A landscape photograph of a field with green and yellow crops under a blue sky with scattered clouds. The field is in the foreground, with a line of trees in the middle ground. The sky is filled with soft, white clouds, and the overall scene is bright and clear.

# Accelerating the transition to regenerative agriculture using an integrated approach

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The case for an Agro-Ecological Service Company (AESCo) model

June 2024



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## Acknowledgements

This report was developed by Re:Pattern together with WWF, as part of the Climate Solutions Partnership, a collaboration between HSBC, World Resources Institute and WWF. A series of workshops and conversations were held in 2022 to explore barriers and opportunities to scaling regenerative agriculture, and the findings form the basis of the report. An integrated approach is proposed in the form of an Agro-ecological Service Company (AESCo) model. It is a contribution of experience and ideas to the wider food and farming sector, to inform a collaborative response to the need for a wide-scale transition to more sustainable food and farming systems. The model was initially formulated in 2022 and still holds relevance to ongoing discussions.

Re:Pattern thanks Will Baldwin-Cantello, David Donnelly, Laura Doughty, Sonia Sezille, Genevieve Agaba, Ariel Kagan, Kelly Price, Andrew Voysey, Stephen Briggs, Camille Morse Nicholson, Ray Johnson, Audrey Epp Schmidt, Richard Wheeldon, Coralie Houel, Coline Decourcelle, and Marine de Bazelaire for their important input and support during the assignment.

## What is the relationship between regenerative agriculture and NbS?

Nature-based Solutions are defined as “actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits”<sup>1</sup>.

At the heart of regenerative agriculture is a holistic approach to restore and maintain ecosystem health, particularly soil health, with a core set of principles. The goal is to improve soil fertility, water retention, and biodiversity while reducing the need for external inputs like synthetic fertilisers and pesticides. Regenerative agriculture aims to sustain agricultural productivity and regenerate degraded landscapes.

Where regenerative agriculture interventions align with IUCN NbS standards, they can be recognised as NbS in their own right. These criteria include addressing societal challenges; promoting biodiversity net gain; economic viability; addressing trade-offs fairly; inclusive governance with adaptive management; and promoting supportive regulatory and policy regimes. Care must be taken to ensure regenerative agriculture efforts are embedded in a broader sustainability strategy that: recognises biophysical limits, enhances the resilience of agricultural lands, does not cause inappropriate land conversion or livestock overuse, and enhances the economic sustainability and well-being of farmers.

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<sup>1</sup> Cohen-Shacham, E., Walters, G., Janzen, C. and Maginnis, S. (eds.) (2016). Nature-based Solutions to address global societal challenges. Gland, Switzerland: IUCN. xiii + 97pp.





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# 1. The Challenge

## The regenerative farming transition

For sustainable and resilient food systems, that work for people and planet in the long-term, there is a need for agriculture to transition to regenerative practices at scale - to build soil health, lock in more water and carbon, increase biodiversity, and reduce reliance on environmentally harmful, and expensive, external inputs (Fig. 1).

While there may be a modest initial outlay, more often, financial support is required in the first few years (in general, between three and five) to cover costs associated with the transition - both capital investment and potential short term yield reductions - before productivity and profitability are restored and benefits are realised through the natural recovery of soil health and a reduced need for external inputs. In addition to finance, a significant investment in time and skills is required to learn new approaches. Over the long term, regenerative agriculture may offer benefits through reducing exposure to volatile external input costs, payments for soil carbon or biodiversity credits, potential for enhanced land value appreciation, increasing water retention and aquifer recharge – thus ameliorating both flooding and drought, and further soil erosion, when runoff is reduced (Rhodes, 2017).

Regenerative farming has an important role to play in the wider global movement towards an agroecological food and farming system, through addressing land degradation and working with nature and attuning agricultural activities to broader socio-ecological contexts.

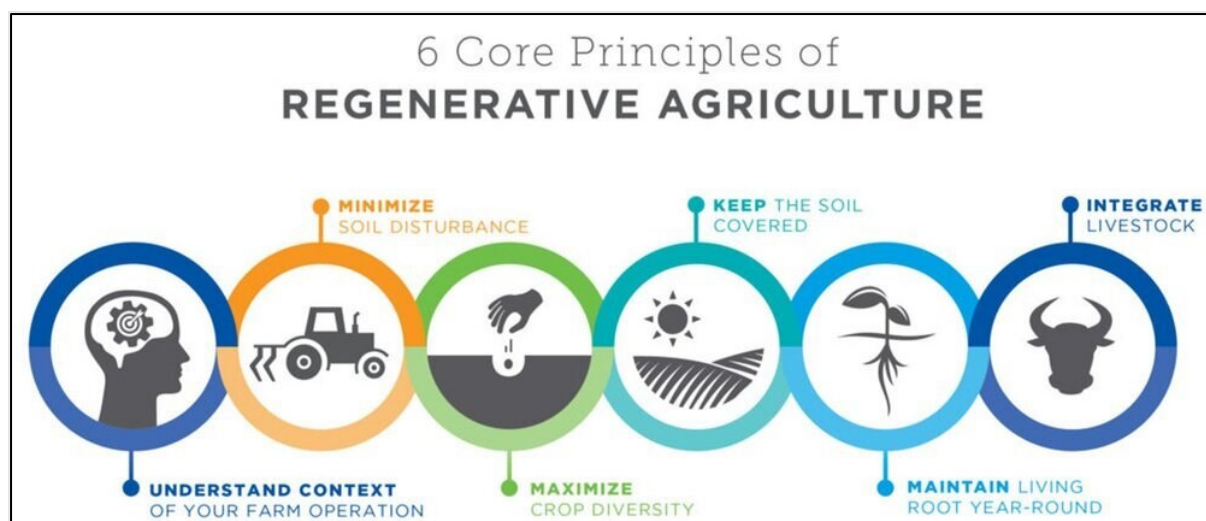



Figure 1: Six core principles of regenerative agriculture. Source: General Mills (<https://www.generalmills.com/how-we-make-it/healthier-planet/environmental-impact/regenerative-agriculture/for-farmers>)



Although becoming increasingly popular, regenerative farming is still a relatively unfamiliar concept to many and does not have a single unified definition. In an International Food Information Council study, only 19% of people surveyed in the US were familiar with the term 'regenerative' (IFIC, 2022) and, similarly, research in the UK revealed both a low awareness and understanding of the term (AHDB/Blue Marble, 2023). Whilst awareness may be growing, customers are not yet pulling demand through the supply chain, and the added value of regenerative produce is not reflected in price premiums. Increased consumer demand will likely increase as consumer familiarity and understanding of the concept evolves.

## The current barriers

In 2022, Re:Pattern convened key environmental organisations<sup>2</sup> that work directly with farmers to explore barriers to accelerating the transition to regenerative agricultural practices. Through a series of workshops, the following points emerged as key barriers:

- **Insufficient access to high-quality advice:**  
In most markets there are often not enough advisors or consultants who can provide reliable and trusted advice to farmers on transitioning to regenerative agriculture.
- **Insufficient investment/financial support for the early years of transition:**  
Even when farmers can access high-quality advice, they are often left with a funding gap to cover transition costs. This is a combination of initial investments (usually modest) and the reduction of productivity (yields) in the early years, while natural soil health recovers and builds up.
- **Insufficient scale to meet investor expectations / criteria**  
Whilst there is increasing investor demand to support Nature-based Solutions such as regenerative agriculture, the scale of regenerative transition investment per farm is relatively small and therefore difficult for most commercial investors to structure without some form of aggregation.

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<sup>2</sup> Workshops were held with Earthworm Foundation (France), Midwest Row Crop Collaborative – Environmental Initiative (US), National Trust (UK), in collaboration with WWF and HSBC in 2022.



## 2. The Solution Template

### The analogy to energy efficiency markets – the Energy Services Company (ESCo)

The key barriers identified (and given above) as holding back a wider regenerative agriculture transition all related to insufficiencies within the ecosystem: advice, investment, and scale.

When scanning other sectors, an analogous situation was identified in the energy market with a corresponding solution. Property owners must often navigate a complex set of decisions in order to improve the energy efficiency of their buildings. They require high-quality advice on methodology and equipment; they may require investment (often to spread the initial costs of installation), and they are often small individual projects. The Energy Services Company (ESCo) model offers a broad range of energy services - advisory, design and implementation of energy supply or energy saving infrastructure, often with integrated off-balance financing solutions.

Typically, a consultant from an ESCo might survey a property, making recommendations about changes to lighting, heating, appliances, control systems, ventilation, insulation, and on-site power generation. They would then follow up with a proposal to implement a solution that would be typically fully funded or co-funded by the ESCo. By implementing similar projects with common contractual structures on a range of properties, the ESCo is able to become an aggregator for investors, spreading risk, and meeting minimum investment thresholds.

### If it works for energy, why not for agriculture?

Given the associative similarities, how might the basic format for an ESCo be adapted into a service company to support a regenerative farming transition – an Agro-Ecological Services Company (AESCo)? Whilst the situations are not identical, they would share similar characteristics.

- Both relying on reliable high-quality advice in order to maintain healthy operations.
- Both addressing the issue of funding for those who are not able to fully cover transition costs.
- Both enabling aggregation in order to leverage private finance into the market (which otherwise might be constrained by the scale of each individual transaction).

The AESCo might need to be built out of the 'components' of consulting, advisory and financial service companies within each relevant market and combined into an integrated proposition to farmers. The design of an AESCo would therefore need to

be carefully constructed based on the availability of locally available expertise, the needs of farmers within a region, and the simplicity, fairness, and transparency of the proposition to farmers.

## The proposed AESCo structure

The proposed AESCo structure integrates components of support for a regenerative agriculture conversion process into a unified value proposition (Fig. 2). This would enable the farmer to rely on a single point of contact for the partnerships they will manage, thereby simplifying the process. They will benefit from the partner's expertise and market relationships as well as a financing package that can share risk and cover all or part of the necessary investment over the required period. From a financing point of view, it enables investors to benefit from the aggregation of multiple (similar) contracts that can, therefore, fit their minimum investment thresholds.

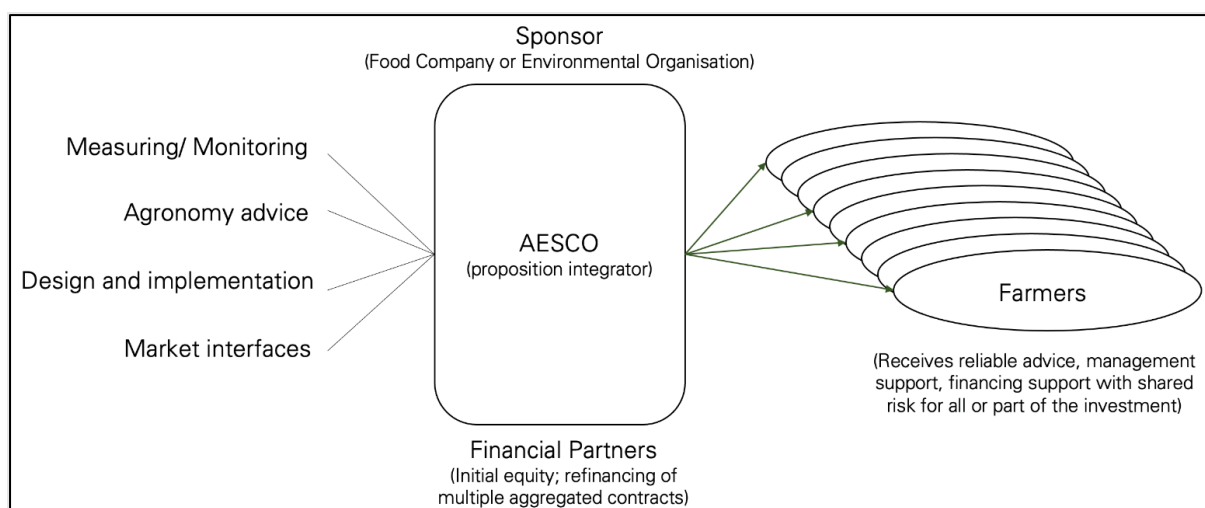


Figure 2: Illustration of the AESCo proposition. © James Vaccaro / Re:Pattern.


## Components of an AESCo solution

The AESCo should not be built from scratch. An integrated proposition can be assembled by partnering with existing organisations already providing specialist services to farmers and assisting in their transition to regenerative farming. These services include:

**Measuring/Monitoring** Technology solutions that enhance data collection and processing for farms including satellite data and soil probes that can provide insights on key soil health indicators such as carbon and nitrogen levels.

**Agronomy advice** Technical assistance on growing conditions, crop varieties and farming methods that considers the specific context of the land and the most up-to-date agronomic data insights.





**Design and implementation** Beyond providing initial advice, service providers can act as implementation partners. For example: designing fixed crops (agroforestry) into the farm and assisting on a customised basis with implementation.

**Financial structuring and support** Providing finance to 'level out' the conversion curve, protecting farmers' incomes and spreading the risks.

**Market interfaces** Assisting the farmer in accessing the best contracts in the market for ecosystem services such as carbon sequestration and biodiversity gain. They may also have relationships with some of the major food companies who may be prepared to offer price premiums to regenerative suppliers.

## Examples of potential AESCo service partners

[Soil Capital](#) enables growers to assess their economic and GHG performance by crop/activity, benchmarking their results against peers. Improvements in their GHG profile year-on-year can be transformed into ISO-compliant carbon credits through the Soil Capital carbon program and sold into the voluntary market.

[Propagate Ag](#) is a US-based farm-as-a-service agroforestry company and platform focused on integrating permanent crops, such as a fruits, nuts, and timber, into existing farms. It provides investors an opportunity to find and engage with agroforestry and marginal habitat projects.

[Climate Farmers](#) are a European based company offering knowledge exchange, measurement services, and premium voluntary carbon credits to help finance the transition to regenerative agriculture.

[Agreed Earth](#) is a provider of sustainable farming services intended to accelerate the adoption of regenerative farming practices. The company's services include offering access to a network of farmers trialling new practices, advice and guidance on farming practices, and information on suppliers that can provide the inputs and machinery needed, enabling farmers to enhance the profitability of the farms and reduce global carbon emissions.

[SensorC](#) has developed an in-ground carbon sensor that delivers direct on-demand, affordable and accurate measurement of soil organic carbon. The probe is an in-situ device relaying data in real time to the cloud to provide timely data to help manage regenerative agriculture conversion.

**CREO (2021)** provides a catalogue of active companies supporting regenerative agriculture: [Unlocking Investments in Regenerative Agriculture](#)

## Potential 'Integration Sponsors'

To be a successful, scalable company, an AESCo would need to be run as an entrepreneurial venture with a dedicated and dynamic management team, no matter how its ownership is structured – e.g. whether it is independently owned, funded by



a food company, part of a national/local government initiative, or sponsored by an environmental organisation.

Ideal organisations for the task of sponsoring the creation of an AESCo would: 1) have existing strong and trusting relationships with farmers and 2) have the capacity to bring together various partners into an integrated proposition to farmers.

As well as environmental organisations, food companies that are keen to support farmers in their agricultural supply chains could be very well positioned to do this. Several major food companies (for example [Kelloggs](#) and [Danone](#)) have already started to support farmers with technical assistance, advisory services or investment.

## Financing

Every farm is different in terms of their initial conditions and potential. Typically, repayment for conversion to regenerative agriculture for conventional farms may take 7-8 years and, including the cost of advice and financing, this may stretch to 10 years (Fig. 3). The investment period can be up to 4 years until profit and loss breakeven is reached. Beyond this point there is greater uncertainty (a potential upside) from payments in relation to ecosystem services.

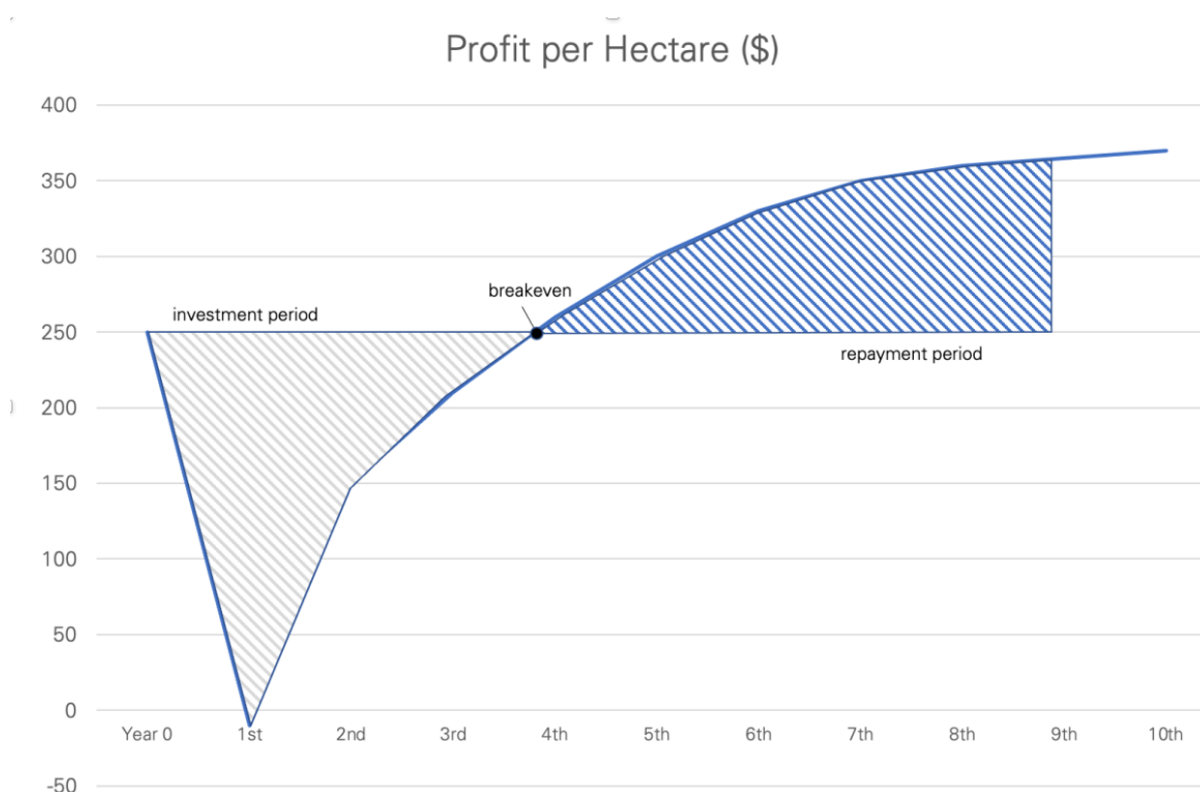


Figure 3: Illustrative cashflow for a regenerative agricultural conversion. The break-even point may be reached around 4 years, however the overall repayment period for conversion could be in the region of 9-10 years. Modelled on Bain & Co, conventional farm, Canada. © James Vaccaro / Re:Pattern.

### 3. Findings

During the previously mentioned series of workshops with environmental organisations based in the US, UK, and France, that work in partnership with farmers, we collectively identified key challenges, opportunities and other relevant features related to the conversion to regenerative agriculture. The key findings are summarised below:

#### Challenges:

Economic case	Long payback (5-7 years); Short tenancies; Energy/food security bigger policy driver than environment in short-term.
Unreliable advice	Insufficient availability of advisors; Inconsistent methodologies; Misaligned incentives (e.g. carbon market brokers).
High risk / no safety net	New set of farm management skills introduces risks. Lack of insurance or contingency for farmers to fall back on.
Full conversion requires big changes for farmers	Requires shift in methodologies and mindset; some counterparties, like large food companies, give mixed messages.
Connecting with farmers in the right way	Farm visits; Peer learning platforms, Cooperatives – all require investment in social infrastructure
Data collection & management	Data is difficult and inconsistent to collect and compare; Evidence of “narrow” interventions may hide the real benefits.

#### Opportunities:

<b>Carbon/biodiversity payments</b>	Upsides in carbon price increases, but uncertainty and unclear how farmers will interact with national/global markets fairly.
<b>Climate resilience</b>	Multiple co-benefits; helps farm resilience; Shields farmers from input price inflation.
<b>Increased food company interest to invest in supplier stability</b>	Food companies are interested (talk > action?); Potential for premiums, or guarantees for conversion, but might apply to small % of crops.
<b>Growing societal/customer/policy awareness</b>	Potential for more supportive policy intervention; Labelling and certification not yet fully in place to communicate to the market.
<b>Beyond-economic rationale</b>	The co-benefits for nature, climate, wildlife enables attractive holistic stories, which can make the emotive case for change.

#### Other relevant factors:

<b>More of an op-ex than capex investment profile</b>	Many measures do not require major capital outlay but can have significant operating impact for the first few years.
<b>Succession</b>	Ageing farmer population; transfer and new entrant farmers.
<b>Mixed markets</b>	Farm production can go into exports, animal feed, and biofuels.
<b>Consolidation in value chains</b>	Supply chains are more consolidated whereas farms are relatively fragmented – potential for cooperatives/aggregated services?
<b>Investor preferences and constraints</b>	Plenty of investor interest with new funds being launches but not clear what investors really want or need?
<b>Recognition of supply chain bottlenecks</b>	Hyper-efficient, just-in-time management systems often lead to a lack of resilience; government policy landscape is uncertain.



## Participant insights

### Landowner-tenant benefits

There was discussion about the asymmetry between the short-term nature of some tenancies and the long-term value created for landowners. One concept discussed was how landowner and tenant could agree a conversion plan with a valuation for tenants, both fixtures and improvements. In the event of the termination or non-renewal of a tenancy, the landowner would compensate the tenant for a fair proportion of the added value (which may be realised by the landowner in future).

### Insurance products

There are not just perceived risk and psychological barriers to change but also real risks in conversion. Transitioning to regenerative practices often requires a fundamental reorientation of approach, rather than just an incremental shift from industrial methods, meaning that there will be new management skills to learn and perfect. To an extent, advisory services can help mitigate those risks, however, there could also be a role for insurance products that protect farmer livelihoods during the conversion period, which also protect cashflows for financing.

### The landscape of trusted advice

Whilst there are several solution providers emerging in the sector, the critical success factor for rapid acceleration is building deep levels of trust with farmers. Cooperatives, accountants, crop advisors, and peers can be helpful to embed familiarity and knowledge of regenerative approaches. In building up momentum, an AESCo should start with the most enthusiastic early adopters and cross fertilise from there. It was noted that farmers want to be shown real results in the field rather than on a graph. The more that incentives are aligned, the fewer the conflicts of interests and lower the risk of farmers being felt 'sold' to.





## 4. Recommendations & conclusions

There may not be one single formula for setting up an AESCo but the following are recommended as constructive design principles:

- Build momentum around existing trusted networks that are already familiar to farmers: cooperatives, associations, common purchasers (food companies), etc.
- Involve farmers early in the design process, using the insights learned and momentum from early adopters to build confidence for the next wave.
- Gain trust by offering full transparency and alignment of financial incentives (sharing risks in return for sharing future upsides). There should be full transparency on pricing carbon or biodiversity credits so farmers are able to see how they might benefit from future increases.
- Food companies can provide confidence by offering long term contracts for suppliers. It is possible that a food company becomes a sponsor or a partner for an AESCo specifically for its supply chain.
- An insurance product bundled into the finance package (perhaps offered by one of the investor partners) could give additional protection for those who require additional reassurance.

The AESCo model is proposed as an integrative approach, and a useful starting point, to address challenges of insufficient reliable advice, a shortfall of investment, and fragmented opportunities for investors. It is a contribution of experience and ideas to the wider food and farming sector, to inform a collaborative response to the need for a wide-scale transition to more sustainable food and farming systems.



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