

CHAPTER EIGHT

Mapping Sourcing Risk

Primary processors operate at a critical point in the botanical supply network. Processors connect farms and collectors with the traders, distributors and brands.

Risk mapping is ultimately about people and places, not just data and lots. The goal is to shift from extractive relationships to ones that honour the plant-people-place nexus.

Some Unknown Risks

1. The vendors that we have built relationships with, supported through advance payments, provided primary processing equipment can lose their organic or Fair certifications.
2. The vendors who have committed to supply us material resort to side selling to other buyers
3. The certification body that audit us or our vendors can lose their status and power to certify.
4. During organic certification audits, each of our vendors are unable to provide organic material with a transaction certificate for 2 months out of a year

List of unknown risks faced by an Indian Primary Processor (Herb Artizan)

Purpose

Mapping sourcing risk allows you to better understand where your supply chain may be vulnerable. Proactively identifying those vulnerabilities can help you avoid quality failures, supply disruptions, or loss of buyer trust. Risk mapping helps primary processors move from reactive problem-solving to proactive supply chain management. Instead of responding to issues lot by lot, you can better understand patterns across ingredients, regions, suppliers, and market conditions.

In practice, sourcing risk mapping helps us:

- Identify ingredients and regions that require closer oversight
- Detect early warning signals for fraud, contamination, or supply instability
- Align testing, verification, and supplier engagement with actual risk levels
- Strengthen transparency and traceability for buyers
- Guide strategic investments in supplier relationships and infrastructure

Herbal supply is variable by nature. But documenting, tracking, and asking the right questions reduces surprises.

What Success Looks Like

Successful sourcing risk mapping does not require complex software or perfect data. It requires a clear, structured understanding of your supply chain and its vulnerabilities, paired with consistent action. Success means fewer surprises, stronger partnerships, and greater confidence across the supply chain.

When risk mapping is working well, a primary processor can:

- Understand their supply ecosystem clearly — know the origin, supply structure, and key suppliers for major herbs.
- Recognize when the plant material changes hands and what systems/operations each has in place to maintain quality.
- Maintain visibility as far upstream as reasonably possible. Ideally, we would like to know what farm/farms the plant material has come from.
- Identify higher-risk ingredients and regions. A complete risk assessment would include: quality and active constituents; climate risk (flooding, drought, yield instability); geopolitical risk; human rights and labour risk; regulatory risk; environmental and contamination risk; and adulteration risk.
- Align controls with actual risk — increase testing and verification where risk is higher and focus resources where they make the biggest difference.
- Support improvements in post-harvest handling, drying, and storage at the source.
- Communicate transparently with buyers — clearly explain sourcing structure and traceability, share early warnings about supply changes or emerging risk, and provide consistent documentation and supplier information.

The SHI Mapping Sourcing Risk group has been asking: how can we collaborate to create more resilience in communities and build supply ecosystems that are fair, transparent, and regenerative?

Key Risk Dimensions

Effective risk mapping requires looking across multiple dimensions simultaneously.

QUALITY AND IDENTITY RISK

Adulteration:

- Substitution of species, blending with inferior material, artificial enhancement (e.g., lead chromate in turmeric powder)

Contamination:

- Heavy metals (especially lead in root crops), pesticide residues, mycotoxins from improper drying or water exposure, microbiological contamination

Species misidentification:

- Especially relevant where multiple varieties of a species are traded and have different quality profiles

Post-harvesting handling failures:

- Inadequate drying, improper storage, and foreign matter from poor cleaning processes

Testing is a key tool but has limits. Lab results at point of receipt cannot tell you when or how contamination occurred that requires supply chain visibility and supplier relationships.

CLIMATE AND ENVIRONMENTAL RISK

Yield instability:

- Drought, flooding, unseasonal rainfall

Crop disease:

- Leaf diseases that spread to roots; pest pressure that organic farmers struggle to manage without synthetic inputs

Upstream and non-point contamination:

- What is happening on neighbouring farms or in water sources?

Biodiversity risk:

- Where is over-harvesting threatening wild-harvested species?

Scope 3 emissions:

- What is the carbon footprint of your ingredient supply chain?

MARKET AND FINANCIAL RISK

Price volatility:

- Herbs like turmeric have seen prices double in short periods

Middlemen dominance:

- When farmers do not understand pricing mechanisms or timing, they are vulnerable to exploitation

Order cancellation:

- Late cancellations hurt farmers and processors who have committed resources. Share cancellations as early as possible.

Over-dependence on a single buyer:

- Suppliers with one or two major customers are extremely vulnerable

SOCIAL AND ETHICAL RISK

Living wages:

- Can farmers and harvesters meet their basic needs from what they earn supplying your products?

Child labour:

- Where in the supply network is this a risk?

Gender equity:

- Are women in harvesting and processing communities receiving fair wages and working safely?

Labour sourcing:

- When farmers hire workers from other regions or states, what protections and equity are in place?

Price instability:

- When prices are highly volatile, farmers cannot plan. This drives either quality shortcuts or exit from the market altogether.

REGULATORY AND CERTIFICATION RISK

- Fraud in organic certification
- Certification gaps for small farmers in cooperatives
- Import requirements: different markets have different testing requirements
- Geopolitical risk: sourcing from regions with political instability

Streamlining Supplier Qualification

A consistent challenge raised across meetings is the burden that multiple, redundant qualification questionnaires place on suppliers, especially small farms and processors. A member shared that they fill out 60 supplier qualification forms per year for buyers, with near-complete redundancy. This burden falls heaviest on the smallest and most relationship-oriented suppliers.

OPPORTUNITIES FOR IMPROVEMENT:

- Work toward a shared baseline questionnaire covering food safety fundamentals that suppliers can complete once and share with multiple buyers.
- Reserve company-specific questions for the genuinely unique requirements of your operation.
- Consider accepting a supplier's own sustainability report or documentation (where rigorous) rather than requiring them to translate it into your format.
- Invest in platforms (such as Tracegains) that allow supplier data to be entered once and accessed by multiple buyers, reducing duplication.

Collaborative Risk Mapping

One of the central insights from the working group is that risk mapping does not have to be done alone. Many of the challenges facing herbal supply chain, climate risk, adulteration, smallholder vulnerability, regulatory change, are shared across companies. Collaboration on risk intelligence, even between competitors, is possible where companies focus on pre-competitive knowledge rather than supplier-specific information.

WHAT CAN BE SHARED

- Risk frameworks, scoring tools, and templates
- Regional risk profiles (known contamination risks, climate exposures, market dynamics)
- Research on specific species: cultivation challenges, quality drivers, adulteration methods, testing approaches
- Best practices for post-harvest handling, drying, and storage by crop type
- Case studies of quality failures and how they were resolved framed around learning
- Open-access databases of biodiversity, climate, and sustainability data relevant to sourcing regions

WHAT IS TYPICALLY NOT SHARED

- Specific supplier identities and relationships — these represent years of investment and are legitimately proprietary
- Pricing arrangements and commercial terms
- Volumes and ingredient lists that would reveal formulation strategy

The group has found that focusing on practices, processes, and shared challenges rather than specific supply networks creates the most durable space for pre-competitive collaboration.

From Risk to Action

Risk mapping is only valuable if it leads to change. The group identified a four-part framework for turning risk intelligence into action:

VISION

What does a fair, transparent, regenerative supply network look like for your organisation? Without a clear picture of where you are trying to go, risk management becomes purely defensive.

KNOWLEDGE

Know your herbs. Know the regions. Know the people and communities doing the work. Build internal awareness so that staff at all levels understand where ingredients come from and what current risks are.

TOOLS AND ASSESSMENT

Use a risk scoring framework; a supplier tiering system; a supply network map showing where material comes from and where visibility gaps exist; and a shared, open-access database of regional and species-level risk data where possible.

ACTION

Adjust testing and verification protocols based on risk level. Prioritise supplier visits where risk is highest. Share findings constructively. Adjust purchasing practices. Invest in supplier capability. Contribute to collective efforts.



3D Mapping of the herbal products industry, SHI members, Nicaragua Learning Journey