invest in sustainable approaches	<b>VERY HIGH</b> Indicates provision of ecosystem services and carbon sequestration
Enhanced food security	<b>HIGH</b> Indicates capacity/motivation for sustainable intensification	<b>HIGH</b> Indicates resilience to climate variation/extremes

We refer to the type of monitoring to be applied by the Sustainability Verifier as “strategic”<sup>xxxvii</sup>.

Strategic in this case denotes a requirement for overall accuracy, but not for complete coverage of information. It implies a sample-based approach through which the variables in question are measured in detail and the sampling frame ensures overall accuracy and cost-effectiveness. Science and practical experiences, for instance from national forest inventories<sup>xxxviii</sup> and from population/household surveys, provide us with solid and sufficient knowledge on how to go about the strategic monitoring of the above variables.

This paper will not go into further detail regarding the information requirements or the design of the monitoring system. It only intends to make the case that strategic monitoring and verification of sustainability outcomes can be considered a possible and a viable approach, albeit with some development requirements remaining.

### How Would Inari Hold Producers Accountable?

Verifying the achievements of individual producers is a core function of the Aggregators. This is an integral part of the business agreement between Aggregator and producer. It is therefore necessary for the Aggregator to monitor producer achievements, so as to ensure those achievements are contributing to the overall sustainability outcomes of the mechanism to which they have committed.

Verifying producer achievements is different from the verification carried out at strategic level by the Sustainability Verifier. It involves the collection of information and verification of achievements for every producer (as opposed to a sample-based approach).

This means that the methods and approaches used must be very low-cost to avoid unnecessary transaction losses.

Another distinction is that the verification of producer achievements can, and indeed should, use information that varies with location and socio-economic context. This necessitates sustainability criteria relevant to diverse conditions.<sup>xxxix</sup> Defining and developing methods and approaches for monitoring producer achievements is therefore the responsibility of each Aggregator.

While strategic level verification must have a standardized set of parameters across the entire mechanism, the variables at producer level should be adapted to local realities. However, some common features can be identified.

We believe that monitoring and verification at producer level should be closely tied to the financial agreement between Aggregator and producer. The monitoring of performance should be integrated within the general interaction between Aggregator and producer.

Furthermore, we think that Inari's specific sustainability variables must represent its overall sustainability outcomes. Both the type of variable and its application may be different depending on the context. The need for low-cost monitoring and verification creates arguments for proxy-based approaches, where performance can be evaluated through estimates or judgments.

The Aggregator needs to evaluate the quality of producer achievement proxies in relation to the desirable sustainable outcomes.

## IV. GOVERNANCE QUESTIONS

### **How Would the Inari System Itself Be Accountable?**

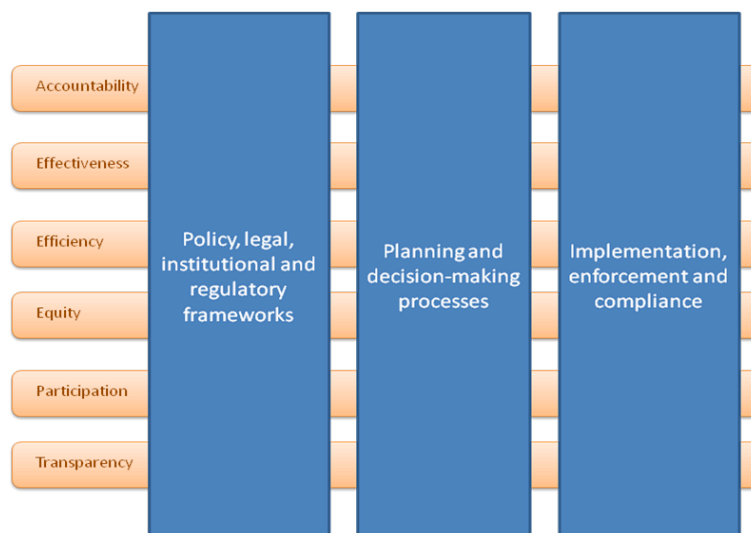
The role of the independent Performance Assessors is to build accountability into the proposed mechanism. The specific activities involved need to be defined via research, but we can already relate some examples of what might be involved.

For instance, a Performance Assessor with expertise in financial governance might conduct periodic assessments of the mechanism's governance and institutions (Protection Fund, Financial Entity and Aggregators) and make recommendations for improvements to the rules and processes. Another Assessor with experience in developing countries might identify the capacity building needs of the Aggregators, for example assessing deficiencies in communication, or in personnel, and providing assistance and training which address these obstacles.

Whatever the specifics, it is important that the assessments be publicly available through an easily accessible website that will provide regularly up-dated information on all aspects of the mechanism.

### **How Would Good Governance Be Judged and Enabled?**

Governance is generally considered “good” if it is characterized by stakeholder participation, transparent decision-making, accountability of actors and decision-makers, rule of law and predictability<sup>xi</sup>. For practical assessment purposes, the enabling environment necessary for good governance can be described by three pillars and six crosscutting principles, as illustrated here.<sup>xii</sup>



These pillars and principles can apply to any economic sector at national, sub-national or local levels. They provide the basis for diagnostic and assessment tools that can identify areas most in need of capacity building and direct public sector support. Targeted support from the public sector to strengthen governance in agriculture, the forest sector and land management can create an enabling environment for investment in a way that is both efficient and sustainable over the long term<sup>xliii</sup>. Such targeted support is needed over the long term to complement Inari and help to ensure its success.

The public sector is already engaged in building capacity to strengthen governance in the forest sector, for example through the EU Forest Law Enforcement, Governance and Trade (FLEGT) Programme established in response to high levels of illegal logging and imports<sup>xliiii</sup>. It is also participating in the development of tools to assess the governance of forests and REDD+<sup>xliiv</sup>.

Although the relationship between good governance and sustainability outcomes has been recognized,<sup>xliv</sup> less attention appears to have been paid to strengthening governance in the agricultural sector than in forestry. Notable efforts in the agricultural sector relate to certification schemes for commodities such as chocolate, coffee, cotton and palm oil<sup>xlvi</sup>. However, a more concerted effort to improve governance is necessary to enable delivery of sustainability outcomes.

### **How Would Inari's Governance Be Judged and Capacity Built?**

The pillars and principles also describe the essential components necessary to ensure the good governance of Inari itself. The six principles will be applied across three pillars:

- *Pillar 1:* The governing and operating rules of the mechanism's institutions
- *Pillar 2:* The planning and decision-making processes across the mechanism
- *Pillar 3:* The procedures for implementation and ensuring compliance with the governing rules and sustainability criteria, including assessment of institutional performance and strategic and operational monitoring

Public investment will be required to enable Performance Assessors to identify and address Inari's institution-building needs<sup>xlvii</sup>. Capacity for inward investment in developing countries will need to be built by, for example, developing expertise and capacity in local banking systems. Training and certifying senior personnel in internationally accepted business practices, including accounting and reporting, will also be required.

This will need to be complemented by investment in international centers for research and skill development in sustainable resources management.

### **Who Would Own Inari's Securitization Functions?**

Clearly, we would not be doing this if we did not support the concept of private investment in sustainable land use. At the same time, this is an effort made in the public's interest. As such we believe that the processes creating that investment should be as open and transparent as possible.

This is why we propose to develop and release all source code used in the mechanism's software under a so-called 'free software' license<sup>xlvi</sup>. Specifically, we suggest release under something like the Gnu Public License<sup>xlix</sup>.

Many of the processes described here – such as making a bond or a portfolio or deciding how to set an interest rate – inhabit an obscure, often misunderstood corner of finance. At the very best, this engenders mistrust and creates apprehension about financial institutions' real intentions. At worst, it allows truly dysfunctional systems (such as those that created mortgage-backed securities in the United States in the 2000s) to escape needed scrutiny.

Neither is acceptable in any scenario, but making the software free and readily available will go a long way towards resolving those issues.

### **What Challenges Would Inari Face in State-Level Governance?**

Inari's design raises the question of how to manage the considerable differences in governance among countries and ensure that public and private capital is deployed cost effectively.

This is particularly important in countries where risks related to weak governance and institutions may impede the mobilization of capital, diminish the returns on investments and hinder the achievement of sustainability outcomes<sup>1</sup>. Indeed, failure to address these risks could create new opportunities for corruption and perverse incentives, causing Inari to backfire<sup>li</sup>.

This also makes a difference from an investment perspective. While private capital is able to assess and take on operational risks, it is less willing to accept other risks, such as governance risks, which it cannot predict or quantify.<sup>1</sup>

There are two main types of governance-related risks relevant for investors in sustainable land use activities in developing countries:

1. Malfeasance: fraud and corruption, appropriation of assets; and

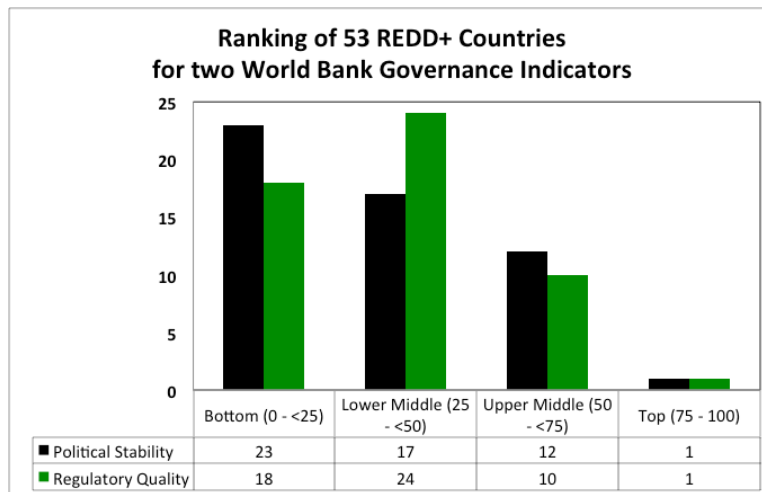
---

<sup>1</sup> For example, despite significant opportunities investors are often slow to return to post-conflict contexts because the governance risks are so difficult to estimate

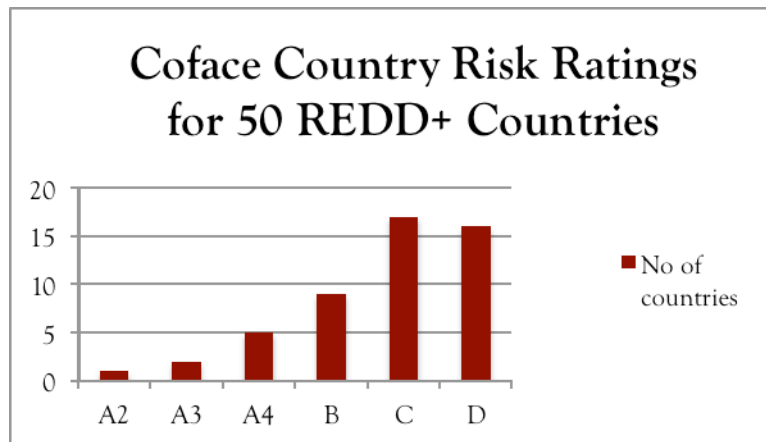
2. Governance challenges: political risk, land tenure issues, legal and regulatory uncertainty, poor law enforcement, ineffective land planning, currency convertibility and volatility, and operational difficulties.<sup>lii</sup>

Governance risks vary by country, by the nature of the operation and by the duration of the investment. For example, mining operations in the DRC, with high capital expenditure, long lead times and extensive negotiations with the host government, carry a much higher governance risk than short contracts for management consultancy in Brazil. However, as a rule, many investors demand higher returns from non-OECD countries<sup>liii</sup>.

Interest in REDD+ has underlined analyses of governance conditions in developing countries. Here we use REDD+ to illustrate the challenges for the finance mechanism we are proposing. For example, the following figure illustrates the extent and nature of governance risks in developing countries engaged in REDD+<sup>liv</sup>.



World Bank governance indicators place nearly 80 percent of these countries in the lower half of the world rankings for political stability and regulatory quality<sup>lv</sup>. Similarly, 52 percent of those rated by Coface have uncertain political and economic environments, and 32 percent are classified as high-risk environments (see bar chart below)<sup>lvi</sup>.





## **What Public Support Would Inari Need to Enable Operations in Risky Locations?**

The public sector has an important role to play in minimizing governance risks and, as noted above, in creating the enabling environment necessary for Inari to operate and deliver genuinely sustainable outcomes. It can fulfill this role in three different ways:

- a) Capacity building to develop frameworks for good governance, both at different levels of the relevant sectors and for the finance mechanism itself (see pages 21 and 22);
- b) Developing specific facilities to mitigate risk for private investors, primarily through the Protection Fund, but also by leveraging existing risk-reduction facilities (see page 15); and
- c) Supporting the development of the systems for verification and assessment (see page 17).

## OPEN QUESTIONS AND MOVING FORWARD

This paper is the beginning of a process that intends to lead to concrete actions. We recognize the need for further consultations, scientific research, development and testing to make this mechanism a reality.

We intend to formalize collaboration between our institutions and invite others to participate in a consortium of champions prepared to take the mechanism forward.

Our goal is to make Inari operational in 2014. Through 2012 and 2013, we intend to engage in the following efforts:

- The development and fine tuning of Inari through consultations with experts and partners in finance, sustainability and governance;
- The commissioning of scientific reviews and studies to inform the design of the mechanism, particularly with a view to enhancing specificity in the verification and assessment of sustainability outcomes while ensuring efficiency, and ensuring good governance outcomes;
- The development of a robust, open source software platform to meet Inari's securitization needs;
- Disseminating information about the proposal and stimulating policy considerations within the international community and processes involved in sustainable development, notably in relation to the outcome and follow-up of Rio+20; and
- Analyzing the financial potential and producer demand for the mechanism

In doing so, we have identified several questions that will have to be answered. The most important long-term question is:

*How will we know that Inari is delivering on its ambitious promises of providing credit to those who need it most in a manner that helps them, supports the interests of the investors and benefits the environment and society?*

The answer is that we would first pilot test Inari at a safe but representative scale. This means that the most important near-term question is:

*How do we design a pilot test of Inari (and with whom) so that we can establish whether it works, iron out inevitable problems and create investor, client and intermediary confidence based on the resulting evidence?*

The questions listed in Appendix A are the basis for the design of that pilot phase. These will provide the platform for our work in the coming year. We welcome anyone interested in joining this effort to make contact.

---

## ENDNOTES

<sup>i</sup> CCAFS is a strategic partnership of the Consortium of International Agricultural Research Centers (CGIAR) and the Earth System Science Partnership (ESSP). The program is supported by the European Union (EU), the United States Agency for International Development (USAID), the Canadian International Development Agency (CIDA), New Zealand's Ministry of Foreign Affairs and Trade, the Danish International Development Agency (Danida) and the UK Department for International Development (DFID), with technical support from the International Fund for Agricultural Development (IFAD).

<sup>ii</sup> See UNEP *Towards a Green Economy, Pathways to Sustainable Development and Poverty Eradication – A Synthesis for Policy Makers*, 2011 available at: [www.unep.org/greeneconomy/](http://www.unep.org/greeneconomy/); The 2011/2012 European Report on Development, *Confronting Scarcity: Managing Water, Energy and Land for Inclusive and Sustainable Growth*, European Union, 2012

<sup>iii</sup> In Japanese mythology, Inari is a rural god who protects rice cultivation.

<sup>iv</sup> Investment grade issues, rated above BBB- or Baa-, are considered to be at a very low risk of default. For this reason, many institutional investors are obliged by regulation to restrict their activity to prospects that make this grade. This means that investment grade securities have access to much larger pools of capital. (<http://lexicon.ft.com/Term?term=investment-grade>)

<sup>v</sup> Styger et al, The system of rice intensification as a sustainable agriculture innovation: introducing, adapting and scaling up a system of rice intensification practices in the Timbuktu region of Mali, *International Journal of Agricultural Sustainability*, 9:1, Earthscan, 2011

<sup>vi</sup> Garrity et al., "Evergreen agriculture: a robust approach to sustainable food security in Africa", August 2010 [http://ftp.fao.org/ag/agnp/ca/CA\\_CoP\\_Jan11/Evergreen\\_Agriculture\\_Garrity\\_et\\_al\\_Food\\_Security1%20.pdf](http://ftp.fao.org/ag/agnp/ca/CA_CoP_Jan11/Evergreen_Agriculture_Garrity_et_al_Food_Security1%20.pdf)

<sup>vii</sup> [http://www.iied.org/vietnam-mangroves-break-waves-help-people-dai-hop-commune-break-even?utm\\_source=feedburner&utm\\_medium=email&utm\\_campaign=Feed%3A%20IIEDblogs%20%28International%20Institute%20or%20Environment%20and%20Development%20blogs%29](http://www.iied.org/vietnam-mangroves-break-waves-help-people-dai-hop-commune-break-even?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A%20IIEDblogs%20%28International%20Institute%20or%20Environment%20and%20Development%20blogs%29)

<sup>viii</sup> World Bank, *Sustainable Land Management Sourcebook*, International Bank for Reconstruction and Development/World Bank, 2008; Foresight, *The Future for Food and Farming: Challenges and choices for global sustainability*, UK Government Office for Science, 2011

<sup>ix</sup> [http://www.actionaid.org/sites/files/actionaid/exhibition\\_document\\_-\\_final\\_draft.pdf](http://www.actionaid.org/sites/files/actionaid/exhibition_document_-_final_draft.pdf);  
[http://www.sou.gov.se/mvb/pdf/206497\\_Resilienc.pdf](http://www.sou.gov.se/mvb/pdf/206497_Resilienc.pdf)

<sup>x</sup> Trying to force scale via standardization is one of the errors often repeated in climate finance. One reason that carbon markets have struggled to reach scale outside the EU is that, in practice, the cost of mitigating carbon varies according to location and so a standardized price is artificial.

<sup>xi</sup> See for example <http://www.mundenproject.com/forestcarbonreport2.pdf>

<sup>xii</sup> See for example: [http://www.mckinsey.com/insights/mgi/research/financial\\_markets/mapping\\_global\\_capital\\_markets\\_2011](http://www.mckinsey.com/insights/mgi/research/financial_markets/mapping_global_capital_markets_2011)

<sup>xiii</sup> To make the document more accessible, we have used the term "maturity" to cover "tenor" as well. These are sometimes interchangeable, but we should note that when dealing with loans, the latter term tends to prevail. Also, tenor can refer to the time remaining on an active loan before repayment.

<sup>xiv</sup> Garrity et al., "Evergreen agriculture: a robust approach to sustainable food security in Africa", August 2010 [http://ftp.fao.org/ag/agnp/ca/CA\\_CoP\\_Jan11/Evergreen\\_Agriculture\\_Garrity\\_et\\_al\\_Food\\_Security1%20.pdf](http://ftp.fao.org/ag/agnp/ca/CA_CoP_Jan11/Evergreen_Agriculture_Garrity_et_al_Food_Security1%20.pdf)

<sup>xv</sup> Kleopfinger-Todd and Sharma (eds.), *Innovations in Rural and Agricultural Finance*, IFPRI, 2010

<sup>xvi</sup> REDD+ refers to activities to reduce emissions from deforestation and forest degradation, as well as for the conservation of forest carbon stocks, the sustainable management of forests and the enhancement of forest carbon stocks in developing countries.

<sup>xvii</sup> UNFCCC, see [www.unfccc.int](http://www.unfccc.int)

<sup>xviii</sup> <http://unfccc.int/resource/docs/2011/cmp7/eng/10a01.pdf>;  
<http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf#page=4>; <http://ccafs.cgiar.org/news/researchers-outline-food-security-climate-change-road-map-science>

<sup>xix</sup> This approach avoids a major issue encountered by carbon: namely, the need to engage in expensive sales processes to convince investors of the viability of the asset. Driving capital to sustainable land use practices has proven difficult to implement for this reason. In 2010 the estimated value of transactions in forest carbon markets totalled just \$178 million, which was a record high ([http://www.forest-trends.org/documents/files/doc\\_2963.pdf](http://www.forest-trends.org/documents/files/doc_2963.pdf)). Compare this to the \$30bn UN REDD wants annually (<http://www.un-redd.org/AboutREDD/tabid/582/Default.aspx>). See also <http://www.mundenproject.com/forestcarbonreport2.pdf>

---

<sup>xx</sup> <http://online.wsj.com/article/SB10001424052748704425804576220462961462024.html>

<sup>xxi</sup> <http://ftalphaville.ft.com/blog/2012/02/22/892511/bond-market-returns-are-about-as-attractive-as-following-a-plague-of-locusts-across-a-field-of-corn/>

<sup>xxii</sup> <http://www.pionline.com/article/20120123/PRINTSUB/301239970>

<sup>xxiii</sup> The coupon payment is the payment of interest on a bond, the rate of which is stated upon issue. A \$100 bond with a 6% coupon would therefore yield \$6/annum

<sup>xxiv</sup> “Value at Risk measures the potential loss in value of a risky asset or portfolio over a defined period for a given confidence interval. Thus, if the VaR on an asset is \$ 100 million at a one-week, 95% confidence level, there is a only a 5% chance that the value of the asset will drop more than \$ 100 million over any given week. In its adapted form, the measure is sometimes defined more narrowly as the possible loss in value from “normal market risk” as opposed to all risk, requiring that we draw distinctions between normal and abnormal risk as well as between market and non- market risk.” [http:// pages.stern.nyu.edu/~adamodar/pdfiles/papers/VAR.pdf](http://pages.stern.nyu.edu/~adamodar/pdfiles/papers/VAR.pdf)

<sup>xxv</sup> Credit enhancement is an important tool for risk management. A number of multilateral development agencies currently offer credit enhancement, such as the Asian Development Bank (<http://www.adb.org/sites/default/files/managing-credit-products-workshop.pdf>). Some unilateral programs, like USAID, also provide credit enhancement through specialised arms like the Development Credit Authority. The most common use of credit enhancement is probably to increase access to housing.

<sup>xxvi</sup> For a comparable approach see [http://treasury.worldbank.org/bdm/htm/credit\\_enhancement.html](http://treasury.worldbank.org/bdm/htm/credit_enhancement.html)

<sup>xxvii</sup> See, for example, Standard and Poor’s, *Project Finance Construction and Operations Counterparty Methodology* (December 20, 2011)

<sup>xxviii</sup> [http://afghanistan.usaid.gov/en/USAID/Activity/180/Agricultural\\_Development\\_Fund\\_ADF\\_and\\_Agricultural\\_Credit\\_Enhancement\\_ACE](http://afghanistan.usaid.gov/en/USAID/Activity/180/Agricultural_Development_Fund_ADF_and_Agricultural_Credit_Enhancement_ACE); see also <http://www.forumforthefuture.org/sites/default/files/project/downloads/forestinvestmentreviewfull.pdf>, p36-40

<sup>xxix</sup> Andrew Gaines and Jon Grayson, *The Potential of Risk Mitigation Mechanisms to Facilitate Private Sector Investment in REDD+ Projects*, Chapter 4, Forestry Investment Review, Forum for the Future, July 2009 <http://www.forumforthefuture.org/sites/default/files/project/downloads/forestinvestmentreviewfull.pdf>; <http://www.opic.gov/news/press-releases/2009/pr110911b>

<sup>xxx</sup> See <http://www.miga.org/investmentguarantees/index.cfm>

<sup>xxxi</sup> See <http://www.guarantco.com/>

<sup>xxxii</sup> See <http://www.opic.gov/>; <http://www.opic.gov/insurance/coverage-types/political-violence>; <http://www.opic.gov/news/press-releases/2009/pr110911b>

<sup>xxxiii</sup> Andrew Gaines and Jon Grayson, *The Potential of Risk Mitigation Mechanisms to Facilitate Private Sector Investment in REDD+ Projects*, p113-114, Forestry Investment Review, Forum for the Future, 2009; See also <http://www.deriskas.com/index.html>; <http://www.access-to-insurance.org/>

<sup>xxxiv</sup> Drawing on similar recommendations by Gaines and Grayson for REDD+.

<sup>xxxv</sup> World Bank, *Sustainable Land Management Sourcebook*, p12, International Bank for Reconstruction and Development/World Bank, 2008

<sup>xxxvi</sup> Public sector examples include indicators for the Millennium Development Goals indicators (analyzed by Attaran 2005), Criteria and Indicator Systems for Sustainable Forest Management (Raison et. Al. 2001), and Sustainability Indicators for Bioenergy (GBEP 2011). Similarly, private sector/non-government solutions, such as forest certification systems (Rametsteiner & Simula 2003) and the Verified Carbon Standard (VCS 2011), tend to become very complex as they attempt to mimic political agreements.

<sup>xxxvii</sup> For a general background, see Jonsson, B., Jacobsson, J. & Kallur, H. 1993. *The Forest Management Planning Package – Theory and application*. Studia Forestalia Suecica 189. ISBN 91-576-4698-8 <http://pub.epsilon.slu.se/4062/1/SFS189.pdf> (accessed 6 Feb 2012). For an application of the concept of REDD+, see Holmgren, P. 2011. *Monitoring and Information for REDD+ Interim Report*. UN-REDD Programme. [http://www.unredd.net/index.php?option=com\\_docman&task=doc\\_download&gid=5971&Itemid=53](http://www.unredd.net/index.php?option=com_docman&task=doc_download&gid=5971&Itemid=53) (accessed 7 Feb 2012)

<sup>xxxviii</sup> Tomppo, E., Gschwantner, T., Lawrence, M. McRoberts, R.E. 2010. *National forest inventories – Pathways for common reporting*. Springer. ISBN 978-90-481-3233-1

<sup>xxxix</sup> Higman et al, *The Sustainable Forestry Handbook*, IIED/Earthscan, 2005; UNDP, *Handbook on planning, monitoring and evaluating for development results*, This is also in line with the recommendations of the REDD+ environmental and social standards. See <http://www.ciga.unam.mx/redd/files/finalreport.pdf>; [http://www.redd-standards.org/files/pdf/lang/english/REDD\\_Social\\_Environmental\\_Standards\\_06\\_01\\_10\\_final-English.pdf](http://www.redd-standards.org/files/pdf/lang/english/REDD_Social_Environmental_Standards_06_01_10_final-English.pdf)

---

<sup>xi</sup> *Framework for Assessing and Monitoring Forest Governance*, The Program on Forests (Profor)/FAO, 2011  
<http://www.fao.org/docrep/014/i2227e/i2227e00.pdf>

<sup>xlii</sup> This description of governance results from two coordinated consultative processes, one to develop a framework for assessing and monitoring forest governance and the other to develop guidance for providing information on REDD+ governance, facilitated by FAO, the World Bank and Chatham House. <http://www.fao.org/docrep/014/i2227e/i2227e00.pdf>;  
[http://www.unredd.net/index.php?option=com\\_docman&task=doc\\_download&gid=5336&Itemid=53](http://www.unredd.net/index.php?option=com_docman&task=doc_download&gid=5336&Itemid=53)

<sup>xliii</sup> OECD, *Economic Diversification in Africa: A review of selected countries*, OECD publishing, 2011; Catacutan et al, *Governance and Natural Resource Management: Key factors and Policy Implications*, ICRAF, 2001; DFID. *Governance, Development and Democratic Politics*, 2007; Abed and Gupta (eds.), *Governance, Corruption and Economic Performance*, IMF, 2002

<sup>xliiii</sup> FLEGT Briefing Note 01: *What is FLEGT?* Since 2003, FLEGT has been engaged in strengthening forest governance through bilateral voluntary partnership agreements (VPAs). Efforts are now underway to realize synergies between FLEGT and REDD+ through an integrated approach between the two initiatives. The EC has established a joint FLEGT and REDD+ support unit, while FAO has initiated case studies in the Congo Basin.

<sup>xliv</sup> *A Framework for Assessing and Monitoring Forest Governance*, Profor and FAO, 2011  
<http://www.fao.org/docrep/014/i2227e/i2227e00.pdf>; draft *Guidance for the Provision of Information on REDD+ Governance*, UN-REDD and Chatham House, 2011 [http://www.unredd.net/index.php?option=com\\_docman&task=doc\\_download&gid=5336&Itemid=53](http://www.unredd.net/index.php?option=com_docman&task=doc_download&gid=5336&Itemid=53)

<sup>xlv</sup> A recent study of the relationships between agricultural production dynamics and World Bank governance indicators for 173 countries found that countries with a lower quality of governance are more inclined to achieve production increases by expanding agricultural area rather than increasing yields. The study concludes that, in order to increase agricultural production without an excessive expansion of cultivated land, governance issues must first be resolved (Menno Mandemaker, Martha Bakker, and Jetse Stoorvogel, *The Role of Governance in Agricultural Expansion and Intensification: a Global Study of Arable Agriculture*, Ecology and Society 16(2): 8. <http://www.ecologyandsociety.org/vol16/iss2/art8/>)

<sup>xlvi</sup> See, for example, the Fairtrade Foundation (<http://www.fairtrade.org.uk/products/default.aspx>); GlobalGAP (<http://www.globalgap.org/>) and the work of TFT <http://www.tft-forests.org/product-groups/pages/?p=6277>

<sup>xlvii</sup> A review of more than 100 pro-poor environmental finance case studies shows that while financial tools are promising mechanisms to finance a shift towards a pro-poor and inclusive economy, they also require capacity building to become effective, especially in developing countries. *International Guidebook of Environmental Finance Tools*, UNDP and the World Bank, 2011  
<http://www.climatefinanceoptions.org/cfo/node/261>

<sup>xlviii</sup> This is sometimes referred to as “open source”, see <http://www.gnu.org/philosophy/open-source-misses-the-point.html> for details on how some view the distinction between free software and open source software.

<sup>xlix</sup> See <http://www.gnu.org/licenses/license-list.html> #SoftwareLicenses for those licenses currently under consideration.

<sup>l</sup> Auty, *Resource Abundance and Economic Development*, Oxford University Press, 2001; Paul Collier, *The Bottom Billion*, Cambridge University Press, 2007

<sup>li</sup> Ivan Bond, Maryanne Grieg-Gran, Sheila Wertz-Kanounnikoff, Peter Hazlewood, Sven Wunder and Arild Angelsen, *Incentives to Sustain Forest Ecosystem Services: A Review and Lessons for REDD*, International Institute for Environment and Development (IIED), 2009; Regina Birner, *Improving governance to eradicate hunger and poverty*, IFPRI, 2007; World Bank, *World Development Report 2008*, Ch. 11, International Bank for Reconstruction and Development/World Bank, 2007

<sup>liii</sup> Stuart Clenaghan, Jacopo Levi Morenos and Alberto Thomas, *Stimulating Private Capital Investment to Achieve REDD+*, Chapter 3, Forestry Investment Review, Forum for the Future, July 2009  
<http://www.forumforthefuture.org/sites/default/files/project/downloads/forestinvestmentreviewfull.pdf>

<sup>liv</sup> REDD+ is currently being driven by three multilateral programs: The Forest Carbon Partnership Facility, the Forest Investment Program (both initiatives of the World Bank) and the UN-REDD program.

<sup>lv</sup> Data used from surveys of 213 countries in 2010, accessed 25 Jan 2011. The analysis ranks 76% of countries engaged in REDD+ in the lower half of the country rankings for political stability and 79% in the lower half for regulatory quality. <http://info.worldbank.org/governance/wgi/index.asp>. Similarly, 52% of REDD+ countries rated by COFACE, a French export credit insurance company, have uncertain political and economic environments and 32% are classified as high risk environments. COFACE country risk ratings were accessed and analysed 25 January 2012. 18% of 50 countries engaged in REDD+ were rated B, 34% C and 32% D. *Country risk ratings*: B: Political and economic uncertainties and an occasionally difficult business environment can affect corporate payment behaviour. Corporate default probability is appreciable; C: A very uncertain political and economic outlook and a business environment with many troublesome weaknesses can have a significant impact on corporate payment behaviour. Corporate default probability is high; D: A high-risk political and economic situation and an often very difficult business environment can have a

---

very significant impact on corporate payment behaviour. Corporate default probability is very high.  
[http://www.coface.com/CofacePortal/COM\\_en\\_EN/pages/home/risks\\_home/country\\_risks](http://www.coface.com/CofacePortal/COM_en_EN/pages/home/risks_home/country_risks)

<sup>vi</sup> Coface is a French export credit insurance company. Coface country risk ratings were accessed and analysed 25 January 2012. 18% of 50 countries engaged in REDD+ were rated B, 34% C and 32% D. *Country risk ratings*: B: Political and economic uncertainties and an occasionally difficult business environment can affect corporate payment behaviour. Corporate default probability is appreciable; C: A very uncertain political and economic outlook and a business environment with many troublesome weaknesses can have a significant impact on corporate payment behaviour. Corporate default probability is high; D: A high-risk political and economic situation and an often very difficult business environment can have a very significant impact on corporate payment behaviour. Corporate default probability is very high. [http://www.coface.com/CofacePortal/COM\\_en\\_EN/pages/home/risks\\_home/country\\_risks](http://www.coface.com/CofacePortal/COM_en_EN/pages/home/risks_home/country_risks)

---

## APPENDIX A

*The following is a list of open questions identified during the writing and review process that produced this document. It is not exhaustive, but intended to provide the reader with a sample of the issues we intend to consider during research and development of Inari. We have broken the questions into three categories for ease of reference.*

### Finance

- How should climate risk be factored in? If so, should the risk be handled through the Protection Fund or should the risk be assumed by investors?
- How would Inari react to a major shift in interest rate environments e.g. a clear convergence of developed and developing country interest rates?
- How might Inari securities be treated under Basel III?
- To what extent would investors be able to bear technology risk? If they are not, what other solutions (ranging from diversification to insurance) would be appropriate?
- How would taxation work at each level of the mechanism? What impact would these taxation considerations have on design and effectiveness?
- Is it possible and advisable to develop long-duration offtake agreements with large commodity retailers?
- How much money would the public sector have to provide? What is the leverage ratio of public and private finance?
- Does Inari engage with the marketing side i.e. facilitating access to competitive markets?
- To what extent can we use existing entities for Inari's institutions?
- How would Inari ensure that the credit reached those who needed it most, but were the least empowered to access it?

### Sustainability

- Are the proposed sustainability outcomes adequate and do they reflect current developments on sustainability indices?
- Should governance at producer level (e.g. improved producer institutions) be included as an outcome and if so what parameter is needed to assess this?
- What additional parameters and/or refinements of the two proposed parameters are needed to demonstrate that Inari is improving rural livelihoods of those most in need, i.e. ensuring equity?
- Are the current parameters adequate to demonstrate enhanced environmental integrity, i.e. improved biodiversity and reduced environmental impact of land use? If not, what additional parameters/refinements are needed?
- Are the current parameters adequate to account for the use of non-renewable energy? What impact might we expect such a provision to have on smallholders?

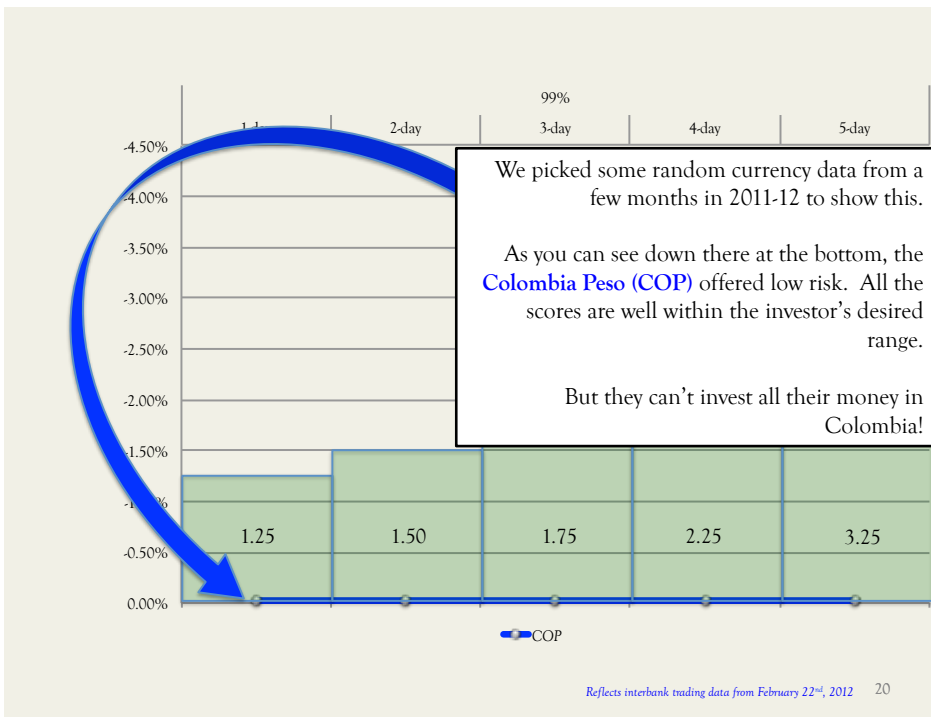
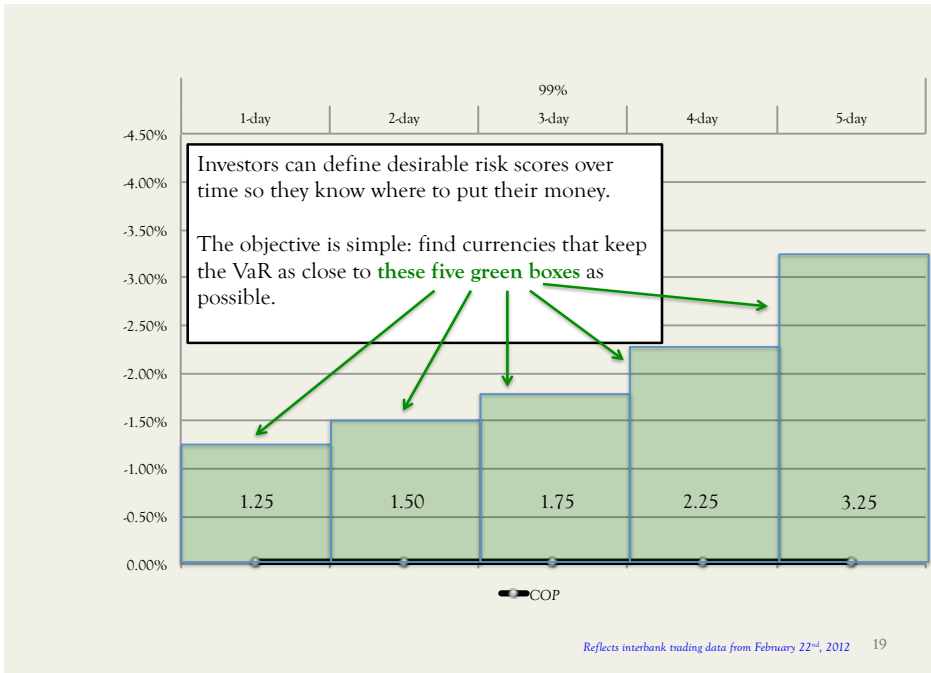
- 
- With what frequency should on-site audits be carried out?
  - What information tools currently under development can be adapted/used for monitoring and assessment of outcomes at strategic and local levels?

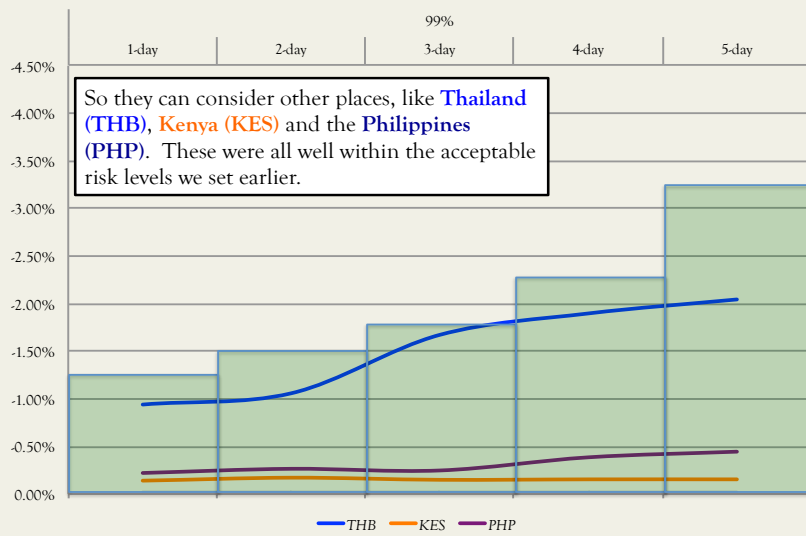
#### Governance

- What is the most cost effective approach to ensuring good governance of Inari? For example, how can local resources best be used to assess and address capacity needs?
- Will Inari create conflicts of interest at the loan level, e.g. with cooperatives lending to own members? Are these a problem and if so how shall we address this?
- Is the proposed approach adequate to ensure Aggregator accountability? What would Inari's reaction be to fraud (including misrepresentation of outcomes by an Aggregator) and misappropriation of funds, especially in locations where the rule of law is weak?
- How should Inari interact with other initiatives whose aim is to build good governance and develop enabling environments in the relevant sectors and how can synergies be achieved between these initiatives?
- Could Inari be challenged for contravening rules under WTO or other existing regional and bilateral free trade agreements? If so how should we address this?
- How can we prevent a perverse incentive for land acquisitions?



## APPENDIX B

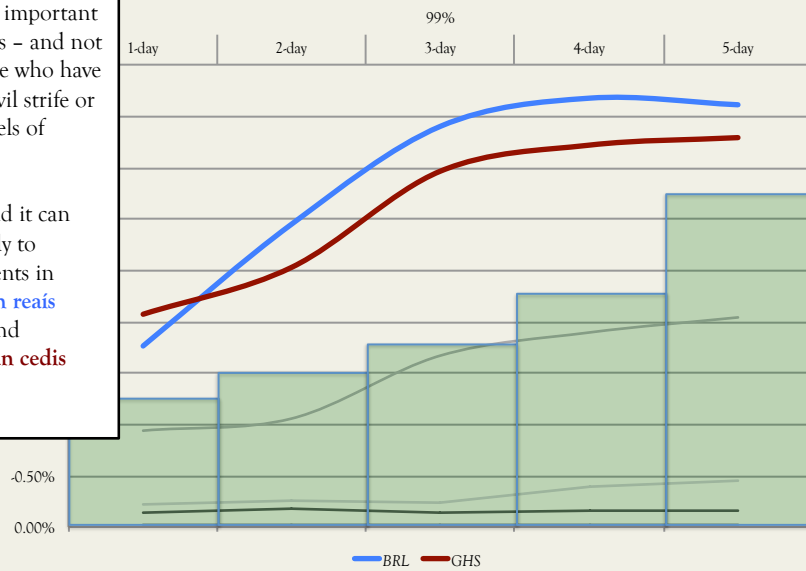




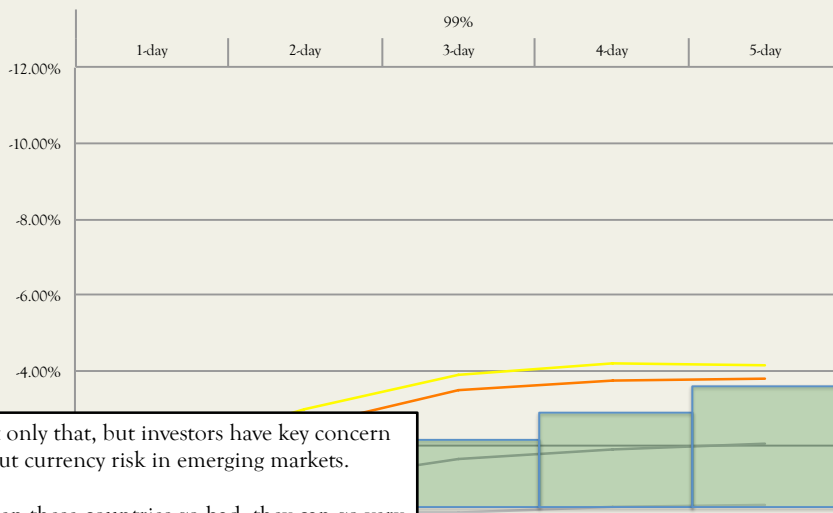
Reflects interbank trading data from February 22<sup>nd</sup>, 2012 21

But this approach excludes important countries – and not just those who have major civil strife or huge levels of poverty.

We found it can also apply to investments in **Brazilian reais (BRL)** and **Ghanaian cedis (GHS)**.



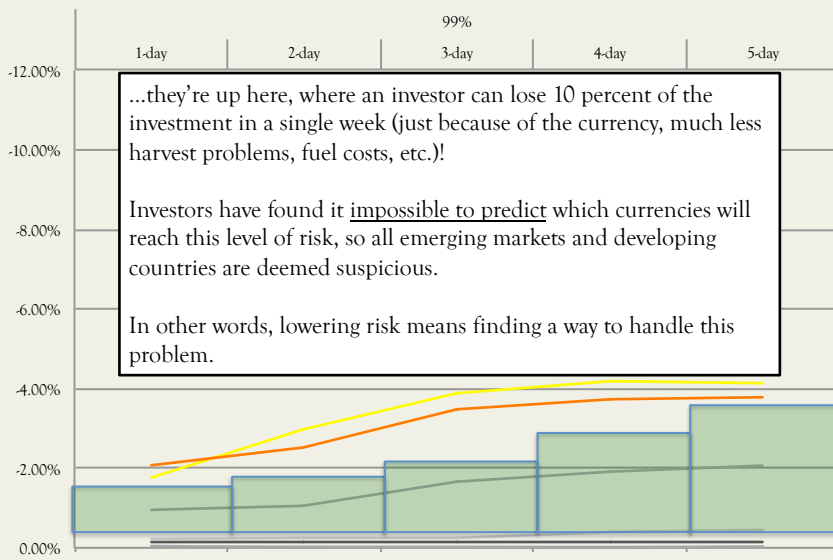
Reflects interbank trading data from February 22<sup>nd</sup>, 2012 22



Not only that, but investors have key concern about currency risk in emerging markets.

When these countries go bad, they can go very bad, very quickly, which means the real risks that would ruin an investor aren't down here...

Reflects interbank trading data from February 22<sup>nd</sup>, 2012 23

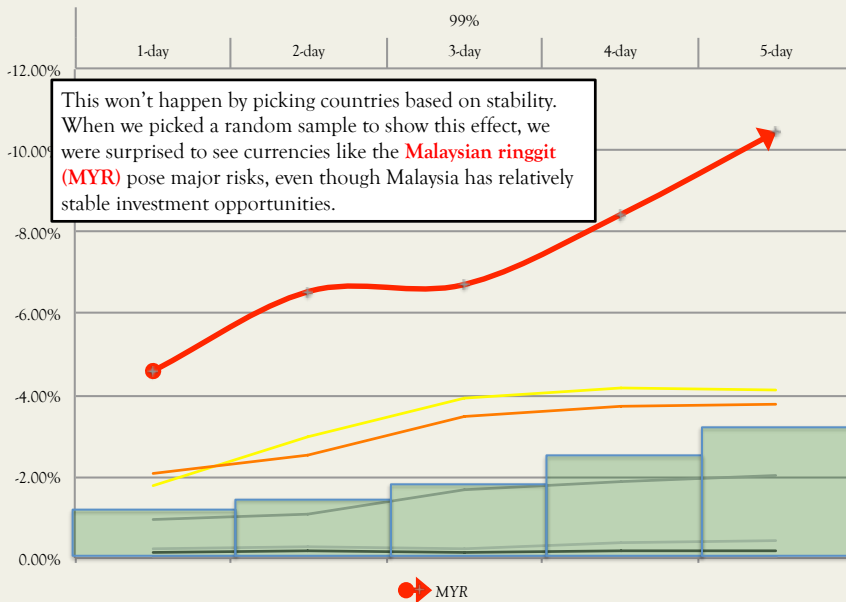


...they're up here, where an investor can lose 10 percent of the investment in a single week (just because of the currency, much less harvest problems, fuel costs, etc.)!

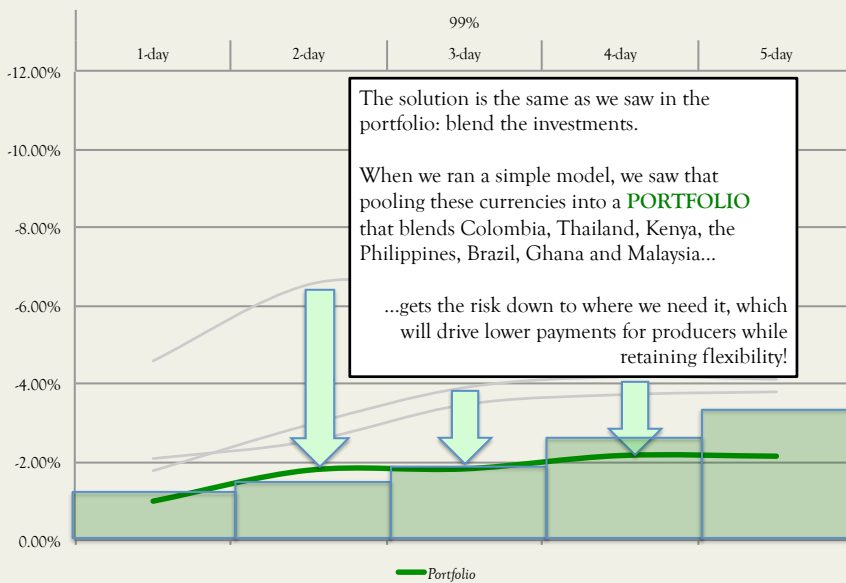
Investors have found it impossible to predict which currencies will reach this level of risk, so all emerging markets and developing countries are deemed suspicious.

In other words, lowering risk means finding a way to handle this problem.

Reflects interbank trading data from February 22<sup>nd</sup>, 2012 24



Reflects interbank trading data from February 22<sup>nd</sup>, 2012 25



Reflects interbank trading data from February 22<sup>nd</sup>, 2012 26