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United Nations Development Programme

Building MSME Resilience in South and Southeast Asia: A value chain approach

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Cenfri is an independent African economic impact agency. They work to boost economic growth and increase sustainable development in emerging markets.

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Table of contents

List of tables

List of figures

Abbreviations and acronyms

ACCMSME	ASEAN Coordinating Committee on Micro, Small and Medium Enterprises
ACMA	Automotive Component Manufacturers Association of India
ADB	Asian Development Bank
AFI	Alliance for Financial Inclusion
ASEAN	Association of Southeast Asian Nations
ASDC	Automotive Skills Development Council (India)
ASUSE	Annual Survey of Unincorporated Sector Enterprises
B2B	Business to business
B2C	Business to consumer
CCTV	Closed-circuit television
CGTMSE	Credit Guarantee Fund Trust for Micro and Small Enterprises
D&B	Dun & Bradstreet
DIC	Directorate of Industries and Commerce, Government of Kerala (India)
DPI	Digital public infrastructure
DRFIP	Disaster Risk Financing and Insurance Program
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
ESIS	Employee State Insurance Scheme
FAO	Food and Agriculture Organization
FPO	Farmer Producer Organization
FWEAN	Federation of Woman Entrepreneurs' Associations of Nepal
GAME	Global Alliance for Mass Entrepreneurship
GDP	Gross domestic product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German Agency for International Cooperation)
GPS	Global Positioning Systems
GSFF	Global Shield Financing Facility
IBEF	India Brand Equity Foundation
IFC	International Finance Corporation
IIS	India Insurtech Summit
ILO	International Labour Organization
IMF	International Monetary Fund
IRDAI	Insurance Regulatory and Development Authority of India
ISDB	Islamic Development Bank
LIS	Livestock Insurance Scheme
MIDC	Maharashtra Industrial Development Corporation
MoSPI	Ministry of Statistics and Programme Implementation (India)
MSMEs	Micro-, small and medium-sized enterprises
MSP	Minimum support price
NAFCC	National Adaption Fund on Climate Change
NAPCC	National Action Plan on Climate Change
NCCF	National Cooperative Consumers' Federation of India
NCIP	National Crop Insurance Portal (India)
NGO	Non-governmental organization
NPCI	National Payments Corporation of India
OEC	Observatory of Economic Complexity
OECD	Organisation for Economic Co-operation and Development
OEM	Original equipment manufacturer
PACS	Primary Agricultural Credit Societies
PIB	Press Information Bureau (India)

PMFBY	Pradhan Mantri Fasal Bima Yojana (Prime Minister’s Crop Insurance Scheme)
PMJAY	Pradhan Mantri Jan Arogya Yojana (Prime Minister’s People’s Health Scheme)
PMJDY	Pradhan Mantri Jan Dhan Yojana (Prime Minister’s Public Finance Scheme)
PMJJBY	Pradhan Mantri Jeevan Jyoti Bima Yojana (Prime Minister Jeevan Jyoti Insurance Scheme)
PMSBY	Pradhan Mantri Suraksha Bima Yojana (Prime Minister's Safety Insurance Scheme)
POS	Point of sale
PPE	Personal protective equipment
PPP	Purchasing power parity
RSBY	Rashtriya Swasthya Bima Yojana (National Health Insurance Programme)
SAPCC	State Action Plan on Climate Change
SIDBI	Small Industries Development Bank of India
SIDC	State Industrial Development Corporation
TReDS	Trade Receivables Discounting System (India)
TRRAIN	Trust for Retailers and Retail Associates of India
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
UNSGSA	United Nations Secretary-General’s Special Advocate for Financial Health
UPI	Unified Payments Interface
USAID	United States Agency for International Development
SMEs	Small and medium-sized enterprises
WWB	Women’s World Banking

Executive summary

Micro-, small and medium-sized enterprises (MSMEs) are the backbone of economic activity across South and Southeast Asia. They make up between 94 and 99.9 percent of enterprises in both regions and are central to employment, livelihoods and gross domestic product (GDP). In India alone, there are over 73.4 million MSMEs, contributing 30 percent of GDP, 44 percent of exports and around 60 percent of total employment. Yet despite this importance, MSMEs remain highly exposed to risks and continue to lack access to effective risk protection solutions. The risks they face include:

- **Climate and environmental challenges:** Frequent floods, droughts, cyclones and heatwaves threaten lives, crops, infrastructure and supply chains.
- **Financial fragility:** Long payment delays, lack of working capital and limited credit access leave enterprises vulnerable. In India, for example, over 70 percent of microenterprises have less than one month of working capital.
- **Health and personal shocks:** For one-person or family firms, illness or injury can halt business entirely.
- **Political and macroeconomic instability:** Events such as Sri Lanka's 2022 economic crisis, which led to the closure of over 100,000 MSMEs, highlight how MSMEs are sensitive to demand-side shocks.

Despite their risk exposure, MSMEs' insurance coverage is minimal. Across South and Southeast Asia, most microenterprises and informal firms are uninsured, with products often generic, poorly aligned with MSME needs and distributed through channels that do not reach MSME owners.

These risks and insurance realities are often more stark for women-led MSMEs. Women-led enterprises remain a critical but underutilized driver of economic inclusion across both regions. In South Asia, women account for just 9.6 percent of majority ownership. By contrast, Southeast Asian countries such as Cambodia, the Lao People's Democratic Republic and Viet Nam are close to parity at microenterprise level, though representation falls sharply for small and medium enterprises (SMEs). Women entrepreneurs face overlapping constraints as well as gender-specific barriers, including disproportionately limited access to finance, unpaid care burdens, weaker access to markets and networks, and

in some cases restrictive legal frameworks. These barriers concentrate women entrepreneurs in low-capital, traditional sectors such as retail, hospitality and food processing, where returns are often limited.

Developing holistic reliance solutions, which can enable MSMEs to prevent and address risks when they materialize, represents both a development and a commercial opportunity. Doing so through a gender-sensitive lens (through disaggregated data, tailored product design and leveraging women-only producer groups) offers both equity and growth dividends, since women reinvest more of their income in households and are more likely to employ other women, thus further unlocking untapped productivity and strengthening household and community resilience.

A value chain lens: revisiting the alternative approach

Building on our earlier work, "Building MSME resilience in Southeast Asia", which focused on Malaysia and Thailand (UNDP, 2023), this report demonstrates the replicability of a value chain approach for developing more tailored risk solutions for MSMEs in South Asia, with a focus on India. The value chain approach offers a structured alternative that can strengthen both commercial viability and developmental impact. The methodology follows four steps:

1. **Segment MSMEs by value chain**
   Instead of treating MSMEs as a homogenous group, the approach clusters enterprises according to the roles they play in production, processing, distribution and sales. This helps to capture economic interdependencies and the specific risks faced within each chain.

2. **Identify risks and coping mechanisms.**
   Mapping risks across value chains highlights common threats such as climate events, health shocks and income disruption, as well as sector-specific risks tied to business activities. It also considers how MSMEs currently cope with risk, whether through informal mechanisms or partial formal tools.

3. **Leverage aggregators for delivery.**
   Aggregators such as digital platforms, suppliers, cooperatives, financial institutions and lead firms can cluster MSMEs and act as channels for outreach, engagement and premium collection. Their role is particularly important in contexts where MSMEs are informal, dispersed or otherwise difficult to reach through traditional distribution models.

4. **Develop holistic resilience solutions.**
   The ultimate aim is to move beyond stand-alone insurance in order to design integrated solutions that combine risk transfer (insurance, savings) with risk mitigation (digital tools, advisory services, infrastructure and safety measures). These holistic solutions align more closely with MSMEs' lived realities and increase the value proposition for both enterprises and providers.

By applying this methodology to India's MSME sector, the report illustrates how holistic resilience solutions can be designed and scaled across three diverse value chains: paddy, automotive and retail. It applies a gender lens to each value chain, drawing out potential risks and solutions for women-led enterprises. It also draws lessons from earlier applications of the approach in Southeast Asia to reinforce its wider relevance.

Insights from applying the value chain approach in India

Each of the selected value chains has its own challenges, and insights can be drawn from the approach's application in each chain:

Value chain 1: **Paddy**

Paddy is India's most important staple crop, underpinning food security and rural livelihoods. Farmers and millers face climate shocks, post-harvest losses, theft and occupational risks. While the Pradhan Mantri Fasal Bima Yojana (PMFBY) crop insurance programme reaches millions of farmers, significant gaps remain, especially for off-farm actors such as traders and millers. Digital agricultural technology platforms such as Arya.ag and DeHaat, together with Farmer Producer Organizations (FPOs), offer promising entry points for bundled solutions that integrate weather-indexed insurance, smart storage, Global Positioning System (GPS) tracking and health protection.

Women contribute the bulk of agricultural labour but are rarely recognized as landowners, excluding them from many formal services. Targeting women through FPOs and embedding stock insurance with hermetic storage can reduce losses and enhance women's income, resilience and agency.

Value chain 2: **Automotive sector**

The automotive sector contributes around 7 percent of national GDP and is anchored by 1.4 million MSMEs, most of them informal repair and maintenance shops. These firms face risks such as supply chain disruptions, long payment delays, worker injury and technological exclusion. Digital business-to-business platforms such as IndiaMart and TradeIndia, as well as business-to-consumer service providers such as GoMechanic, can serve as aggregators for delivering bundled financial and risk solutions.

Women own only 1.8 percent of automotive enterprises and make up 2.2 percent of the workforce, typically carrying out low-value tasks in unsafe or poorly equipped facilities. Many factories lack separate amenities for women, and personal protective equipment (PPE) is often designed for men, increasing the risk of injury. Yet companies report that women demonstrate higher productivity, greater precision and lower attrition than men. Gender-sensitive resilience strategies that include appropriate PPE, occupational safety training and access to personal accident insurance can address workplace risks while unlocking the productivity and competitiveness benefits of greater female participation.

Value chain 3: **Retail**

Retail is India's largest MSME segment, with nearly 20 million enterprises, most of them microenterprises and nano-enterprises. Retailers face risks from, for example, theft, fire, market volatility and limited access to finance. The rapid uptake of digital payments through the country's Unified Payments Interface (UPI) and the expansion of e-commerce platforms provide new opportunities for embedding affordable resilience solutions such as stock insurance, point-of-sale linked savings and cyber protection.

Women-led retail enterprises are concentrated in low-capital and informal segments, with limited access to credit and protection. Leveraging women's associations and digital payments platforms to distribute bundled microinsurance and savings products could lower barriers and support women's expansion into higher-value retail activities.

Applying the value chain approach in all three value chains gives rise to the following insights:

1. **Traditional insurance is insufficient.** Traditional insurance distribution channels often fail to reach MSMEs, and affordability barriers further limit uptake. As a result, stand-alone insurance products are often perceived as low-value. Resilience requires holistic solutions that combine risk transfer with risk mitigation tools and services..
2. **Holistic, bundled solutions show strong potential.** Combining insurance with risk mitigation tools can create more practical and impactful resilience solutions for MSMEs. Examples include linking smart storage and pest management with stock insurance for paddy farmers, integrating liability cover into auto-repair platforms and embedding property and inventory insurance into retailer sourcing platforms. These bundled approaches reduce the likelihood of risks materializing and make payouts more efficient when shocks occur.
3. **Digital platforms and aggregators are key enablers.** Platforms, suppliers, cooperatives and lead firms can cost-effectively reach MSMEs, making distribution and premium collection viable even in informal segments.
4. **Gender-sensitive approaches unlock untapped potential.** Women remain underrepresented in all three value chains. Addressing barriers such as workplace safety, asset ownership and care responsibilities not only promotes equity but also brings productivity and competitiveness gains for firms.
5. **Further demand-side research is needed.** Designing fit-for-purpose products requires deeper insights into MSME behaviours, preferences, and constraints within each value chain. Collaborating with cooperatives, industry associations and civil society can surface the nuanced evidence needed to tailor solutions and track outcomes.
6. **The value chain lens provides a framework for aligning risk solutions with sector-specific needs across countries and regions.** The Indian experience reflects common challenges in the MSME space. For example, despite their economic significance, MSMEs in Malaysia and Thailand also face low levels

of insurance uptake, with barriers stemming from heterogeneity and data gaps, as shown in earlier research. In both contexts, progress has been driven by bundling risk transfer and mitigation, leveraging digital platforms and using sector-based segmentation. Taken together, South and Southeast Asian experiences show how a value chain approach can bridge knowledge gaps and drive more effective, scalable resilience solutions.

7. **The need for unilateral and collaborative efforts is clear.** Lasting progress depends on aligned actions across sectors. Policymakers and regulators must provide enabling mandates, reliable data ecosystems and supportive digital infrastructure. The private sector can build on this foundation and capture commercial value by designing affordable, accessible solutions tailored to MSMEs. In parallel, development partners can convene stakeholders, support market development and generate evidence. Working together in this way offers the best chance of building coherent, inclusive and sustainable resilience for MSMEs.

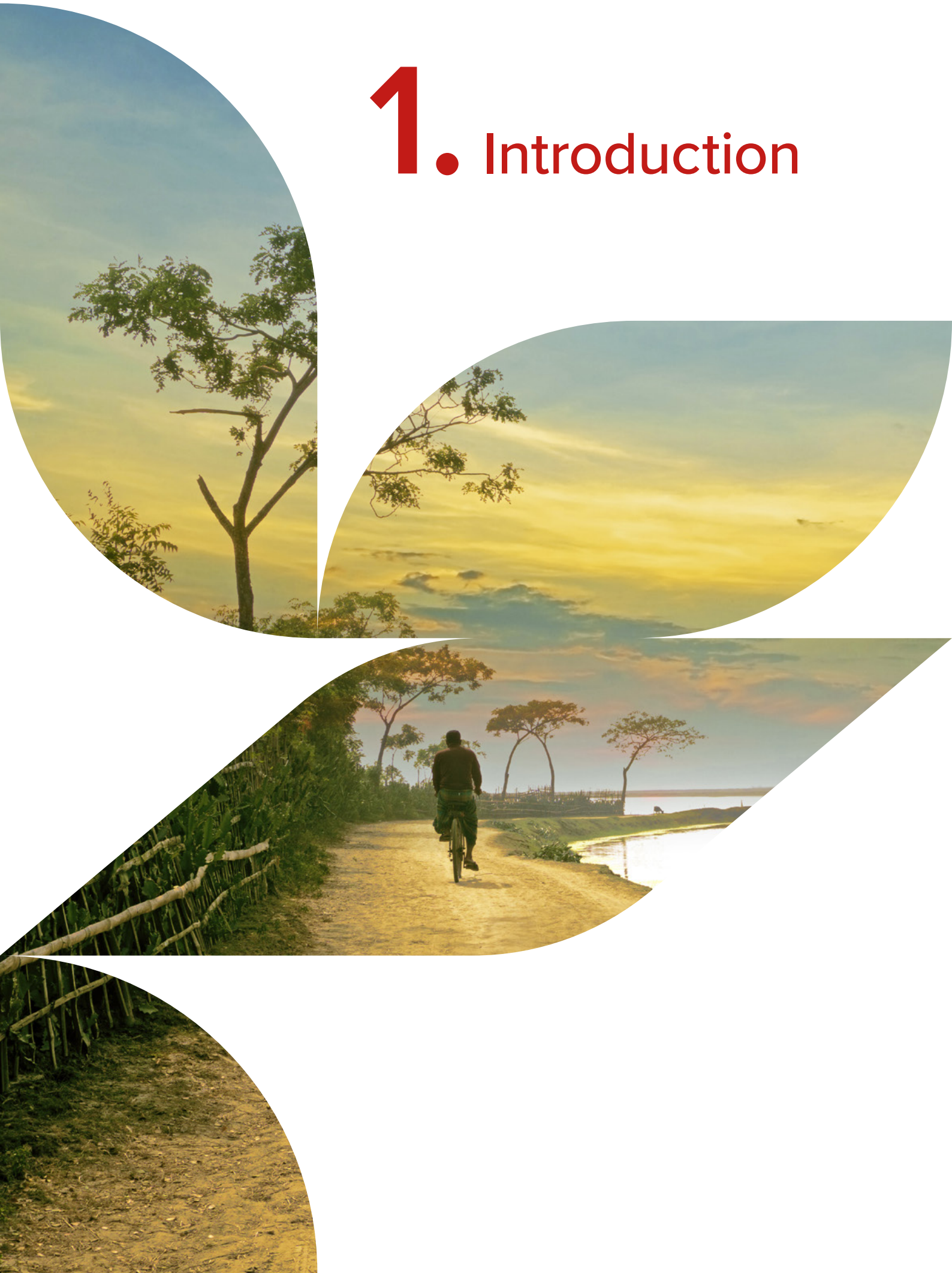
Recommendations for key stakeholders

The public sector can create an enabling environment for innovation by adopting a flexible and accommodating approach to promoting responsible innovation. Policymakers need to provide regulators with a clear mandate and support ecosystem development (infrastructure, skills, etc.), as well as managing or mitigating large systemic risks such as natural hazards. Regulators should focus on signalling opportunities for innovation to the market (for example, providing guidance on digitalization and highlighting MSMEs as a focus sector); ensuring clarity around product licensing processes; promoting innovation platforms and tools (such as regulatory sandboxes and innovation hubs); monitoring the risk of new partners and types of actors in the insurance value chain; and strengthening MSME data collection to guide policy and market development.

The private sector has an opportunity to unlock new revenue streams by providing appropriate, affordable and accessible risk solutions to MSMEs. For insurers, this will involve better understanding and segmenting MSMEs, partnering with other key players, developing new solutions, leveraging alternative distribution partners and taking advantage of trends. Aggregators can help to reach MSMEs with effective risk solutions by partnering with insurers or developing and launching their own products.

The development sector should spotlight the need for and value of enhancing MSME resilience, support policymakers and regulators to build the right enabling market conditions and facilitate the development of new products that meet the needs of MSMEs, while enabling coordination and collaboration between key actors. This includes conducting research to provide a solid evidence base for private and public sector players, convening actors and promoting key trends and approaches to enhancing MSME resilience. By doing so, the development sector can help catalyse the development of a common innovation agenda aimed at increasing the resilience of MSMEs.

1. Introduction



Micro-, small and medium-sized enterprises (MSMEs) are the backbone of economic activity across Asia. They drive employment, support livelihoods and make a significant contribution to gross domestic product (GDP). But despite their importance, MSMEs often lack access to effective risk protection solutions tailored to their needs.

Our previous work, "Building MSME resilience in Southeast Asia", explored how a value chain approach can help close this gap by identifying MSME risks more precisely and mapping pathways for solution delivery (UNDP, 2023). With a focus on Malaysia and Thailand, this report highlighted the potential and opportunities of this approach for improving resilience through better-designed, better-distributed risk solutions.

This follow-up report aims to demonstrate the replicability of the value chain approach in a new context. It first updates key indicators of the MSME landscape in Southeast Asia, and then turns to South Asia – and specifically to India – to explore how the same value chain methodology can be applied to strengthen MSME resilience in a vastly different economic and institutional environment. The value chains selected for exploration and for holistic resilience solution development are: paddy (rice); automotive; and retail. This report also includes a spotlight on women-led MSMEs across the two regions, and applies a gender lens to each of the value chains. Finally, it draws conclusions based on insights from the value chain application and makes recommendations for public and private sector actors, as well as their development partners.

2. Comparing the MSME landscapes in South and Southeast Asia

Economic overview and MSME landscape

South Asia has a large, young population and a diverse context.

South Asia – made up of Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka – is home to nearly 2 billion people (IMF, 2025). With a median age of just over 28 years, its population is among the youngest of all the world's regions (Worldometer, 2025). Although progress has been made in expanding opportunities for youth, the region faces a lack of formal jobs. Thus, many individuals inevitably turn to entrepreneurship or informal work to earn a living.

South Asia shares both similarities and differences with Southeast Asia.

As highlighted in UNDP's earlier study, "Building MSME resilience in Southeast Asia", Southeast Asia is also characterized by a youthful population and vibrant entrepreneurial activity (UNDP, 2023). However, compared to South Asia, Southeast Asian countries[1] have benefited from stronger regional integration through the Association of Southeast Asian Nations (ASEAN), along with relatively more harmonized policy coordination. Southeast Asia's economies tend to be more outward-oriented, with MSMEs often integrated into regional and global value chains, while South Asia's remain more fragmented, with weaker cross-border trade and digital infrastructure (World Bank, 2025a; World Bank, 2025c). Yet, Southeast Asia itself is far from uniform. Founding ASEAN members such as Indonesia, Malaysia, Singapore and Thailand have undergone significant economic development since the 1960s, driven by industrialization and services, while newer members such as Cambodia, the Lao People's Democratic Republic, Myanmar and Viet Nam are less developed, with agriculture still employing a majority of workers (Frederick and Leinbach, 2025).

South Asia shows stark variations in development across its countries.

The region shares deep cultural and historical ties, including a colonial legacy. However, its countries differ widely in development trajectories, governance structures and institutional capacity (ADB, 2025). South Asia spans a wide geographic and economic spectrum. Population sizes vary significantly, with India alone accounting for over 1.4 billion people, while Bhutan and the Maldives each have fewer than 1 million people (IMF, 2025). Economies such as India and Pakistan are large and diversified, with substantial industrial and services sectors, while smaller countries rely more heavily on agriculture, tourism or remittances (World Bank, 2025a). These structural differences affect both the dominant sectors in each country's economy and the scale and nature of MSME activity within them.

1 Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste and Viet Nam.

Regardless of the region, MSMEs are defined differently across countries.

Each country in South and Southeast Asia applies its own classification criteria, shaped by national contexts and policy priorities. Some rely on turnover, while others use employment size or asset value, and many use multiple criteria, particularly when distinguishing between sectors like manufacturing and services. This makes direct comparisons challenging. However, across both regions, MSMEs are consistently recognized as the dominant enterprise segment. Table 1 highlights these definitional differences across selected countries in both regions.

Note:
BDT = Bangladeshi taka;
PKR = Pakistani rupee;
MYR = Malaysian ringgit;
THB = Thai baht.
Exchange rates taken from OANDA.com, September 2025:
$1 = 120.759 BDT;
$1 = 282.772 PKR;
$1 = 4.21358 MYR;
$1 = 31.7598 THB.

Source: ADB (2024b).

Table 1: Example MSME definitions across South Asia and Southeast Asia

SECTOR	Microenterprises		Small enterprises		Medium-sized enterprises	
	N. of employees	Other criteria	N. of employees	Other criteria	N. of employees	Other criteria
SOUTH ASIA						
BANGLADESH						
Manufacturing	Cottage: <15 Micro: 1–25	Cottage: <BDT 1 million (US$8,285) Micro: Assets BDT 1 million – BDT 7.5 million ($8,285–$61,500)	26–100	Assets BDT 10 million –BDT 150 million ($82,850 – $1.24 million)	121–300	Assets BDT 150 million – BDT 500 million ($1.24 million – $4.14 million)
Services	≤15	Assets <BDT 1 million ($8,285)	16–50	Assets BDT 1 million – BDT 20 million ($8,285 – $165,700)	51–120	Assets BDT 20 million – BDT 300 million ($165,700 – $2.48 million)
PAKISTAN						
Manufacturing and services	Self-employed or ≤10	N/A	10–50	Annual sales turnover <PKR 150 million ($530,800)	51–250	Annual sales turnover PKR 150 million – PKR 800 million ($530,800 – $2.83 million)
Trading					51–100	
SOUTHEAST ASIA						
MALAYSIA						
Manufacturing	1–4	Sales turnover < MYR 300,000 ($71,300)	5–74	Sales turnover MYR 300,000 – MYR 15 million ($71,300 –$3.56 million)	75–200	Sales turnover MYR 15 million – MYR 50 million ($3.56 million – $11.9 million)
Services and others	1–4	Sales turnover < MYR 300,000 ($71,300)	5–29	Sales turnover MYR 300,000 – MYR 3 million ($71,300 – $711,000)	30–75	Sales turnover MYR 3 million – MYR 20 million ($71,000 – $4.75 million)
THAILAND						
Manufacturing	≤5	Annual income ≤ THB 1.8 million ($56,670)	≤50	Annual income ≤ THB 100 million ($3.15 million)	≤200	Annual income ≤ THB 500 million ($15.75 million)
Services and trading[2]	≤5	Annual income ≤ THB 1.8 million ($56,670)	≤30	Annual income ≤ THB 50 million ($1.57 million)	≤100	Annual income ≤ THB 300 million ($9.45 million)

2 Includes both wholesale and retail trade.

MSMEs make up the vast majority of enterprises across South and Southeast Asia.

While their contribution to GDP, employment and trade varies by country, MSMEs play a substantial role across the region, making up between 94 and 99.9 percent of total enterprises. India, for example, is home to over 73.4 million MSMEs, while Bangladesh and Pakistan also have large and active MSME sectors. In India, MSMEs contribute nearly 50 percent to exports, the highest in the region. In Southeast Asia, the picture is similar; MSMEs account for 89.9 to 99.9 percent of enterprises and make significant contributions to GDP and employment. Table 2 provides a comparative snapshot of MSME numbers and their economic contributions across South and Southeast Asian countries.

Table 2: Overview of MSME indicators

COUNTRY	No. of MSMEs (% of total)	MSME contribution to		
		GDP	Employment	Exports
SOUTH ASIA				
Bangladesh	7.8 million (99.97%)	8.9%	85.9%	No available data
Bhutan	28,000 (97%)	No available data	No available data	No available data
India	73.4 million (99.9%)	30.3%	Approx. 45%	49.8%
Maldives	40,000 (94%)	No available data	No available data	No available data
Nepal	592,000 (99.8%)	22.0%	73.5%	No available data
Pakistan	5.2 million (98.6%)	2.2%	72.5%	25.0%
Sri Lanka	21,000 (94.0%)	No available data	28.9%	No available data
SOUTHEAST ASIA				
Brunei Darussalam	6,000 (93.4%)	5.9%	52.3%	No data available
Indonesia	4.3 million (99.7%)	60.5%	63.6%	15.7%
Lao PDR	134,000 (99.8%)	No data available	82.4%	No data available
Malaysia	1.1 million (96.9%)	39.1%	48.5%	12.2%
Myanmar	75,000 (89.9%)	No data available	No data available	No data available
Philippines	1.2 million (99.6%)	No data available	66.8%	No data available
Singapore	310,000 (99.5%)	43.9%	70.9%	No data available
Thailand	3.2 million (99.5%)	35.2%	70.4%	13.4%
Viet Nam	715,000 (97.2%)	No data available	36.1%	7.1%

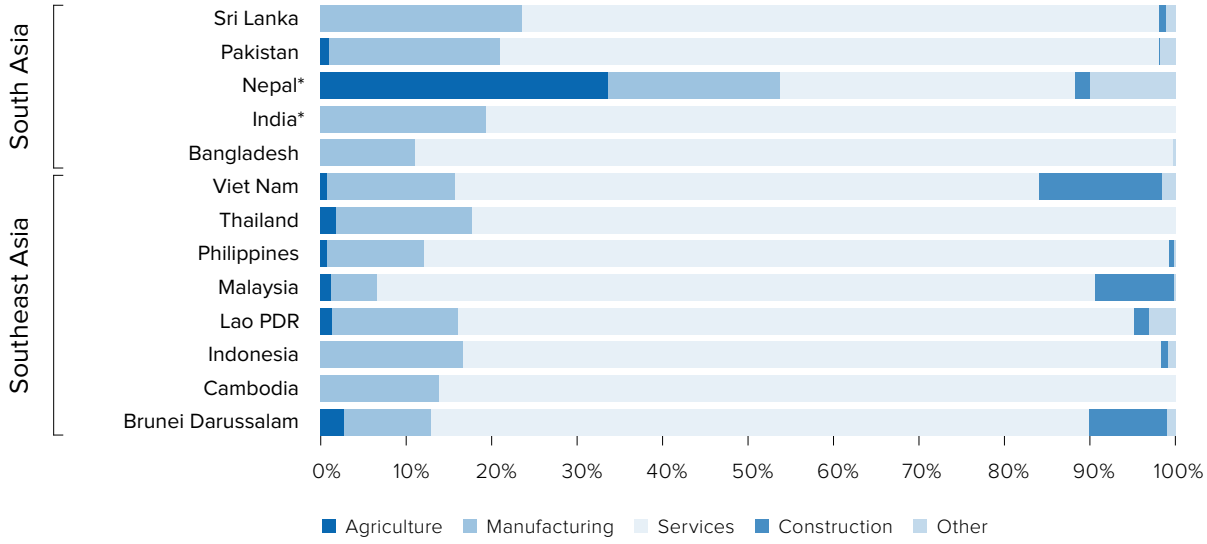
Source: ADB (2024a); India, MoSPI (2024a); India, SIDBI (2025b); Haridev Singh et al. (2019); UNDP (2025).[3]

3 For each country with available data, the most recent year was taken from the Asian Development Bank's Small and Medium-Sized Enterprise Monitor. For Bhutan and Maldives, alternative sources were used. For India, the Government's Annual Survey of Unincorporated Enterprises (ASUSE) is used, since the ADB entry for India excluded formal enterprises.

In terms of sectors, MSMEs are mostly concentrated in trade, services and manufacturing.

Across South and Southeast Asia, MSMEs are predominantly active in services (largely driven by wholesale and retail trade) followed by manufacturing, as shown in figure 1 (ADB, 2024a). This sectoral pattern is broadly consistent across countries. Microenterprises often operate in informal retail, personal services or small-scale production. The types of sectors included under the MSME classifications also varies between countries. For instance, in Nepal, a significant share of MSMEs are engaged in agriculture. In India, agriculture is also very important, but farm-based enterprises are typically excluded from formal MSME classifications.

Figure 1: Sectoral distribution of MSMEs in South and Southeast Asia



Source: ADB (2024a).

The MSME sectors in South and Southeast Asia are dominated by informal microenterprises.

Microenterprises make up the overwhelming majority of MSMEs in every country in the region; in India, for example, 98.4 percent of all MSMEs fall into this category. In contrast, small and medium-sized enterprises often represent less than 2 percent of the sector across the region (ADB, 2024a). This dominance is closely tied to high levels of informality, with estimates suggesting that as many as 80 to 90 percent of micro- and small enterprises operate without formal registration (OECD, 2020; ADB, 2024a). These businesses are typically home-based or family-run, with limited capital and few employees. Informality is especially prevalent in rural and peri-urban areas, where access to finance, regulatory support and government programmes is limited (OECD, 2020; ADB, 2024a).

Risks and available risk solutions

MSMEs in South and Southeast Asia face a range of risks.

MSMEs across both regions operate in complex environments shaped by structural challenges and exposure to a wide range of risks. These risks span environmental, financial, operational, market-related and social dimensions. Their nature and severity vary across countries, sectors and enterprise size, shaping the resilience and growth potential of MSMEs in different ways. The primary risks facing MSMEs across both regions include:

Environmental risks

High exposure to climate shocks causes physical damage to infrastructure, disrupts supply chains and reduces incomes for MSMEs.

- **South Asia.** This is one of the world's most climate-vulnerable regions, with over 750 million people affected by climate-related disasters in the past two decades (World Bank, 2021a). Key risks include floods, extreme heat and water and food insecurity. Projected GDP losses from climate change could reach up to 18 percent in Bhutan, 13 percent in Nepal and 10 percent in India and Pakistan by 2100 (World Bank, 2021a). By 2050, severe water scarcity could affect more than 40 percent of the people in South Asia (UNDP, 2024b).
- **Southeast Asia.** Of the 10 countries in ASEAN,[4] more than half are among the world's most vulnerable to climate change, and all are facing increasingly frequent and more severe weather events (Norris et al., 2024). Earthquakes and tropical cyclones pose the most significant threats to lives, while floods impose the highest costs to infrastructure, exceeding $7 billion in the region between 2012 and 2023.

4 Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam.

Financial risks

Limited access to finance constrains MSME growth and resilience, leading to high reliance on informal borrowing and lowered ability to recover from shocks.

- **South Asia.** The supply of MSME finance relative to GDP in South Asia is the second-lowest in the world, with only sub-Saharan Africa lower (IFC, 2025b). In Nepal, Pakistan and Sri Lanka, the share of MSME loans to total bank loans is under 10 percent, which is much lower than the average in Developing Asia[5] (at 17.7 percent) (ADB, 2024b).
- **Southeast Asia.** The supply of MSME finance to GDP is higher in Southeast Asia than in South Asia (IFC, 2025b). However, particularly in the lower-income countries of the region, MSMEs tend to experience credit rationing and high-risk premiums (ACCMSME, 2022). In a 2021 regional survey conducted by the Asian Development Bank (ADB), 60 percent of MSMEs said they had difficulties obtaining loans from traditional institutions (Tan, 2022).

Health risks

Many MSMEs are one-person or family-run enterprises, leaving them highly vulnerable when illness or injury strikes. Health shocks can halt business operations entirely.

- **South Asia.** Of the world's 10 cities with the worst air pollution, 9 are in South Asia, contributing to 2 million premature deaths in the region each year and generating significant economic cost (World Bank, 2025b). South Asia has the highest tuberculosis burden in the world. India bears the third-highest proportion of malaria globally, and has high rates of drug-resistant infections (Arinaminpathy et al., 2021). Bangladesh has battled 28 epidemics since 1980, which have affected over 3 million people (UNDP, 2024a).
- **Southeast Asia.** Southeast Asia also suffers from pollution. As a region, it has the highest number of estimated deaths due to climate change: every year, 2.4 million people die because of air pollution (The Lancet Regional Health – Southeast Asia, 2022). Moreover, Southeast Asia is marked by a high diversity of communicable diseases, which are responsible for about 40 percent of the 14 million annual deaths in the region (The Lancet Regional Health – Southeast Asia, 2022). The region has seen outbreaks of Nipah virus and drug-resistant malaria, alongside new viral threats such as avian influenza and SARS (Salvador et al., 2023).

5 The 49 member economies of the Asian Development Bank (ADB) have been broadly grouped into developing member economies and developed ADB member economies (Australia, Japan and New Zealand). The term "Developing Asia" refers to the 46 developing ADB member economies: Afghanistan, Armenia, Azerbaijan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, the Cook Islands, Fiji, Georgia, Hong Kong (China), India, Indonesia, Kazakhstan, Kiribati, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, the Maldives, the Marshall Islands, Micronesia (Federated States of), Mongolia, Myanmar, Nauru, Nepal, Niue, Pakistan, Palau, Papua New Guinea, the Philippines, the Republic of Korea, Samoa, Singapore, Solomon Islands, Sri Lanka, Taipei, Tajikistan, Thailand, Timor-Leste, Tonga, Turkmenistan, Tuvalu, Uzbekistan, Vanuatu and Viet Nam.

Political and macroeconomic risks

Instability raises costs, disrupts supply chains and undermines MSME confidence. MSMEs often lack the resources to survive prolonged crises.

- **South Asia.** Many countries in South Asia have experienced significant economic instability and political challenges in recent years, including Afghanistan, Pakistan and Sri Lanka. In Sri Lanka, for example, the 2022 economic crisis triggered widespread inflation, rolling power cuts, import restrictions and fuel shortages, which led to protests. Over 100,000 MSMEs reportedly shut down during this period, citing rising input costs and operational disruptions as major constraints (ILO, 2023; Ameresekere, 2024).
- **Southeast Asia.** Southeast Asia's political stability varies significantly, ranging from generally stable governance in Malaysia and Singapore to enduring conflict in Myanmar since the 2021 coup. Countries like Cambodia, Thailand and Viet Nam have also faced political shifts that inject uncertainty into the business environment (Perón-Doise, 2025). Economically, some nations demonstrate resilience, while others remain vulnerable to sectoral shocks. In Thailand, for instance, tourism contributed around 20 percent of GDP before the pandemic, highlighting both the sector's importance and the risks of overdependence (Ramillon, 2024).

MSMEs in South and Southeast Asia have limited access to insurance coverage.

Despite their economic importance, MSMEs across both regions have limited access to insurance coverage. Exploring this challenge is complicated by the fact that limited data are available on MSMEs' insurance uptake. Most available figures refer to individual-level microinsurance products, such as credit life or agricultural insurance. Some examples include:

- **India:** Very limited data are available, but estimates on MSME insurance uptake ranges between 5 and 15 percent (Mathew, 2020; Mathur, 2025; The Economic Times, 2025). However, India has the third-largest agriculture insurance market in the world, driven by the Government-supported crop insurance scheme (Pradhan Mantri Fasal Bima Yojana – PMFBY), which reaches a large number of smallholder farmers(UNDP, 2024b).[6]
- **Pakistan:** There is no formal regulatory distinction for microinsurance products or providers, which limits visibility on uptake. However, credit life insurance is mandatorily bundled with all microcredit loans, and around 8.4 million microfinance clients are estimated to have insurance coverage (UNDP, 2024c).

6 In addition to PMFBY, the Government supports a number of other insurance schemes, including the Livestock Insurance Scheme (LIS), which has lower uptake than crop insurance; two inclusive life insurance schemes: Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) and Pradhan Mantri Suraksha Bima Yojana (PMSBY); and three healthcare schemes: Pradhan Mantri Jan Arogya Yojana (PMJAY), which covers secondary and tertiary care in public and private empanelled hospitals across India; Rashtriya Swasthya Bima Yojana (RSBY), which covers hospitalization expenses; and the Employee State Insurance Scheme (ESIS) (UNDP, 2024b).

- **Malaysia:** Data on insurance penetration among MSMEs are scarce and differ across sources. Approximately 90 percent of microenterprises and informal enterprises have no insurance coverage and 50 percent of SMEs are completely uninsured (ISDB and UNDP, 2022; UNDP, 2023). Key challenges to uptake include unsuitable products and services as well as limited distribution channels, with a heavy reliance on brokers, agents and banks, which are not always incentivized for or interested in approaching the MSME market (UNDP, 2023).
- **Thailand:** The Thai inclusive insurance market remains underdeveloped, though microinsurance has been formally introduced and regulated. Insurers have not yet significantly broken into the microinsurance market, so few insurance products are directed towards MSMEs. Five main types of microinsurance products are available in the Thai market: motorcyclist accident, personal accident, student accident, residential fire and crop insurance. In 2020, 443,000 microinsurance policies were sold, of which personal accident accounted for 93 percent (UNDP, 2023; UNDP, 2024d).

Alternative coping and risk management mechanisms are used.

In the absence of formal insurance, MSMEs across South Asia rely on a mix of informal strategies and available formal financial tools to manage risks. Formal coping mechanisms, though limited in reach, include rescheduling bank loans, accessing emergency credit lines and adopting digital tools (such as social media, online marketing and computerized operating systems) to stabilize operations. For example, in Sri Lanka, a survey found 36 percent of MSMEs reported rescheduling bank loans during the COVID-19 pandemic. MSMEs that survived the crisis had often used adaptive business strategies such as reducing costs, identifying new customers or shifting to online marketing to remain viable. In contrast, those that closed were more likely to rely on passive or distress strategies such as laying off workers, liquidating assets or informal borrowing (ILO, 2023).

Due to the challenges in accessing formal coping mechanisms, many MSMEs leverage informal coping mechanisms.

In Pakistan, for example, women in the informal sector primarily managed shocks during the pandemic by borrowing from friends, family or local shops and cutting household and business spending (The Asia Foundation, 2021). Similar patterns were observed in Southeast Asia during the pandemic. Based on surveys conducted by the Asian Development Bank and the Government of Malaysia (covering Malaysia, Indonesia, the Lao People's Democratic Republic, the Philippines and Thailand), around 70 to 90 percent of MSMEs tended to rely on informal financing sources, such as borrowing from relatives and friends, while 40 to 70 percent of MSMEs reduced staff. The impact of these measures was compounded by a reduction in working hours across all countries (ACCMSME, 2022).

Spotlight on women-led MSMEs

Women-led MSMEs are a critical, yet largely untapped driver of economic inclusion in South and Southeast Asia.

Although their current footprint remains limited, these enterprises can play a transformative role in expanding employment, diversifying incomes and strengthening community-level resilience. However, South Asia has one of the lowest rates of female participation in enterprise ownership in the world: 18.4 percent of firms in South Asia have some female ownership, and only 9.6 percent have majority female ownership (AFI, 2023). In Southeast Asia, the rates of female entrepreneurship are higher, but the majority of enterprises are micro scale (WWB, 2018). A regional figure is not available for Southeast Asia, but individual country data show female-run businesses make up around 50 percent of microenterprises, while the share is lower among small and medium-sized enterprises.

Table 3 provides a high-level overview of the proportion of women-led[7] MSMEs across selected South and Southeast Asian countries where data are available, highlighting both regional variation and the overall gap in female entrepreneurship.

Table 3: Women-led MSMEs in South Asian countries

COUNTRY	% of women-led MSMEs
SOUTH ASIA	
Bangladesh	7.2%
India	26.2%
Nepal	27%
Pakistan	8%
Sri Lanka	25%

7 There is no universally accepted definition of a "women-owned" or "women-led" business, or of a "woman entrepreneur". In fact, few sources explicitly define these terms, and some use them interchangeably. But there are distinctions in meaning. For instance, "women-led" could imply partial or full ownership, and it could refer to management or operations (ADB, 2018). Where possible, women-led is preferred, as it better captures women's active role in decision-making and business management, rather than ownership on paper alone.

COUNTRY	% of women-led MSMEs	
SOUTHEAST ASIA		
	Micro	SMEs
Cambodia	54%	44%
Indonesia	49%	16%
Lao PDR	52%	23%
Malaysia	20.3%	
Myanmar	33.5%	
Philippines	54%	
Singapore	27.2%	
Thailand	Not available	40%
Timor-Leste	62%	60%
Viet Nam	53%	20%

Note: Figures reflect a mix of women-owned and women-led MSMEs, since the underlying sources do not always clearly distinguish between the two.
Source: Pathak (2019); UN Women (2020); FWEAN (2021); World Bank (2021c); ESCAP (2022); ADB (2024c); India, MoSPI (2024a); De Alwis (2024).

Why focus on women-led enterprises?

Supporting women-led MSMEs can advance gender inclusion and create broader socioeconomic benefits. Women entrepreneurs tend to create more inclusive employment opportunities: women-owned businesses are 1.5 times more likely to employ women as workers – suggesting that investing in female businesses can have positive impacts on women's employment (Chiplunkar and Goldberg, 2024). Women entrepreneurs are also more likely to reinvest earnings in household well-being: studies indicate that they allocate up to 90 percent of their income to health, education and nutrition, compared to 30 to 40 percent for men (Varma, 2024). At a macroeconomic level, closing the gender gap in employment and entrepreneurship could raise global GDP by more than 20 percent. Eliminating the gender gap over the next decade would essentially double the current global growth rate (World Bank, 2024c). Expanding the footprint of women-led MSMEs, therefore, holds potential to support inclusive growth and resilience both in households and in national and global economies.

In both South and Southeast Asia, women-led enterprises are concentrated in low-productivity, low-capital sectors.

Hospitality, retail and other services are most common. Outside of services, women also lead businesses in manufacturing sectors with lower use of technology such as food processing, textiles and leather (ADB, 2018; AVPN, 2024). Within these sectors, women often operate at the lower ends of production value chains, earning limited returns while the final products are sold on through male intermediaries (World Bank, 2021d).

Employment in agriculture is more common in South Asia.

Although sector-level data on women-led MSMEs are limited and vary with sector definitions (e.g., agriculture is often excluded in the definition of MSMEs), employment patterns offer insight into the sectors in which women work across the region. The top five sectors for female employment in South Asia are agriculture (57.6 percent), followed by manufacturing (12.8 percent), education (6.5 percent), wholesale and retail trade (6.3 percent) and accommodation and food services (3.7 percent) (ADB, 2023). In Southeast Asia, by contrast, the agriculture sector still has the largest share of female employment but by a much lower margin, at only 25.8 percent, followed by wholesale and retail trade (24.3 percent), manufacturing (16.8 percent), accommodation and food services (7.4 percent) and education (6.5 percent) (ADB, 2023).

Women-led MSMEs face a unique and layered set of challenges that limit their growth and sustainability.

While women-led MSMEs are affected by many of the broader barriers affecting the wider MSME sector, these challenges are often compounded by gender-specific constraints. These include:

- **Access to finance.** Women entrepreneurs often lack property ownership and formal collateral, making traditional bank financing difficult. Financial institutions may also require male co-signatories or identity documents that women less frequently hold (AFI, 2023). Globally, women-led businesses face a credit gap of $1.5 trillion. Disaggregated data on the credit gap for women in South Asia are not available, but in India, 80 percent of women-led nano- and microenterprises did not attempt to borrow money in the last three years (CGAP, 2025b). Bank account ownership gaps have narrowed regionally but remain large in some countries; for example, Bangladesh has a 20 percent gender gap in account ownership (IFC, 2025a). Based on country-level estimates in Southeast Asia, women-owned MSMEs lack $1.2 billion in credit in Cambodia, $21.2 billion in Indonesia, $75.8 billion in the Philippines and $6.2 billion in Viet Nam (WWB, 2018).
- **Unpaid care responsibilities.** The heavy burden of unpaid domestic and care responsibilities significantly reduces the time and flexibility women can dedicate to running and expanding a business. On average, women in South Asia spend over four times more hours than men on unpaid care tasks such as childcare, eldercare and household management (Hanna et al., 2023; CGAP, 2025b). Country-level insights from Southeast Asia paint a similar picture. For instance, in Viet Nam, women do 18.9 hours of unpaid care and domestic work per week on average, compared with 8 hours for men, while both do close to the same amount of paid work (ESCAP, 2021).
- **Limited access to markets and networks.** Women-led businesses are often excluded from formal trade networks, procurement systems and industry associations, reducing their visibility and market reach. Female MSME owners are less likely than male MSME owners to belong to business associations, pay membership dues for business associations or receive advocacy support from business associations (World Bank, 2021c). Social norms around mobility, public engagement and domestic responsibilities further constrain their ability

to access and benefit from broader market opportunities (ADB, 2018; World Bank, 2021d). Social norms may be directly exclusionary for women – for example, in Cambodia, it is considered inappropriate for women to interact with male business owners and government officials (World Bank, 2021c).

- **Digital access.** Women entrepreneurs in South Asia are 41 percent less likely than men to use mobile internet and 42 percent less likely to own a smartphone (GSMA, 2023). This limits their ability to engage in e-commerce, online marketing, digital finance and platform-based work. Data from ASEAN also show that men are more likely than women to engage in digital activities such as web searches (Adriana, 2024).
- **Legal and regulatory barriers.** In several countries, women face legal constraints that hinder their ability to start and grow businesses. Unequal inheritance laws in countries such as Afghanistan, Bangladesh, Nepal and Pakistan restrict women's ability to own assets needed for collateral. In Pakistan, women must provide a male relative's name and address to register a business, and in Afghanistan, travel restrictions limit mobility for business purposes (ADB, 2018). In Malaysia, females have only half the legal rights of males. The largest legal gender differences are in issues relating to marriage and parenthood, but there are also inequalities in laws relating to mobility, the workplace and equal pay (ESCAP, 2022).

Gender-specific barriers shape both product design and delivery strategies for insurance.

Intersecting barriers make it harder for women-led MSMEs to scale, formalize or access support systems available to other enterprises, thus undermining their overall business resilience and potential contribution to socioeconomic development. These gender-specific barriers need to be considered in product design and delivery strategies for insurance. On the product side, gender-disaggregated data may be useful in targeting and tailoring offerings to sectors with high female participation. For instance, products that support income continuity or health needs may also need to reflect the disproportionate care burden women often carry, for instance, by covering income lost due to caring for a sick child. In terms of delivery, limited access to formal networks and lower digital connectivity suggest value in exploring alternative distribution models, such as those leveraging women's groups or local cooperatives. Collecting and using gender-disaggregated data could inform more responsive and inclusive insurance solutions.

More intentional approaches are needed in developing risk management and resilience solutions for MSMEs across the region. One such approach is the value chain lens, which helps identify where risks concentrate, which actors are most vulnerable and what types of solutions are most appropriate. Section 3 outlines this approach in more detail. Section 4 narrows in on India's MSME landscape and selected value chains, as an exemplar country for the region, and section 5 demonstrates how the value chain approach can be applied in practice in India.

3. Revisiting the alternative approach to risk solutions for MSMEs

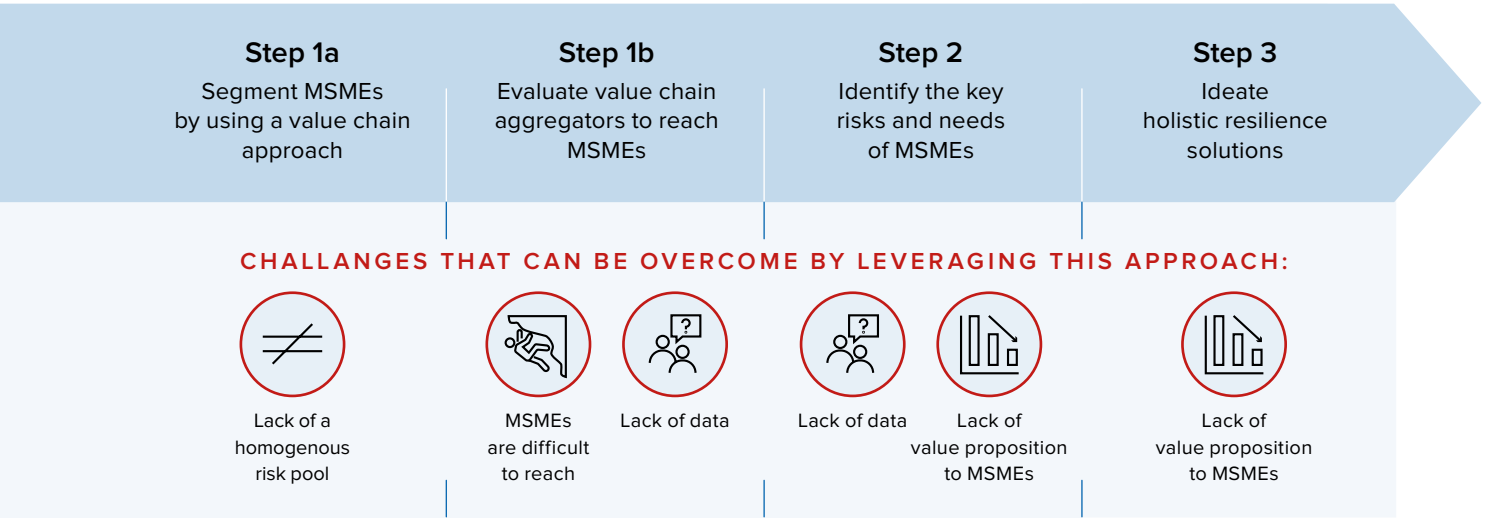
Traditional insurance approaches often fail to effectively meet the needs of MSMEs.

As illustrated above, MSMEs are often underserved by insurance markets, due to a wide range of demand- and supply-side constraints. As a result, traditional insurance products tend to be generic, poorly aligned with the risks MSMEs face and distributed through channels that do not effectively reach MSMEs. As a result, uptake is low and insurance is often perceived as offering limited value (Gray and Hougaard, 2021; Gray et al., 2022). This presents both a development and commercial opportunity: by serving this largely underserved segment, insurers can strengthen MSME resilience while unlocking a significant growth market and contributing to broader economic development.

A value chain lens offers a practical framework for designing more targeted and scalable risk solutions for MSMEs.

This approach focuses on better understanding MSMEs, their needs and risks, by segmenting them into value chains. The method involves three key components, illustrated in figure 2: (1) segmenting MSMEs by value chain to capture their economic roles and interdependencies; (2) identifying the specific risks they face within each value chain; and (3) leveraging aggregators (like suppliers, platforms or industry bodies) to distribute and tailor solutions more effectively. Taken together, these steps offer a structured pathway to more holistic and impactful resilience-building for MSMEs.

Figure 2: A value-chain driven approach to holistic and commercially viable insurance solutions



- **Step 1a: Segment MSMEs using a value chain approach.** MSMEs are highly heterogeneous and vary significantly in size, formality and function. This heterogeneity makes them difficult to address as a single group. A value chain approach enables a more meaningful segmentation by grouping MSMEs based on the specific roles they play in the production, processing, distribution or sale of goods and services within an industry. This method focuses on how MSMEs operate, rather than their size, allowing for clearer

insights into the risks they face and the solutions that may be appropriate. These value chains can then be assessed to determine which offer a strong business case for engagement. Prioritizing value chains with these features increases the likelihood of identifying segments that are both underserved and commercially viable. This includes considering the number of MSMEs in the value chain, their contribution to GDP or exports, and the degree of homogeneity of actors within the chain.[8]

- **Step 1b: Evaluate value chain aggregators.** Alongside value chain selection, it is essential to identify actors that can serve as aggregators. Aggregators are actors or platforms that cluster MSMEs and can serve as conduits for product delivery, engagement or premium collection. These may include, for example, digital marketplaces, suppliers, associations or cooperatives, financial service providers or lead firms. Aggregators are particularly important where MSMEs are informal, dispersed or otherwise hard to reach through traditional channels. Assessing the presence and suitability of aggregators should occur in parallel with value chain prioritization. Exploratory engagements with key value chain actors can help determine their interest and capacity to serve in this role.
- **Step 2: Identify key risks and current coping mechanisms.** Mapping risks across the selected value chains allows for a clearer understanding of the threats MSMEs face, including common risks such as climate events, illness and income disruption, as well as more specific risks tied to their business activities. While some insights can be drawn from desktop research or national data sets, detailed risk profiling often requires primary data collection though interviews, focus groups or surveys. Equally important is understanding how MSMEs currently cope with these risks, including informal mechanisms or tools already in use (e.g. closed-circuit television – CCTV, booking platforms, weather alerts). These insights provide a foundation for developing relevant and integrated solutions.
- **Step 3: Ideate holistic risk solutions.** MSMEs often perceive insurance as offering little value, which may be due to negative past experiences or limited perceived relevance. To address this, solutions must go beyond traditional insurance and focus on holistic resilience. This involves aligning products with MSMEs' real-world challenges and bundling them with complementary services. Three types of holistic solutions are particularly relevant: bundled insurance products, which combine existing offerings into more tailored packages suited to specific MSME profiles; integrated risk mitigation and transfer, where insurance is paired with tools that help MSMEs prevent or reduce exposure to risks (e.g. combining sensor-based cargo tracking with goods-in-transit insurance); and aggregator-led distribution, where solutions are delivered through partners that already serve MSMEs and can streamline outreach, communication and transactions.

8 For a full set of suggested assessment criteria, including their relevance to market size, profitability and distribution potential, see table 6 in UNDP (2023).

Case Study:
Telematics-enabled motor insurance in South Africa

South Africa provides a clear example of how telematics can reduce risk within an insurance product. Discovery Insure's Vitality Drive programme combines a smartphone app with a small windscreen-mounted sensor to track driver behaviour such as speeding, harsh braking, cornering and night driving. Pairing the sensor with the phone reduces hardware costs and makes the solution more accessible than fully installed telematics units.

Customers receive personalized feedback and rewards for safer driving, while insurers can calibrate risk and premiums more accurately. The solution has also been extended to commercial truck fleets, where companies can use weekly Vitality Drive rewards to incentivize driver performance and improve overall safety.

Discovery reports a 26 percent reduction in crash frequency among Vitality Drive clients, with telematics-enabled customers recording a 56 percent lower crash fatality rate. By linking incentives to GPS-based monitoring, the product not only reduces accident frequency but also lowers insurance costs and speeds up claims resolution. This case illustrates how telematics, when integrated into insurance, can shift behaviour and meaningfully reduce risk, while demonstrating the feasibility of smartphone-based models in emerging markets where cost is a key consideration.

Source: Cover (2019); Cambridge Mobile Telematics (2020); Discovery Insure (2021).

4. The MSME landscape in India

India has a vast and dynamic economy, characterized by rapid diversification.

As the world's most populous country with 1.4 billion people, India ranks as the third-largest economy by purchasing power parity (PPP) (World Bank, 2024b). Since gaining independence in 1947, India has evolved from a predominantly agrarian society into a service-driven economy, propelled by liberalization and industrialization reforms (Teekah and Balakrishnan, 2025). Today, the services sector leads economic output, contributing 56.8 percent of GDP, with key industries including information technology and financial services (World Bank, 2024a; Focus Economics, 2025). However, agriculture remains central to employment, engaging 46.1 percent of the workforce, particularly in rural areas, where major crops such as rice, wheat and cotton sustain millions of livelihoods (World Bank, 2024a).

India's manufacturing sector is diverse, ranging from traditional village industries to advanced production in pharmaceuticals, electronics, automobiles and textiles. Manufacturing forms the backbone of the country's exports, with manufactured goods making up the majority of merchandise exports, alongside significant contributions from petroleum and agricultural products such as rice (India, Ministry of Finance, 2025; Teekah and Balakrishnan, 2025)

MSMEs play a foundational role in India's economy.

MSMEs in India contribute approximately 30 percent of GDP, account for 44 percent of exports and employ 60 percent of the workforce (India, SIDBI, 2025b). They operate across all sectors and geographies, forming the backbone of local economies and acting as key engines of job creation and inclusive growth. The scale of India's MSME sector is difficult to quantify due to inconsistencies in definitions and fragmented data sources, but the most recent estimate suggests approximately 73.4 million enterprises (India, MoSPI, 2024a; India, SIDBI, 2025b).

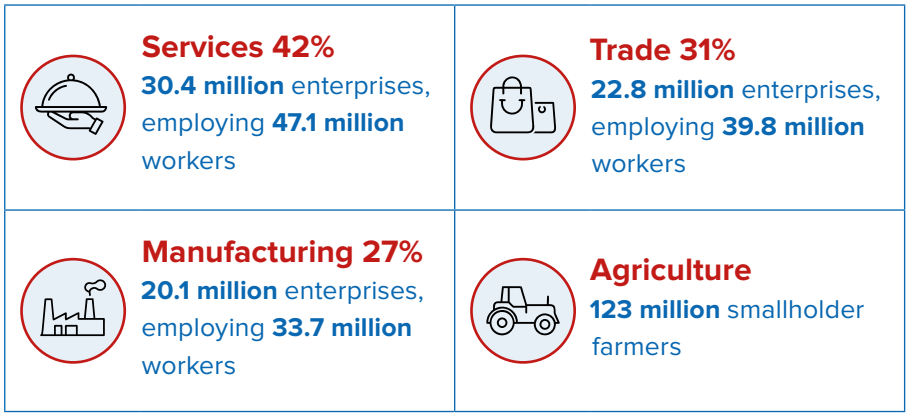
India's official classification system for MSMEs is based on investment in plant and machinery or equipment and on annual turnover. This framework has been in place since July 2020 (India, SIDBI, 2025b). In practice, most available data sources predate the current classification or are based on alternative definitions, making it challenging to produce a unified picture of the sector.

Appendix 1 provides an overview of some of the most often cited definitions and figures. While the Government's Udyam portal for registering MSMEs is expected to improve oversight in the future, current segmentation and value chain analysis in this report relies primarily on data from the Annual Survey of Unincorporated Sector Enterprises (ASUSE) conducted by the Ministry of Statistics and Programme Implementation (MoSPI) to identify value chains, since this survey remains the most comprehensive and granular source available on the enterprise subsector.

India's MSME sector is dominated by microenterprises and nano-enterprises, and MSMEs are present across all economic sectors.

Microenterprises make up 99.5 percent of all MSMEs in India, of which 86 percent are own-account businesses with no employees (nano-enterprises[9]). Most operate informally: 62.8 percent are not registered with any formal authority, and many are run from homes (39 percent) or temporary sites like market stalls (18 percent) (India, MoSPI, 2024a). While MSMEs are active across all major sectors, many informal enterprises also operate outside the formal MSME classification, particularly in agriculture. Figure 3 provides a snapshot of India's MSME sector by size, sector and employment. Key MSME merchandise includes engineering goods, gems and jewellery, ready-made garments and rice.[10]

Figure 3: Distribution of MSMEs across sectors in India



Source: Saini and Chowdhury (2023); India, MoSPI (2024a).

MSMEs are also present across the country, with 55 percent located in urban areas and 45 percent in rural settings. The states with the highest concentration of enterprises include Uttar Pradesh (12.8 percent), West Bengal (12.6 percent) and Maharashtra (8.8 percent) (India, MoSPI, 2024a).

9 Nano-enterprises to refer to the smallest, often informal businesses run by individuals with minimal or irregular income (e.g., street vendors, barbers), typically businesses without any paid workers. These businesses are known globally by various names, including sole proprietorships, own-account enterprises, or self-employed individuals (CGAP, 2025b).

10 Based on MSMEs with valid import/export licences.

MSMEs in India face a wide range of risks that threaten their survival and stability.

Risks affecting MSMEs stem from their high levels of informality, limited financial buffers and dependence on a single proprietor. These risks fall into three broad categories:

- **Climate and other hazard risks.** MSMEs are increasingly vulnerable to climate-related events such as floods, droughts, cyclones and heatwaves. India was the sixth most climate-affected country in the world between 1993 and 2022 (Germanwatch, 2025). Fire hazards are also common, especially in informal urban clusters. For example, the 2017 Kolkata market fire disrupted over 5,000 livelihoods (Bandyopadhyay and Manna, 2020). Personal shocks, such as the illness, disability or death of a business owner, are another major threat: with 86 percent of MSMEs being own-account enterprises, such incidents can halt business activity entirely (India, MoSPI, 2024a).
- **Financial risks.** Financial fragility is widespread. MSMEs in India often face long payment delays, averaging 6.5 months and locking up over 10.7 trillion Indian rupees ($130 billion) in unpaid invoices (GAME and D&B, 2022). Access to credit is also a major challenge: 73 percent of microenterprises cite it as a constraint, along with 66 percent of small and 50 percent of medium-sized firms. Where loans are available, they typically carry high interest rates (12.27 percent on average for microenterprises) (Goyal, Puri and Khanna, 2025). Furthermore, over 70 percent of microenterprises report having less than one month of working capital, leaving them vulnerable to even short-term disruptions (GAME and D&B, 2022).
- **Operational and strategic risks.** MSMEs face additional challenges such as competition, staffing shortages, regulatory changes and shifting market dynamics. While these risks are generally not insurable, they compound vulnerability and underscore the need for broader resilience strategies.

Despite risk exposure, few MSMEs have access to formal insurance.

Only 5 to 15 percent of MSMEs are estimated to have any form of insurance coverage in India (Mathew, 2020; Mathur, 2025; The Economic Times, 2025). Data on insurance uptake are limited, however, and are not published by key institutions such as the Ministry of Micro, Small & Medium Enterprises or the insurance regulator, Insurance Regulatory and Development Authority of India (IRDAI). Barriers include low product awareness, limited distribution reach especially in rural and informal markets, mismatches between products and MSME needs, and cumbersome onboarding requirements (The Economic Times, 2025).

At the policy level, India has introduced instruments that could help broaden MSME access to risk protection.

The IRDAI's Regulatory Sandbox allows insurers and intermediaries to test new insurance products and distribution methods within a controlled regulatory environment for a limited duration. Since its most recent revision in 2025, the sandbox allows cross-sectoral initiatives for projects related to finance, health and payments, which allows more flexibility for innovation (IIS, 2025). On the

credit side, the Government and the Small Industries Development Bank of India (SIDBI) run the Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE), which provides coverage up to 85 percent for various categories of loans, and 90 percent for women-owned enterprises (Financial Express, 2024).

Digitalization remains uneven across sectors and geographies, but digital payment uptake is increasing.

Only 5.7 percent of MSMEs report using computers while 37 percent use the internet, with significant variation across sectors and locations. Urban trade establishments report far higher levels of internet usage (45.3 percent) than rural manufacturing enterprises (10.4 percent) (India, MoSPI, 2024a). This limited digital integration weakens MSMEs' ability to adapt and respond to shocks, for instance, by accessing online financial services, market information or digital tools to manage operations remotely. Broader digital adoption remains limited, but the uptake of digital payments has accelerated rapidly, driven by the success of India's Unified Payments Interface (UPI) platform[11] together with government awareness initiatives. A recent SIDBI survey found that 90 percent of MSMEs surveyed now accept digital payments (SIDBI, 2025b). UPI is reportedly used by 50 million merchants (PIB, 2023).

11 The Unified Payments Interface (UPI) is India's instant real-time payment system, developed by the National Payments Corporation of India (NPCI) in 2016. It enables users to link multiple bank accounts and make peer-to-peer or merchant payments instantly through mobile devices. UPI has been a key driver of digital payment adoption across India, facilitating low-cost transactions and expanding access to formal financial services (PIB, 2023; Raj, 2024).

5. Developing value chain-specific risk solutions for India

This section shows how the value chain approach outlined in section 3 can be applied to the Indian context, as an example of applying the approach in South Asia.

The process of applying the approach began with a segmentation of India's MSME landscape to identify promising value chains. This involved two steps: (a) identifying sectors with a strong MSME presence and meaningful contributions to GDP or exports, and (b) isolating segments within these sectors with the potential for holistic risk solutions. The analysis drew primarily on data from ASUSE (India, MoSPI, 2024a), supplemented by agricultural surveys to include smallholder farmers, since although they fall outside the formal MSME definition, they play a vital role in the Indian economy. National accounts data were also used to assess economic contribution.

While ASUSE and other datasets provided a useful foundation, limitations remain. Some MSME activities, such as those of incorporated firms or indirect actors like logistics providers, are underrepresented in official statistics. As such, the analysis focused on core economic activities rather than peripheral services. Initial assessments of homogeneity, aspiration and aggregator presence were informed by desk research, but future applications should incorporate demand-side data collection, such as interviews or field surveys.

Based on this analysis, three value chains were selected for deeper exploration: retail, automotive and paddy. These chains span services, manufacturing and agriculture and were chosen both for their potential to inform risk solutions and to illustrate how the methodology can be applied across diverse sectors. While other value chains may offer similar promise, these examples provide a practical starting point for broader application.

Table 4: High-level overview of shortlisted value chains in India

	SECTOR	Value chain	No. of MSMEs	GDP	Exports	Employment	Homogeneity	Aggregators	Aspiration
1	Services	Retail trade	19.8 million (27.07%)	11.40%	N/A*	33.1 million (27.46%)	Medium	Yes	Yes
2	Manufacturing	Manufacture of apparel and textiles	8.9 million (15.19%)	1.90%	7.10%	15 million (12.4%)	Medium/ high	Yes	Yes
3	Services	Land transport	6.8 million (9.25%)	3.60%	N/A*	7.4 million (6.1%)	High	Yes	Yes
4	Services	Food and accommodation services	3.7 million (5.04%)	1.00%	N/A*	8.7 million (7.23%)	Medium	Yes	Yes
5	Agriculture	Paddy	68 million	4.36%	2.47%	N/A	Medium/high	Yes	Yes
6	Manufacturing and Services	Automotive	1.2 million	7.1%	6%	2.4 million	Medium	Yes	Yes

Source: India, MoSPI (2024a); India, Ministry of Finance (2025); India, MoSPI (2024b); India, MoSPI (2021).

Value chain 1: **Paddy**

Step 1: Key value chain characteristics

Paddy[12] is the cornerstone of India's agricultural sector, underpinning rural livelihoods and national food security.

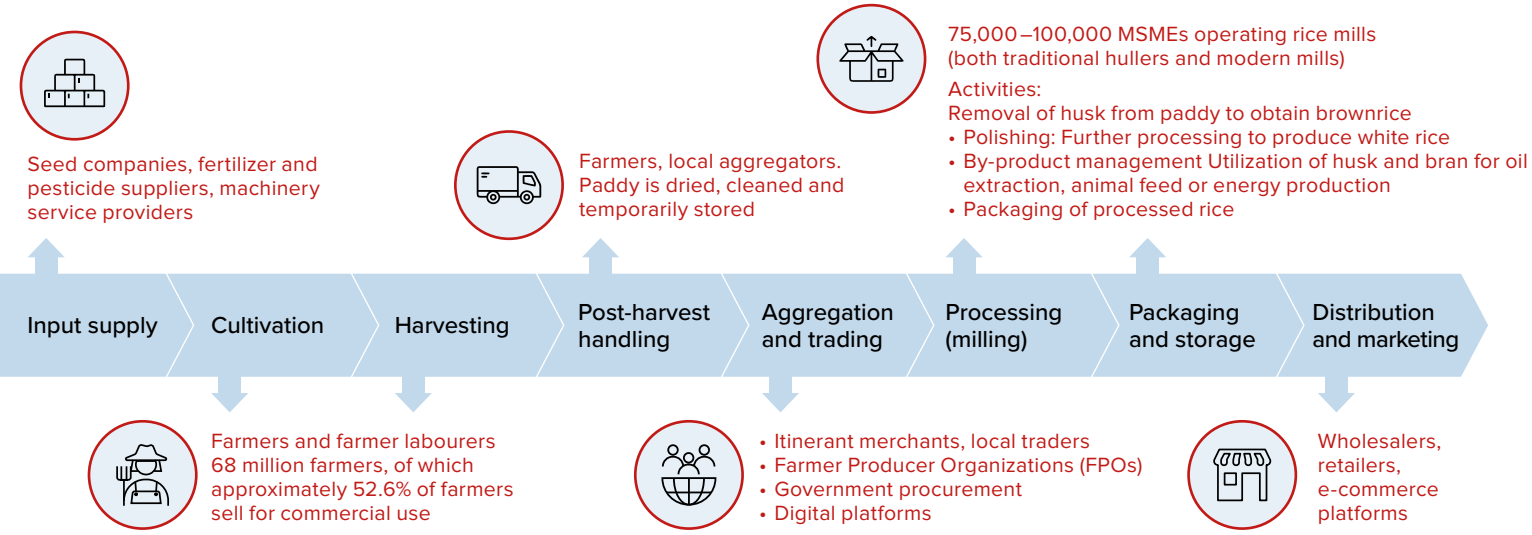
It is one of India's most important staple crops, serving as a vital source of livelihood for millions of rural households (OEC, 2023). Paddy also plays a significant role in the country's trade: India is the world's leading exporter of rice (Janaiah, 2018). It is cultivated across much of the country, especially in warmer and more humid climates and during monsoon season. The top three rice producing states are Telangana, Uttar Pradesh and West Bengal, which together contribute 37 percent to India's rice production (Janaiah, 2018; India, Department of Agriculture & Farmers Welfare, 2025).

India has approximately 146 million agricultural landholdings, of which 86 percent are classified as small and marginal (less than 2 hectares) (Saini and Chowdhury, 2023). Around 68 million farmers, roughly 47 percent of the country's total, report cultivating paddy. Although paddy was traditionally linked to subsistence farming, 52.6 percent of these farmers now sell part or all of their harvest (India, MoSPI, 2021).

Women make up 73 percent of the agricultural workforce and carry out nearly 70 percent of agricultural activities. However, despite their central role, they remain largely excluded from land ownership and decision-making: only 14 percent of agricultural landholders in India are women (Khan, 2025).

Source:
Adapted from
Reardon et al. (2013);
Pavithra et al. (2018);
Selco Foundation (2020);
ADB (2023);
Patil et al. (2025).

Figure 4: Paddy value chain



12 Rice before threshing or in the husk.

The paddy value chain is complex and multifaceted, involving a wide range of actors and activities.

It stretches from informal smallholder farmers to semi-mechanized MSMEs and is supported by a variety of market channels. The structure of this value chain is illustrated in figure 4.

- The value chain begins with input provision – seeds, fertilizers and machinery – followed by cultivation and harvest on predominantly smallholder plots.
- After harvest, paddy is dried, stored and transported to local markets, procurement centres or directly to processors. Processing is carried out by an estimated 75,000 to 100,000 MSMEs operating rice mills, ranging from small traditional hullers to more automated units, though small and medium-sized mills dominate (Suri Engineers, 2023).
- Final products are sold through wholesale, retail and e-commerce channels.

The paddy value chain can also vary in length, both in the number of steps from farm to retailer and in geographical distance.

In traditional value chains for local consumption, farmers may process paddy at nearby mills for their own use or sell it directly in the village market. For rural-urban sale, there are often one or many local traders/merchants who procure from farmers, often at very low prices – in contrast to government procurement, which operates under a minimum support price (MSP). Modernized value chains have also emerged, where farmers, either individually or through Farmer Producer Organizations (FPOs), sell directly to mills, which in turn supply supermarkets or urban wholesale markets (Reardon et al., 2013; Pavithra et al., 2018; Selco Foundation, 2020; ADB, 2023; Patil et al., 2025)

Digitalization in these value chains is gaining momentum.

Agtech (agricultural technology) platforms are increasingly transforming value chain functions and creating entry points for bundled services. While granular data on digital adoption in the paddy value chain remains limited, India's agriculture sector is undergoing a broader digital transformation. Over 1,000 agtech start-ups have emerged, nearly 60 percent of them since 2015 (McKinsey, 2023). Many players focus on improving various aspects of the supply chain, as well as on market access, for instance linking farmers both forward and backward in the value chain or offering logistics/warehousing solutions input. These include Arya, DeHaat, Ninjacart and WayCool. Other agtechs, such as Cropin, are more focused on providing advice and improving crop cultivation (McKinsey, 2023). These digital platforms offer new touchpoints for financial services integration, including bundled agri-insurance solutions.

Aggregators in the paddy value chain are also increasing.

This growth is being driven, in part, by the rise of agtech solutions that enable more efficient coordination and outreach across fragmented agricultural systems. Aggregators play a vital role in linking smallholder farmers and MSMEs to key services, including access to markets, credit and insurance products. Their ability to bridge gaps in the value chain is helping to improve productivity, reduce risk and enhance the commercial viability of smaller players. Table 5 outlines some of the key aggregator groups currently active in the paddy value chain.

Table 5: Paddy aggregators

Aggregator category	Potential aggregator	Description	Potential MSMEs reached	Ability to collect premiums
Agtechs	Agribazaar, Arya.ag, DeHaat, Ninjacart, Nkosh, StarAgri, Waycool	Various agritech platforms offering services across input supply, market linkage, aggregation, storage, transport and digital trade. Often work with FPOs, millers and small-scale processors.	E.g. Arya: 2,833 warehouses; 1,300 FPOs; 800,000 farmers Agribazaar: 15,000 traders and processors; 125 FPOs; 355,000 farmers DeHaat: 1.8 million farmers; 11,000+ village centres; 500+ FPOs Staragri: 2200 warehouses; 300,000 farmers;10,000 FPOs	Yes
Insurance and financial service platforms	GramCover	Tech-enabled insurance marketplace for rural India, focused on development and brokerage of rural insurance products to farmers	Active in 3,000+ villages across 28 districts in states like Assam, Bihar, Maharashtra, Telangana, Uttar Pradesh, etc.	Yes
Collectives and cooperatives	FPOs	Collective platforms of farmers for production, aggregation and sale	45,000 FPOs[13] exist around the country, each aggregating multiple farmers	No
	Primary Agricultural Credit Societies (PACS)	Grassroots cooperatives offering agri- inputs, credit and procurement; potential channel for bundled insurance	100,000+ PACS exist around the country, each aggregating multiple farmers	Likely
	Millers associations and cooperatives	Industry groups and cooperatively owned mills that coordinate local processing, access to procurement schemes and shared services, for example, West Bengal Rice Mill Owners Associations.	No clear numbers but many millers are likely to be organized to some extent	No
Other	Cornell FPO platform	The FPO Data Platform for India is an interactive site where businesses, supporting organizations, researchers and policymakers can discover and partner with FPOs	Approx. 45,000 FPOs	No

Source: Agribazaar (2019); Insurtech Insights (2021); Times of Agriculture (2023); Abraham, Joshi and Bouma (2024); India, PIB (2024); Staragri (2025).

13 Cornell University's estimate of 45,000 FPOs across India is based on compiling government registration records, state-level promotion schemes and secondary literature, adjusted for overlaps and duplication. Cornell has also launched the FPO platform for India, an interactive dashboard and networking tool that centralizes data on thousands of FPOs (such as location, crop focus and incorporation details) and includes FPOConnect to help FPOs link with buyers and service providers (Abraham, Joshi and Bouma, 2024).

Step 2: Key risks faced and availability of risk solutions

Paddy producers and MSMEs face a broad range of risks.

These include climatic shocks, biological threats, price volatility and post-harvest losses. Risks are often compounded by structural barriers such as fragmented landholdings, poor infrastructure and limited access to finance. Some of the key risks flagged in the paddy value chain are captured in table 6.

Table 6: Risks in the paddy value chain

KEY RISKS	DESCRIPTION
Crop loss due to climate events	**Extreme weather** (floods, drought, unseasonal rains) **leads to yield** loss, especially for smallholders without irrigation or diversified income. In Kerala, climate change-induced weather shocks inflicted cumulative losses of 1.1 billion Indian rupees ($13 million) to paddy farmers in the 2024 summer season (The Hindu, 2024).
Post-harvest storage and transport loss	It is estimated that at least **6.5 percent of paddy is lost annually post-harvest**, mainly due to poor storage and transport facilities (Gulati, Das and Winter-Nelson, 2024).
Machinery breakdown in rice mills	Equipment failures, especially in dryers and boilers, can **cause fires or explosions that destroy stock and machinery and halt production** (Chakraborty, 2025).
Theft	**Theft of paddy during aggregation, transport or storage is common**. Recent cases include a truck carrying 33 tonnes of paddy which disappeared in Odisha, as well as large volumes vanishing from warehouses and trader stockyards in Madhya Pradesh and Telangana (New Indian Express, 2025; Singh, 2025; The Hans India, 2025).
Worker injury and occupational risks	Small mills and aggregation points often have low safety standards, exposing workers to **heat stress, sharp tools or mechanical injury, as well as respiratory issues** from inhaling fumes and particles (Roy et al., 2020; Jahan et al., 2024).
Input and price volatility	Fluctuating input costs and unstable paddy prices r**educe margins and create income uncertainty**. Smallholders are especially exposed due to seasonal gluts, global market shifts and limited access to MSPs (Kumar et al., 2025).

Government-led crop insurance offers large-scale risk coverage but leaves important gaps.

India operates the world's largest subsidized crop insurance programme, the Pradhan Mantri Fasal Bima Yojana (PMFBY). The scheme provides area-yield index insurance for both climate and non-climate risks, and reaches over 35 million farmers. To encourage uptake, premiums are well subsidized (farmers pay a maximum premium of 1.5–5 percent depending on the crop) and the programme is integrated with the National Crop Insurance Portal (NCIP) to support transparency and monitoring. However, PMFBY still falls short in

coverage: around two-thirds of smallholder farmers remain uninsured. Challenges also persist around delayed claims, low awareness of the programme and a reliance on public subsidy and state-level implementation. Importantly, the scheme focuses only on crops and on-farm risks and excludes off-farm actors like traders and millers (DRFIP and GSFF, 2024).

Beyond crop insurance, few risk transfer mechanisms exist.

Some digital distribution models are emerging, but they remain limited in scale and scope. One notable innovation is the Mahindra Insurance Brokers–BigHaat partnership, which embeds health and motor insurance into an agri-input platform targeting 10 million farmers (BW Healthcare World, 2022). No targeted insurance solutions were identified for rice millers, although traditional insurers may offer products that are applicable to rice millers (property, fire etc.).

Step 3: Opportunities for holistic resilience solutions

Opportunities exist to develop more holistic risk management solutions within the paddy value chain.

Given the range of risks faced by actors across the chain, there is a need for integrated approaches that combine both risk transfer and risk mitigation tools. Table 7 presents a range of potential holistic solutions that could be introduced or scaled, mapped against specific risks identified within the value chain.

Table 7: Holistic resilience solutions in the paddy value chain

RISK	HOLISTIC RESILIENCE SOLUTION	
	Insurance cover +	Risk mitigation
Crop loss due to climate events	Weather-indexed/parametric insurance products	Weather alerts/early warning systems
Post-harvest storage and transit loss	Property/stock insurance, transit insurance	Hermetic storage bags, smart sensors for moisture, pests, temperature, CCTV and controlled warehouse access
Machinery breakdown in rice mills	Property insurance, business interruption, machinery/ equipment insurance	Fire sensors, regular maintenance and inspection of dryers, boilers and motors
Theft	Theft insurance, transit insurance	GPS tracking for transporters, digital movement logs, weight sensors, CCTV
Worker injury and occupational risk	Group personal accident, health, hospital cash cover	Safety training and use of personal protective equipment (PPE) (e.g. gloves, goggles, masks), premium incentives for mills certified for safety
Input and price volatility	Not easily insurable	Use of digital platforms for input/output market transparency and access

As table 7 shows, there are opportunities to create holistic solutions in the paddy value chain. Examples include:

- **To address risk related to crop loss: smart storage solutions and pest control bundled with property or stock insurance.** Post-harvest losses due to poor storage are significant in India's paddy sector. Deploying smart sensors to monitor humidity, temperature and pest activity, as well as leveraging affordable alternative storage tools such as hermetic storage bags, could help prevent damage to stored stock. Bundling these with property insurance could support faster claims processing in the event of spoilage or infestation and promote investment in better storage practices.
- **To address risk related to worker injury and occupational risk: safety training and PPE linked to group personal accident insurance.** Occupational risks in small-scale mills include injury from unsafe equipment or prolonged exposure to harmful particles. Regular safety training and distribution of PPE (e.g. gloves, goggles, masks) can lower the risk of accidents and illnesses. These could be bundled with personal accident insurance or health savings products to cover treatment costs, especially for informal or low-income workers.
- **To address risk related to theft and damages in transport: GPS tracking, weight sensors and controlled access paired with transit insurance.** GPS tracking can be used to ensure route compliance and monitor delays during transport, as well as to encourage safe driving. Paired with weight sensors and digital movement alerts, these solutions can help detect potential theft or spillage during aggregation and distribution. Combined with transit insurance, this would allow insurers to better assess claims and enable faster payouts, while reducing losses for farmers and aggregators.

Case Study:
Pula – bundling agricultural insurance with farming inputs

Pula, an agricultural insurance intermediary, has pioneered the bundling of crop insurance with farming inputs and advisory services to strengthen smallholder resilience. Through partnerships with input suppliers, financial institutions and governments, Pula embeds insurance in the purchase of seed and fertilizer, with premiums kept as low as $1–$3 per farmer per year. In addition, Pula offers digital agronomy advice, allowing farmers to improve yields while being protected against weather-related losses.

Evidence shows strong impact: insured farmers increased investment by around 16 percent and reported yield improvements of up to 56 percent. Since its launch, Pula has facilitated more than 2.7 million insurance covers across 10 countries in Africa and Asia. It continues to scale through partnerships, for example, by working with Apollo Agriculture in Kenya to bundle premium seeds and fertilizer on credit together with insurance.

Source: MIT Solve (2020); UNSGSA (2023).

Holistic solutions, such as those explored above, can be delivered more effectively and affordably through digital platforms and alternative distribution channels.

While FPOs bring together more organized farmers, they often lack the systems to handle premium collection or deliver bundled insurance effectively. By contrast, digital agri-platforms like Arya.ag, DeHaat and Ninjacart offer more practical entry points for insurers. These platforms already aggregate farmers at scale and provide warehousing, logistics and financial services, making it easier to embed and deliver insurance. Integrating insurance also strengthens the platform's core value proposition by deepening client engagement, reducing risk across its lending and supply chains and unlocking new revenue through commissions or partnerships with insurers. This adds a significant value proposition for aggregators. Arya.ag, for example, operates over 2,800 warehouses and lists another 12,600 potential storage sites, and connects with 1,300 FPOs (in turn, reaching more than 800,000 farmers). Arya already facilitates trade, storage and financing, and could extend this role to include premium collection and insurance delivery. Targeting farmers and millers through such platforms may prove more effective than engaging through traditional value chains, which often involve multiple intermediaries and lack transparency.

Holistic resilience solutions are critical for strengthening the paddy value chain and keeping premiums affordable.

This is particularly the case given the context of fragmented production, climate vulnerability and informal labour. By integrating risk mitigation tools (such as smart storage, pest control, PPE or GPS tracking) with risk transfer mechanisms (like insurance or savings products), these solutions address the root causes of common shocks while enabling quicker recovery. This not only reduces losses and protects livelihoods but also builds confidence for greater investment in improved practices and technologies. With reduced risk, insurers can offer lower premiums. Thus, insurers can encourage their clients to adopt risk mitigation strategies through premium incentives (see case study on telematics-enabled motor insurance in section 3). When delivered through scalable digital platforms, such solutions become more accessible, efficient and impactful, particularly for smallholders and MSMEs who are otherwise underserved by traditional channels.

Beyond paddy, millet and other climate-resilient crops present an opportunity to apply similar resilience strategies.

While this section focuses on the paddy value chain due to its economic and employment significance, the resilience solutions identified may also be relevant for other agricultural value chains. Millet and other less water-intensive crops are becoming increasingly important as climate risks rise. These crops are more drought-resilient and require fewer inputs, and have already been highlighted by the Indian Government as a priority for promoting more sustainable and climate-adapted farming (Bahri, 2023). Applying similar resilience strategies, including both risk mitigation and risk transfer tools, to these value chains could help strengthen the resilience of smallholders and MSMEs while also supporting broader national climate goals.

Spotlighting the often overlooked:
Integrating gender-sensitive approaches in resilience solutions.

Women play a critical but often invisible role in the paddy value chain. While they are overrepresented in farm labour, they are underrepresented as landowners or recognized farmers, limiting their eligibility for many formal services (Khan, 2025). This presents a missed opportunity. Evidence shows that women farmers tend to achieve better outcomes when provided with equal access to inputs and training: "If women had the same access to productive resources as men, they could increase yields on their farms by 20–30 percent" (FAO, 2011).

Holistic resilience solutions, such as bundled insurance, smart technologies and occupational protections, can have a disproportionately positive impact on women because they address multiple, intersecting barriers that women face. For instance, women are often responsible for post-harvest processing and storage, where poor infrastructure leads to significant losses. Introducing affordable, user-friendly storage solutions (like hermetic bags) bundled with stock insurance not only protects the value of their labour but also encourages women to engage more confidently in income-generating activities such as grain marketing or cooperative sales. In this way, resilience solutions, when designed with women's needs and constraints in mind, can enhance women's financial stability, reduce time burdens and create new pathways for economic empowerment and equality.

Targeted delivery through women-only FPOs offers a promising entry point. Platforms like Arya.ag have seen the number of women-only FPOs grow by 128 percent over two years, now reaching over 50,000 women (Barve, 2025). These groups can serve as trusted intermediaries for insurance and bundled services. Furthermore, partnering with non-governmental organizations (NGOs) and collecting gender-disaggregated data can ensure products are designed around the specific needs and vulnerabilities of women. Ultimately, integrating gender-sensitive design into resilience solutions not only promotes equity, but can unlock untapped productivity and stability across the entire value chain.

Value chain 2: **Automotive**

Step 1: Key value chain characteristics

India's automotive value chain is a cornerstone of its industrial economy.

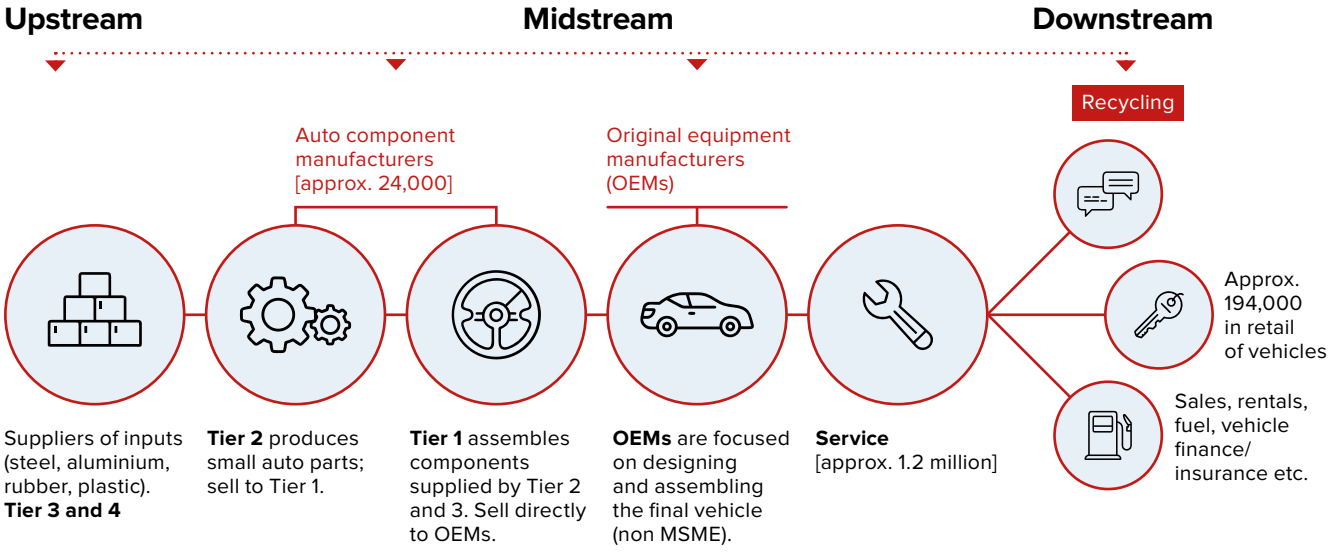
It contributes approximately 7 percent of national GDP and nearly half of total manufacturing GDP (IBEF, 2025). MSMEs are critical to this ecosystem: 1.4 million MSMEs operate in the sector, collectively employing 2.4 million people (India, MoSPI, 2024a). This indicates that most of these are own-account enterprises. Most of the MSMEs in the sector (1.2 million) are in the repair and maintenance segments, while 194,000 are in vehicle sales. Only about 24,000 MSMEs operate in manufacturing (India, MoSPI, 2024a), making up about 75 to 80 percent of auto component manufacturers in India. In this segment, more than 400 bigger organized sector players absorb 85 percent of the revenues (Brickwork Ratings, 2024).

Women's participation is extremely limited. Only 1.8 percent of auto MSMEs are women-owned, and women make up just 2.2 percent of the workforce (India, MoSPI, 2024). Auto component manufacturing MSMEs are concentrated in key state clusters, with leading hubs in Tamil Nadu (35 percent of production), Maharashtra (33 percent) and Haryana (30 percent) (Brickwork Ratings, 2024).

The automotive value chain is tiered and fragmented, anchored by original equipment manufacturers (OEMs).

Figure 5 visualizes the automotive value chain.

Figure 5: Automotive value chain



Source: Based on Riat (2019); ASDC and EY (2019); Jha, Mishra and Singh (2023); India, MoSPI (2024a).

- **In the upstream segment,** the value chain is dominated by Tier 3 and Tier 4 suppliers, which are mostly micro and small informal firms that supply raw materials and simple components such as rubber and plastic parts (ASDC and EY, 2019).
- **In the midstream segment:**
  - Tier 2 suppliers are generally small firms that supply Tier 1 suppliers with components and subsystems such as engine parts or brake parts, often manufacturing to client specifications. Tier 2 suppliers generally do not have the financial or technical resources to supply fully integrated systems to vehicle manufacturers (Riat, 2019).
  - Tier 1 suppliers, typically large and formalized, are responsible for major integrated systems (such as dashboards, suspensions and brake systems) rather than individual components and maintain direct contracts with OEMs. They typically have established processes for managing suppliers in the tiers below them. They may exchange data with OEMs to synchronize production and logistics (Riat, 2019).
  - OEMs, such as Mahindra & Mahindra, Maruti Suzuki and Tata Motors, assemble full vehicles and oversee branding, marketing and distribution (ASDC and EY, 2019).
- **The downstream segment** consists of dealers, spare part distributors, authorized service networks and a large number of informal garages. The unorganized sector significantly contributes to the aftermarket, accounting for 52 percent of total sales, because its services are less expensive than authorized OEM workshops (ASDC and EY, 2019; Brickwork Ratings, 2024).

Digitalization is advancing unevenly, but new platforms offer pathways for MSME integration.

Adoption of digital technologies across the automotive value chain remains largely uneven. Large OEMs and Tier 1 suppliers increasingly use advanced systems such as real-time monitoring, predictive analytics and automated production lines to improve efficiency and remain globally competitive. In contrast, most MSMEs in Tier 2 and Tier 3 continue to use traditional low-technology methods and are highly dependent on manual labour (UNIDO, 2022). Nonetheless, digital platforms are opening new opportunities for integration. Business-to-business (B2B) marketplaces like BrooMax, IndiaMart and TradeIndia help MSMEs streamline procurement and sales. In the aftermarket segment, business-to-consumer (B2C) innovations are reshaping vehicle purchase and servicing. For instance, app-based platforms like GoMechanic, Pitstop and Repair24x7 connect garages with customers, offering booking, diagnostics and digital payments (Chadha, 2019). These platforms present a potential entry point for bundling financial and risk solutions tailored to MSMEs.

Aggregators operate at various points across the value chain.

They include digital B2B platforms linking manufacturers to buyers, industrial zone authorities managing supplier clusters and service platforms aggregating informal garages. Many of these entities already facilitate payments, financing or compliance services, making them well positioned to support premium collection and the delivery of bundled or embedded insurance products.

Table 8 provides an overview of the groups of aggregators present in the automotive value chain.

Table 8: Automotive aggregators

AGGREGATOR CATEGORY	POTENTIAL AGGREGATOR	DESCRIPTION	POTENTIAL MSMES REACHED	ABILITY TO COLLECT PREMIUMS?
Digital platforms	BrooMax, Indiamart, TradeIndia	B2B platforms connecting suppliers and buyers	BrooMax (50+ suppliers and 250+ buyers); Indiamart (8 million suppliers); TradeIndia (10 million suppliers) – unclear how many are automotive related.	Yes
	myTVS	Auto accessories retailer	30,000 garages, 22,000 retailers, 100,000 fleet vehicles and 100+ parts manufacturers	Yes
	GoMechanic (or similar garage aggregators such as Crossroads, Pitstop and Repair24x7)	Digital platform aggregating garages for end customers (repairs, service) and supporting informal mechanics with branding, tools and tech	GoMechanic: Over 7,000 mechanics, technicians and specialists across their network of over 1200 multi-brand car service centres.	Yes
Associations	ACMA (Automotive Component Manufacturers Association of India)	Apex body representing auto component manufacturers in India	Over 800 active members	Potentially
Infrastructure providers	State Industrial Development Corporations (SIDCs) (e.g., Maharashtra Industrial Development Corporation – MIDC)	State-run agencies that plan, develop and manage industrial estates and clusters across India. They lease land and built-up spaces to manufacturing MSMEs and often provide plug-and-play facilities.	Thousands of formal MSMEs across industrial zones, including auto part manufacturers and suppliers	Yes
Large manufacturers	OEMs (e.g., Bajaj Auto, Hero MotoCorp, Tata Motors)	Large automakers engaging Tier 1 and Tier 2 suppliers	Each OEM engages multiple suppliers directly or indirectly	Yes

Source: The Hindu BusinessLine (2024); ACMA (2025); IndiaMart (2025); TradeIndia (2025).

Step 2: Key risks faced and availability of risk solutions

MSMEs in the automotive value chain face diverse risks.

Table 9 outlines key risks faced by businesses in different parts of the value chain. Some risks are relevant to both manufacturers and garages/mechanics, while others are more specific.

Table 9: Risks in the automotive value chain

KEY RISKS	DESCRIPTION
BOTH	
Property damage and business interruption (fire, explosion, flood)	Hazards such as fire, electrical faults or flooding can destroy stock and equipment or halt production. For example, during severe flooding in Chennai, automotive manufacturers experienced collective daily losses of 1.72 billion Indian rupees (approximately $20 million; Marsh India Insurance Brokers, 2018).
Theft of vehicle parts, tools and machinery	MSMEs, especially garages and small warehouses, are vulnerable to theft of valuable equipment and components. For instance, one car manufacturer in India experienced motor theft adding up to $2.3 million over the course of 3 years WRI (ABP Live, 2025).
Workplace injury and health risks	Garages and small plants expose workers to chemicals, machines and manual handling risks. Reports highlight that workplace injuries in manufacturing are increasing, and that 80 percent of workplace injuries in India come from auto components factories (Bhatia, 2025).
MECHANICS	
Liability	Mechanics and small garages face liability risks if repairs or servicing lead to accidents, equipment failure or customer complaints.
MANUFACTURING	
Supply chain coordination and forecasting risks	India's auto sector relies on just-in-time delivery between OEMs and component manufacturers. Poor forecasting or sudden shifts in consumer demand can result in overstocking or obsolete inventory and missed deadlines (Khurana et al., 2025).
Delayed payments	Delayed payments are pervasive across India's MSME sector, with microenterprises facing the greatest challenges due to limited bargaining power. Manufacturing firms, particularly in textiles, auto components and engineering goods, are severely impacted as they are deeply embedded in large corporate supply chains (Sharma, 2025).
Machinery breakdown and downtime	Critical equipment failures delay production, increase operating costs and threaten client contracts. For instance, in adjacent equipment manufacturing sectors, unplanned downtime was estimated to cost companies as much as 20 percent of their annual revenue (Equip9, 2024).

Targeted insurance and risk mitigation solutions remain limited.

Most insurance options for MSMEs in the automotive sector are general-purpose products not tailored to the value chain. Many insurers have basic MSME policies applicable to all sectors, covering property damage from fire, theft and accidents. Government-backed options like the Bharat Sookshma/ Laghu Udyam Insurance scheme offer business property protection for eligible MSMEs but require formal registration (India, DIC, 2023). Another solution that is not targeted for automotive, but is relevant to addressing delayed payments, is the government-backed platform, Trade Receivables Discounting System (TReDS), which enables MSMEs to receive financial assistance without collateral to bridge late invoice payments from large buyers (India, SIDBI, 2025a).

The biggest type of insurance connected to cars in India is third-party motor insurance, which is mandatory for all vehicle owners. But this product is aimed at drivers, not at MSMEs. Originally, insurers shared the risk of these policies through a common pool (the Third-Party Motor Insurance Pool, created in 2007). However, the pool lost too much money and was shut down in 2011. It was replaced with a new system called the Declined Risk Pool, where insurers each take on more responsibility for the policies they issue (The Economic Times, 2011; Ravichandran, n.d.).

Step 3: Opportunities for holistic resilience solutions

Opportunities exist to strengthen the resilience of MSMEs in India's automotive value chain by combining risk transfer and risk mitigation solutions.

Table 10 presents examples of integrated insurance and risk management options that could be introduced to address key risks in the sector.

Table 10: Holistic resilience solutions in the Automotive value chain

RISK	HOLISTIC RESILIENCE SOLUTION	
	Insurance cover +	Risk mitigation
Property damage and business interruption (fire, explosion, flood)	Property insurance, business interruption cover, parametric insurance for natural disasters	Fire safety audits, fire and flood sensors, suppression systems, early warning systems via alerts
Theft of vehicle parts, tools and machinery	Theft insurance	Secure storage and surveillance (e.g. CCTV), GPS trackers on high-value equipment
Workplace injury and health risks	Group personal accident insurance, hospital cash cover	Provide safety training, distribute PPE (e.g. gloves, goggles, masks), offer premium incentives for safety certification

RISK	HOLISTIC RESILIENCE SOLUTION	
	Insurance cover +	Risk mitigation
Liability due to poor workmanship or service	Liability insurance	Standardized service protocols, warranties and guarantees, mechanic training
Supply chain coordination and forecasting risks	Trade credit insurance	Use logistics platforms to monitor delays, improve forecasting and data-sharing
Delayed payments	Trade credit insurance	Use digital invoicing and payment tracking, leverage digital B2B marketplaces
Machinery breakdown and downtime	Equipment breakdown insurance	Preventive maintenance packages, onboarding and periodic inspections

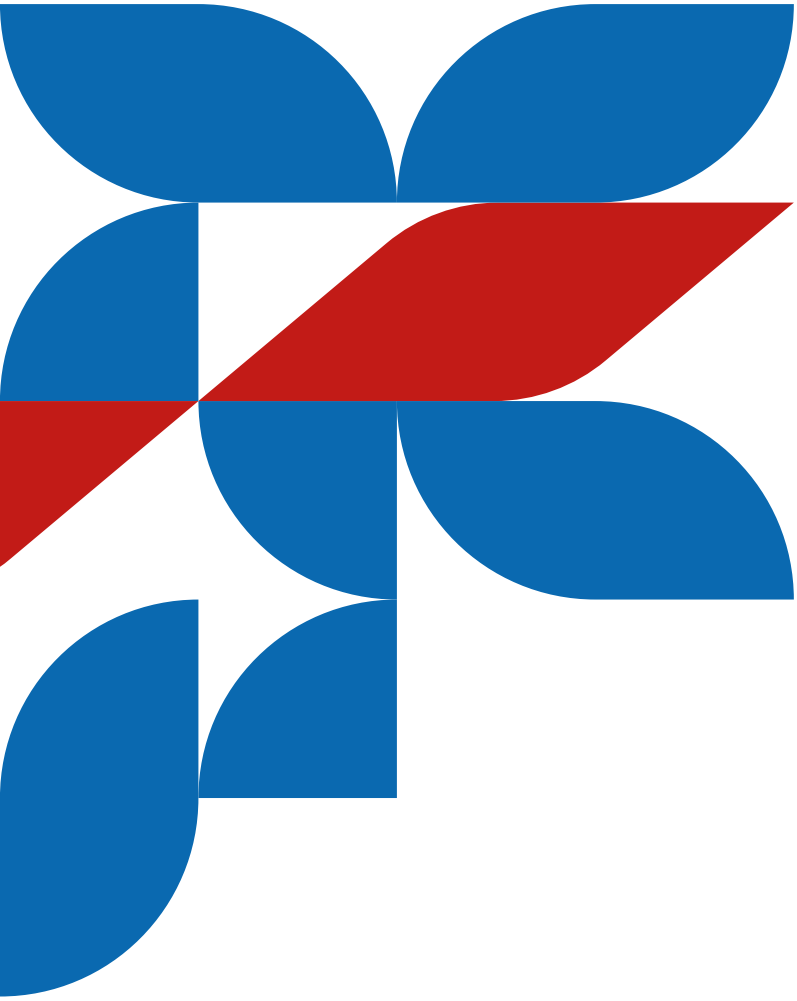
Tailored risk solutions can address common vulnerabilities across the automotive value chain.

MSMEs in the automotive sector face a range of risks linked to injury, liability, theft and property damage. The following examples expand on some of the options displayed in table 10:

- **To address risks related to liability due to poor workmanship or service: liability insurance embedded into each service booking.** Garages risk liability for poor workmanship or damage caused during repairs. Liability insurance can be automatically included in every customer booking through platforms like GoMechanic. Standardized checklists, digital service histories and mechanic ratings can support both risk management and claims validation. Embedding insurance into bookings can also strengthen consumer trust in the platform, enhancing its core value proposition while protecting both MSME mechanics and vehicle owners.
- **To address risks related to property damage and business interruption: property insurance bundled with mechanic onboarding.** For small garages, onboarding through platforms offers a chance to integrate property insurance that covers tools, spare parts and customer vehicles against fire, theft or flood. Platforms can require basic safety steps, like risk assessments or secure storage, as part of onboarding, improving risk profiles from the outset.
- **To address risks related to workplace injury and health risks: bundled accident and property cover through plug-and-play industrial estates.** State Industrial Development Corporations such as MIDC offer shared infrastructure to MSMEs in manufacturing. These estates can serve as entry points for products – for instance, group personal accident cover and property insurance – embedded into lease or utility payments. This model supports coverage for workplace injuries as well as damage to tools, machinery or stock due to fire, flood or other hazards.

Various aggregators offer practical channels to embed insurance and risk tools into the automotive MSME ecosystem.

Industrial parks managed by SIDCs can facilitate enrolment for small businesses in industrial zones, while platforms like BrooMax and GoMechanic can offer solutions through existing digital platforms. For these platforms, embedding insurance and risk tools can enhance trust in bookings for both mechanics and customers. OEMs could also play a role by embedding cover into supplier agreements or compliance processes, particularly for Tier 1 and Tier 2 firms. As OEMs rely on downstream MSMEs for timely and consistent supply of parts and services, reducing disruption through insurance can support their own operational continuity and supply chain resilience. Although industry associations like ACMA may not handle premium collection directly, they can help inform the design of sector-relevant products and facilitate awareness and uptake. Together, these actors offer multiple entry points to deliver holistic risk solutions across India's automotive value chain.



Closing the gap:
Gender-responsive resilience in a male-dominated value chain

Women are extremely underrepresented in India's automotive value chain, accounting for just 2.2 percent of the workforce and 1.8 percent of MSME ownership (India, MoSPI, 2024a). The sector has long been perceived as physically demanding and unsuitable for women, with factory floors historically seen as male-dominated spaces. However, this is slowly beginning to change. Some manufacturers such as MG Motor, Swaraj Tractors and Tata Motors have taken proactive steps to improve gender diversity by recruiting women for technical and shop-floor roles, establishing women-led assembly lines and investing in inclusive workplace design (The Tribune, 2024). Companies report that these female workers have improved productivity and lowered attrition and often show higher levels of precision and responsibility than their male counterparts.

Despite these advancements, significant barriers persist. Many facilities lack appropriate infrastructure for women, including separate washrooms, changing rooms and access to female medical staff. Safety equipment such as gloves, helmets and overalls are often designed for men, creating discomfort and increasing the risk of workplace injury (The Tribune, 2024). These structural gaps not only compromise physical safety but also deter women from entering the sector. Resilience strategies that integrate occupational health and safety training, gender-appropriate PPE and access to personal accident insurance could play a key role in addressing these risks.

Targeted entry points for improving resilience among women in automotive manufacturing already exist. For instance, industrial zones such as those managed by SIDCs provide a practical channel to deliver bundled insurance and occupational safety solutions, including health and personal accident cover. Insurers can take an active role in shaping safer and more inclusive work environments by embedding these products into onboarding or lease agreements and by requiring as conditions for coverage basic workplace safeguards for women, including appropriately sized PPE, separate facilities and safety training. In addition, OEMs that have already demonstrated commitment to inclusion could be targeted – for example, Tata Motors' Pune plant employs over 3,000 women on an all-women assembly line (The Tribune, 2024). This offers a strategic entry point to influence standards across their supplier networks and reach MSMEs further down the value chain through supplier-linked insurance schemes.

Improving conditions for women is not only aligned with broader equity goals; it also presents a commercial opportunity for insurers. By supporting inclusive and safer workplaces, insurers enable firms to attract and retain female workers who have been shown to deliver higher productivity. Women are also an increasingly important consumer group, now accounting for nearly half of used car purchases on platforms like Spinny (Kumar, 2025). Surveys further suggest that many women prefer women-led service environments, such as female-run garages, which they perceive as safer and more trustworthy (Samaan Society, n.d).

Supporting these enterprises through tailored insurance products could unlock new customer segments while advancing gender inclusion. In doing so, insurers can help reduce workplace risk, improve claims outcomes and support more inclusive access to risk protection within a traditionally male-dominated sector.

Value chain 3: **Retail**

Step 1: Key value chain characteristics

India's retail sector is the largest MSME subsector and a vital pillar of the economy, but it remains highly fragmented, predominantly informal and unevenly inclusive.

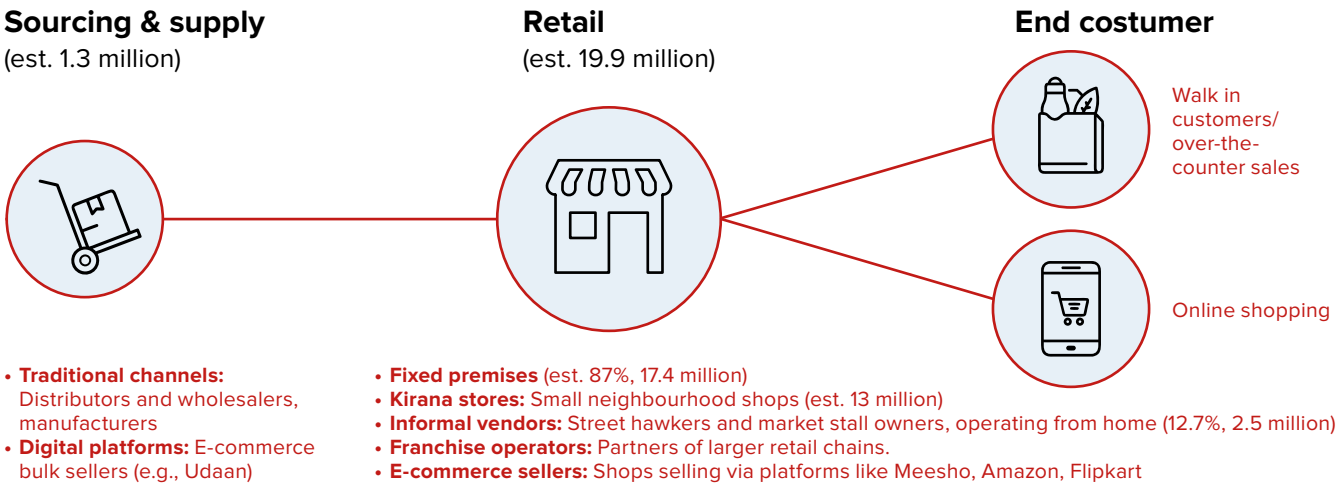
The retail sector has approximately 19.8 million MSMEs, which employ over 33 million people (India, MoSPI, 2024a) and contributes around 11.4 percent to India's GDP (India, MoSPI, 2024b). Despite its scale, only 12 percent of the retail market is organized, with the remainder dominated by traditional formats such as kirana stores,14 informal vendors and franchisees. Food and grocery retail, in particular, remains deeply traditional; about 95 percent of this market is served by over 13 million kirana outlets (Accenture and TRRAIN, 2020; McKinsey, 2022). These small, often family-run stores are embedded within their communities and play a critical role in meeting daily needs, especially in rural areas where refrigeration and disposable income are limited. Many kiranas also operate on informal credit systems, whereby trusted customers are allowed to purchase goods on credit (Nozaki, 2018).

The sector is now undergoing rapid digital transformation, driven by the rise of e-commerce, quick-commerce models and digital payment solutions. However, women remain underrepresented: only 14 percent of retail businesses are women-owned, and women make up just 19 percent of the sector's workforce (India, MoSPI, 2024a). As the sector evolves, there is significant potential to promote more inclusive growth through targeted support and digital enablement of women-led and traditional retail enterprises.

Source: Based on India, MoSPI (2024a); Nozaki (2018); Accenture and TRRAIN (2020).

The retail value chain connects suppliers and manufacturers to a wide range of retail outlets and ultimately to end customers. It is fragmented, with both formal and informal actors involved at each stage. The key nodes of the value chain are outlined in figure 6.

Figure 6: Retail value chain



14 A *kirana* is a small, often family-owned, neighbourhood grocery store.

- **Sourcing and supply:** This node includes traditional distributors, wholesalers and manufacturers, as well as newer digital B2B procurement platforms such as Udaan that link suppliers directly to retailers. Kiranas and other retailers source their stock through both formal and informal channels, but wholesale in India is largely unorganized (Nozaki, 2018).
- **Retail:** India's retail sector is made up of various business types, but kirana stores are the largest group, at 13 million. As discussed above, they account for most fixed-premise retailers, which make up around 87 percent of the 19.9 million retail MSMEs (India, MoSPI, 2024a; Accenture and TRRAIN, 2020) Unlike informal vendors such as street hawkers and market stall owners, these store owners have significant physical infrastructure to insure.
- **End customer:** Customers are reached both through traditional walk-in traffic and, increasingly, through digital retail channels. Most kiranas sell basic foodstuffs, toiletries and household goods over the counter, with the store owner selecting items for customers (Nozaki, 2018). E-commerce platforms, including both general marketplaces and social commerce models, are gaining traction, particularly in urban areas.

Digitalization in the retail value chain is under way, with aggregators improving access to stock, credit and logistics.

India's retail landscape is undergoing gradual digital transformation, including among kirana stores. Platforms like Jumbotail, Shopx, ShopKirana and Udaan have emerged to streamline procurement, offer credit and improve supply chain efficiency. These start-ups provide mobile apps that handle ordering, inventory and delivery, addressing long-standing issues such as irregular restocking, unorganized wholesalers and poor-quality goods (Nozaki, 2018; Kalra, 2025). Local B2C platforms like Kiko, Pincode and Swiggy Instamart as well as larger e-commerce players like Amazon are also engaging with kiranas, offering a digital storefront and last-mile delivery. While adoption remains uneven, over 70 percent of kirana owners express interest in digital tools to expand their business, including in digital payment and point-of-sale (POS) systems (Tandon, 2022; Lodha, 2023). In 2022, an estimated 65 percent already accepted digital payments and over 40 percent of online retail deliveries were estimated to be fulfilled by kiranas (Kalra, 2025).

Aggregators can support scale and distribution for retail resilience solutions.

The rise of digital platforms has opened new channels to engage retail MSMEs, especially kirana stores, through embedded services and digital infrastructure. A range of aggregators, both digital and traditional, can play a role in reaching fragmented retailers and delivering bundled risk solutions. Aggregators in the retail value chain include B2B and B2C franchise networks, wholesalers, financial service providers and cooperatives. These actors already engage with large numbers of MSMEs through logistics, procurement or payments, and many have systems in place to support premium collection and insurance delivery. Table 11 outlines examples of potential aggregators and their relevance for reaching MSMEs in the retail value chain.

Table 11: Retail aggregators

AGGREGATOR CATEGORY	POTENTIAL AGGREGATOR	DESCRIPTION	POTENTIAL MSMES REACHED	ABILITY TO COLLECT PREMIUMS?
Digital platforms	Digital B2B marketplaces (e.g., Udaan, Jumbotail)	B2B platforms connect small retailers (kiranas) with suppliers, wholesalers and brands	e.g. Udaan: Approximately 3 million retailers	Yes
	Digital B2C marketplaces (e.g., Swiggy, Kiko)	B2C platforms connect small retailers (kiranas) with clients	e.g. Swiggy: Over 220,000 retailers	Yes
	Kirana Friends	Learning and advisory platform for Kirana store owners, helping them modernize operations and improve profitability	100,000+ kirana owners use the app	Potentially
Value chain actors	Franchise networks (e.g. Reliance Retail, More Retail, D-Mart Ready)	Large chains with local franchise partners offer branding, procurement and technical support	Reliance Retail: 17,000 outlets; More Retail: 600+ stores, many have franchise or dealer partners	Yes
	Large distributors / wholesalers (e.g. Metro Cash & Carry)	These serve as bulk suppliers for kirana stores and small retailers	Metro Cash & Carry: 3 million registered kirana customers	Yes
Financial services	Digital payments platforms (PayNearby, Paytm)	State-run agencies that plan, develop and manage industrial estates and clusters across India. They lease land and built-up spaces to manufacturing MSMEs and often provide plug-and-play facilities.	Thousands of formal MSMEs across industrial zones, including auto part manufacturers and suppliers	Yes
Cooperatives and associations	Retail cooperatives (e.g., National Cooperative Consumers' Federation – NCCF)	State and national consumer co-ops aggregate small retail outlets for procurement & distribution	Approximately 70,000 cooperative retail outlets nationwide	Limited

Source: Sinha (2020); CHASE India (2024); India Retailing (2024); Naspers (2024); Jumbotail (n.d.); Kirana Friends (n.d.); The Kredible (n.d.).

Step 2: Key risks faced and availability of risk solutions

MSMEs in the retail value chain face several risks across physical operations, supply chains and digital tools.

Retailers, particularly kirana stores and other small-format MSMEs, face risks ranging from inventory loss to competitive market pressures. Many work with thin margins, limited staff and basic infrastructure, exposing them to disruptions that can quickly threaten viability. Physical risks like fire, flood and theft are also prominent, while growing digital adoption brings new exposures such as fraud. Table 12 summarizes some of the key risks in this value chain.

Table 12: Risks in the retail value chain

KEY RISKS	DESCRIPTION
Inventory loss and property damage	Fire, flood or other hazards can damage retail shops or inventory, which is common in dense urban markets with poor infrastructure. Highly flammable, dense urban setups pose fire risks; for example, the 2017 Kolkata market fire impacted over 5,000 livelihoods (Bandyopadhyay and Manna, 2020). These risks are intensifying as climate change increases the frequency and severity of flooding (World Bank, 2021b).
Supply chain/transit disruptions	Delays or spoilage of inventory can arise during transport, particularly for perishable or time-sensitive goods. In India, 30 to 40 percent of fruits and vegetables and up to 16 percent of marine products spoil before reaching consumers (Kumar et al., 2025). Cold chain challenges may become more severe as climate change raises average temperatures across India. India consistently experiences some of the world's highest maximum temperatures (World Bank, 2021b).
Cybersecurity and digital payment fraud	Retailers adopting POS- or UPI-based digital systems face fraud risks. Digital payments fraud in India amounted to $175 million in India in 2023/24 (Reuters, 2025).
Health/injury of business owner	Small traditional stores often have one or very few employees, meaning stores must shut down completely if the owner is sick or injured. In India, 98 percent of kirana stores are estimated to be operated by only one person (Goyal, 2021).
Theft	Petty theft from customers or staff can be a problem, especially in informal stores with limited surveillance. Indian retailers experience losses of about 2 to 3 percent annually due to theft (Sure Solutions, 2025). Retailers reported a 93 percent increase in the average number of shoplifting incidents in 2023 (Security Today, 2024).
Market volatility and competition	The retail sector is sensitive to rapid shifts in consumer demand, including shocks such as pandemics. Moreover, e-commerce and organized retail can squeeze margins for small traditional retailers. Around 200,000 traditional stores are estimated to have shut down due to the rise of quick commerce platforms (Ganguly, 2024).

Basic shopkeeper insurance is commonly offered, and some innovative aggregator-led models are expanding insurance access.

Many insurers in India offer shopkeeper insurance for retail businesses. These policies typically cover property damage, inventory loss and sometimes personal accident, offering basic protection for risks like fire, burglary and natural disasters. However, information on uptake is limited, and most policies do not appear to include risk mitigation solutions or cover for the full range of risks that retailers face. Newer solutions are using digital aggregators to improve reach and relevance. For example, Paytm's Health Saathi plan provides health and income protection for merchants through the Paytm for Business app. It includes teleconsultations, discounted outpatient care and income support during business disruptions (Paytm, 2024). Similarly, Fino Payments Bank and Go Digit introduced a dedicated shop insurance product targeting microenterprises. It is distributed through Fino's rural merchant network and covers common risks like fire and theft (Paliwal, 2022).

In addition to these insurance offerings, digital tools can serve as important risk mitigation measures; these include inventory management, order tracking and digital payments, available through platforms like Jumbotail and Udaan. While not offering formal risk transfer, these tools help small retailers manage stock, reduce spoilage and improve financial control, laying the groundwork for more resilient operations, as well as helping retailers stay competitive.

Step 3: Opportunities for holistic resilience solutions

As discussed above, retailers in India face a range of interconnected risks, such as fire, theft, health shocks and supply chain delays, which cannot be effectively addressed through insurance alone. Instead, holistic resilience solutions that combine risk transfer with practical risk mitigation tools are more likely to meet MSMEs' needs and improve uptake. Table 13 outlines examples of how key risks in the retail value chain can be addressed through this approach.

Table 13: Holistic risk solutions in the retail value chain

RISK CATEGORY	Insurance cover	Risk mitigation
Inventory loss and property damage	Fire and property insurance for shop and inventory	Smoke detectors, fire extinguishers, digital inventory tracking, shelf-life monitoring, dynamic pricing (discounts on near expiry items)
Supply chain and transit disruptions	Goods-in-transit insurance for perishables or high-value items	GPS/shipment trackers, temperature monitoring, driver monitoring systems
Cybersecurity and digital payment fraud	Cyber fraud protection insurance linked to payment platforms	Cybersecurity training and awareness

RISK CATEGORY	Insurance cover	Risk mitigation
Health/injury of business owner	Personal accident cover, business interruption insurance	Discounted health check-ups
Theft	Theft insurance for petty shoplifting or targeted theft	Theft sensors, CCTV, alarms, security doors
Market volatility and competition	Not easily insurable	Incentivizing partnerships with retail aggregators (B2C and B2B) to stay competitive; Kirana Friends learning and advisory platform

Practical examples highlight how insurance and mitigation can be combined.

In the retail sector, combining insurance with practical tools can help address real-world challenges faced by MSMEs. The following examples expand on how platforms and aggregators can deliver more holistic resilience solutions:

- **To address risks related to supply chain and transit disruptions: Goods-in-transit insurance bundled with platform logistics.** B2B platforms like Udaan can bundle insurance for perishable or high-value goods with each order. This can be combined with GPS tracking, temperature monitoring and route alerts to reduce spoilage and support faster claims through digital delivery records. For the platform, offering bundled cover can enhance reliability, build buyer trust and reduce disputes and returns, ultimately improving transaction volumes and customer retention.
- **To address risks related to inventory loss and property damage: inventory protection embedded at onboarding with stockists or platforms.** Property insurance for inventory can be embedded when retailers onboard with B2B platforms or large stockists. These actors often already capture shop profiles and purchase volumes, which can support basic risk screening, and basic risk management can be encouraged from the start (e.g. keeping stock above floor level). Ongoing risk management tools like dynamic pricing and shelf-life monitoring can help prevent losses, while also feeding into claims validation. For climate-related risks such as flooding, data from national and satellite-based sources on hazard exposure can assist in identifying areas of higher risk.
- **To address risks related to health/injury of business owner: health-linked income protection with built-in mitigation support.** Most kirana stores are one-person operations, meaning health issues can fully halt business. This also undermines the financial resilience of the owner's family, who may rely on the store as their sole source of income. Platforms could offer personal accident or health insurance with income replacement, using revenue data for payout calculation. This could also include optional coverage for temporary caregiving needs (e.g. child or parent illness), which disproportionately affect women. Alongside this coverage, mitigation tools like subsidized health check-ups and telemedicine access could be offered.

Aggregators offer scale and a pathway to modern retail MSMEs.

In the retail sector, aggregators such as B2B platforms, franchise networks, wholesalers and payments providers offer practical entry points for reaching small merchants with bundled resilience solutions. Kirana stores and micro-retailers connected to platforms are likely to be more growth-oriented, making them more likely to adopt protection tools. These retailers are also better positioned to withstand competitive pressure from e-commerce, due to improved access to inventory, logistics and customer insights. For aggregators, offering embedded insurance and risk tools can strengthen their service offering, improve partner performance and support platform growth and loyalty.

Enhancing women's participation in retail through digital inclusion

Women play an important but often unrecognized role in India's retail value chain, particularly in kirana stores, where they frequently manage inventory, customer relationships and day-to-day operations. Due to gender norms, many women remain invisible as business owners, with shops registered under male relatives and limited access to formal credit or financial services. Surveys conducted during Project Kirana, a Mastercard Foundation and United States Agency for International Development (USAID) project, found that over 90 percent of women kirana entrepreneurs had not taken any shop-related or personal loans in the past year, citing lack of collateral and ownership of named assets as key barriers. Women-led stores also lag in digital adoption, limiting their ability to build transaction records or benefit from digital procurement and payment tools (Tyor, 2022).

Targeted digital training is a critical first step in closing the gap in risk protection for women retailers. Insurers can support this by partnering with actors already facilitating digital enablement, including NGOs, training initiatives and women-led cooperatives, or by encouraging platforms to offer tailored onboarding and capacity-building for women. For example, Project Kirana currently provides training to nearly 3,000 women managing small businesses in Kanpur and Lucknow, cities with a high concentration of women-operated kirana stores (Tyor, 2022).

Improved digital fluency helps women engage with procurement, payment and inventory tools, building the business visibility needed to access services such as inventory credit, income protection and embedded insurance. For insurers, transaction records generated through these tools offer a practical basis for assessing business performance and delivering low-friction products that do not rely on asset ownership or formal registration. By formalizing women's business activity and linking it to tailored risk solutions, insurers can extend coverage to previously excluded retail entrepreneurs, while supporting more stable incomes, improved business continuity and long-term resilience in the value chain.

6. Conclusion

This report has assessed the applicability of a value chain-based approach to building MSME resilience in the South Asia context, with a particular focus on India. Building on a methodology previously tested in Southeast Asia, it explored how segmenting MSMEs by value chain, understanding their specific risk profiles and leveraging aggregators can inform the design of more relevant, accessible and scalable risk management solutions for MSMEs. Focusing on three MSME-intensive value chains, paddy, automotive and retail, the analysis also described ways to tailor approaches for MSMEs run or managed by women.

Across all three value chains, MSMEs are exposed to a range of risks, from natural hazards and supply chain disruptions to theft, health shocks and workplace accidents. Despite this, most insurance products available in India remain broadly targeted and untailored, with limited relevance to the unique operational realities of MSMEs in specific sectors.

Recommendations

To support the development of more effective and meaningful resilience solutions for MSMEs, some recommendations for the public, private and development sectors are outlined below.

Public sector

The public sector can create an enabling environment for responsible innovation through flexible regulatory approaches and support for ecosystem development (infrastructure, skills, data).

- **Policymakers** can provide regulators with clear mandates to guide market innovation, including identifying priority sectors (such as MSMEs), clarifying licensing processes and operating innovation tools (e.g., sandboxes and hubs), as well as managing or mitigating large systemic risks such as natural hazards.
- **Regulators** should focus on signalling opportunities for innovation to the market (for example, providing guidance on digitalization and highlighting MSMEs as a focus sector); ensuring clarity around product licensing processes; promoting innovation platforms and tools (such as sandboxes and innovation hubs); and monitoring the risks of new partners and types of actors in the insurance value chain.
- **Policymakers and regulators** should ensure the systematic collection of data on MSME insurance uptake, risk and resilience through national surveys and administrative systems. Beyond one-off collection, they should focus on building a reliable and sustainable data ecosystem to support ongoing monitoring of inclusivity goals, potentially leveraging digital public infrastructure (DPI). Such data can also serve as a public good, enabling the financial sector to design more appropriate and responsive products.

Private sector

The private sector can unlock new customer segments and revenue streams through developing affordable, accessible risk solutions tailored to value chain realities, bundling risk mitigation with risk transfer.

Insurers can conduct primary and secondary research to better understand and segment MSMEs, leverage alternative distribution partners and take advantage of digitalization trends.

Aggregators can help reach MSMEs with effective risk solutions by partnering with insurers, developing and launching their own products where viable and enabling insurers to access their client and knowledge base to improve product design.

Development sector

The development sector, including development partners and donors, can spotlight the need for and value of enhancing MSME resilience, while enabling coordination and collaboration between key actors. Development actors can:

- Conduct research to provide a solid evidence base for private and public sector players, publish market data and highlight key trends and approaches to resilience
- Support policymakers and regulators to improve the regulatory environments for inclusive insurance markets that support MSME resilience, including by creating regulatory sandboxes that allow for product innovation
- Provide financing and technical support to incentivize and empower insurers to create new products for MSMEs and encourage opportunities for smart bundling and improved distribution channels
- Build the capacity of both the supply and demand sides by helping the insurance industry and value chain actors better understand the unique needs of MSMEs, while also creating awareness among MSMEs about risk management and the role of insurance
- Convene and coordinate stakeholders through relevant platforms (such as workshops, conferences and innovation sprints) to catalyse the development of a common innovation agenda aimed at increasing the resilience of MSMEs.

Key takeaways

The key takeaways from this report, discussed below, distil the core findings and insights that have emerged from the analysis, offering a clear summary of what they mean for stakeholders and the way forward:

Holistic, bundled solutions show strong potential. The findings highlight the promise of holistic risk solutions that combine insurance with practical risk mitigation tools. This includes, for example, bundling smart storage and pest management tools with stock insurance in the paddy chain, integrating liability insurance into digital platforms used by auto mechanics, and embedding property and inventory cover into sourcing platforms for small retailers. These bundled approaches can not only reduce the likelihood of risks materializing but also streamline the claims process and improve payout efficiency when incidents occur. There is also scope to align MSME risk solutions with India's climate adaptation agenda15 to ensure that solutions contribute to broader national priorities and to strengthen links with disaster risk data infrastructure. Leveraging national and satellite-based hazard, exposure and loss data can help better target MSME coverage and reinforce resilience co-benefits.

Aggregators are key to scalable solution delivery. A consistent insight across all value chains is the critical role of aggregators in reaching and supporting MSMEs. Entities such as digital marketplaces, farmer producer organizations, OEMs, wholesalers and cooperatives can act as trusted intermediaries. They can cluster MSMEs, facilitate engagement, distribute products and manage premium collection, helping overcome long-standing barriers to insurance uptake and enabling embedded, scalable delivery models.

Gender is a critical but often under-addressed dimension of MSME resilience. Women-led enterprises remain underrepresented across the broader MSME landscape as well as in the paddy, automotive and retail value chains. This report highlighted how gender-specific barriers – such as limited asset ownership, greater caregiving responsibilities and less digital access – affect both exposure to risk and the ability to access formal support.

Applying a value chain lens helps to reveal opportunities to design and deliver more inclusive solutions by aligning insurance with the specific contexts in which women participate (CGAP, 2025a). For insurers and policymakers, this points to the importance of using gender-disaggregated data, engaging trusted intermediaries such as women's cooperatives or training programmes and adapting products and delivery channels to reflect the realities of women entrepreneurs. This also aligns with existing inclusion initiatives such as Pradhan Mantri Jan Dhan Yojana (PMJDY, Prime Minister's Public Finance Scheme), Stand-Up India and We-Fi, which position women's participation as a core driver of market development. These efforts can play a meaningful role in closing protection gaps and enabling more equitable participation in resilient,

15 For example, through the National Action Plan on Climate Change (NAPCC), State Action Plans on Climate Change (SAPCCs) and National Adaption Fund on Climate Change (NAFCC).

growth-oriented value chains, while also unlocking commercial opportunities. For instance, evidence in both the automotive and paddy sectors suggests that women tend to demonstrate higher productivity, pointing to both social and business value in extending protection and support to this group.

Further demand-side research is recommended. To build on these insights, stakeholders are encouraged to conduct further demand-side research to better understand MSME preferences, behaviours and constraints within their value chains, and to be able to track the progress of solutions once they have been implemented. Partnering with industry associations, cooperatives and civil society organizations can generate the on-the-ground insights needed to design fit-for-purpose products and delivery models. At the same time, policymakers and regulators should prioritize the collection of data on insurance uptake, risk mitigation measures and resilience outcomes to enable measurement of progress, leveraging existing national surveys such as ASUSE where possible. More broadly, the Indian market would benefit from a more consolidated and accessible MSME data landscape, which would not only enable monitoring of progress but also provide industry (including insurers, other financial sector players and others) with the evidence base needed to innovate and scale solutions.

The value chain lens provides a framework for aligning risk solutions with sector-specific needs across sectors, countries and regions. This study focused on the paddy, automotive and retail value chains due to their scale and diversity, but the approach could be adapted to other MSME-intensive sectors such as textiles, construction or food processing, as well as to other country contexts. Lessons from Southeast Asia underline that the findings are not unique to India. MSMEs in Malaysia and Thailand also face low insurance penetration, despite their central role in employment and contribution to GDP. In both regions, insurers have struggled to design and distribute appropriate solutions due to MSME heterogeneity and data gaps, but opportunities have emerged through partnerships with digital platforms, bundling of risk transfer and mitigation and leveraging sector-based segmentation. The South Asia and Southeast Asia experiences together demonstrate that a value chain approach can bridge gaps in understanding, enable more effective solution design and catalyse scalable pathways for resilience across diverse contexts.

The need for unilateral and collaborative efforts to support the development of effective and meaningful resilience solutions is clear. Policymakers and regulators can create the foundations (through enabling regulatory environments, reliable data ecosystems and investment in digital public infrastructure), while the private sector can translate these conditions into affordable, accessible products that reflect MSME realities. At the same time, development partners have a critical role to play in generating evidence, supporting policymakers and regulators to develop the right enabling conditions, incentivizing insurers to develop new products and fostering coordination across sectors. Taken together, these efforts can help build a more coherent, inclusive and sustainable approach to resilience, ensuring that MSMEs are better equipped to withstand shocks and contribute to long-term economic stability.

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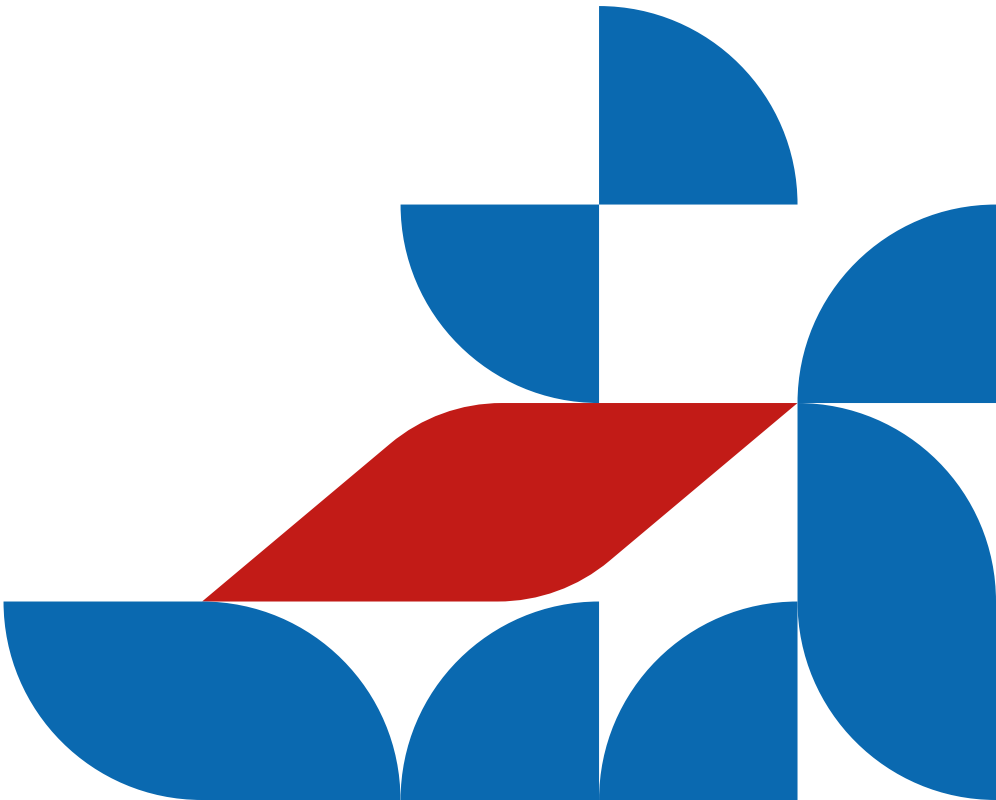
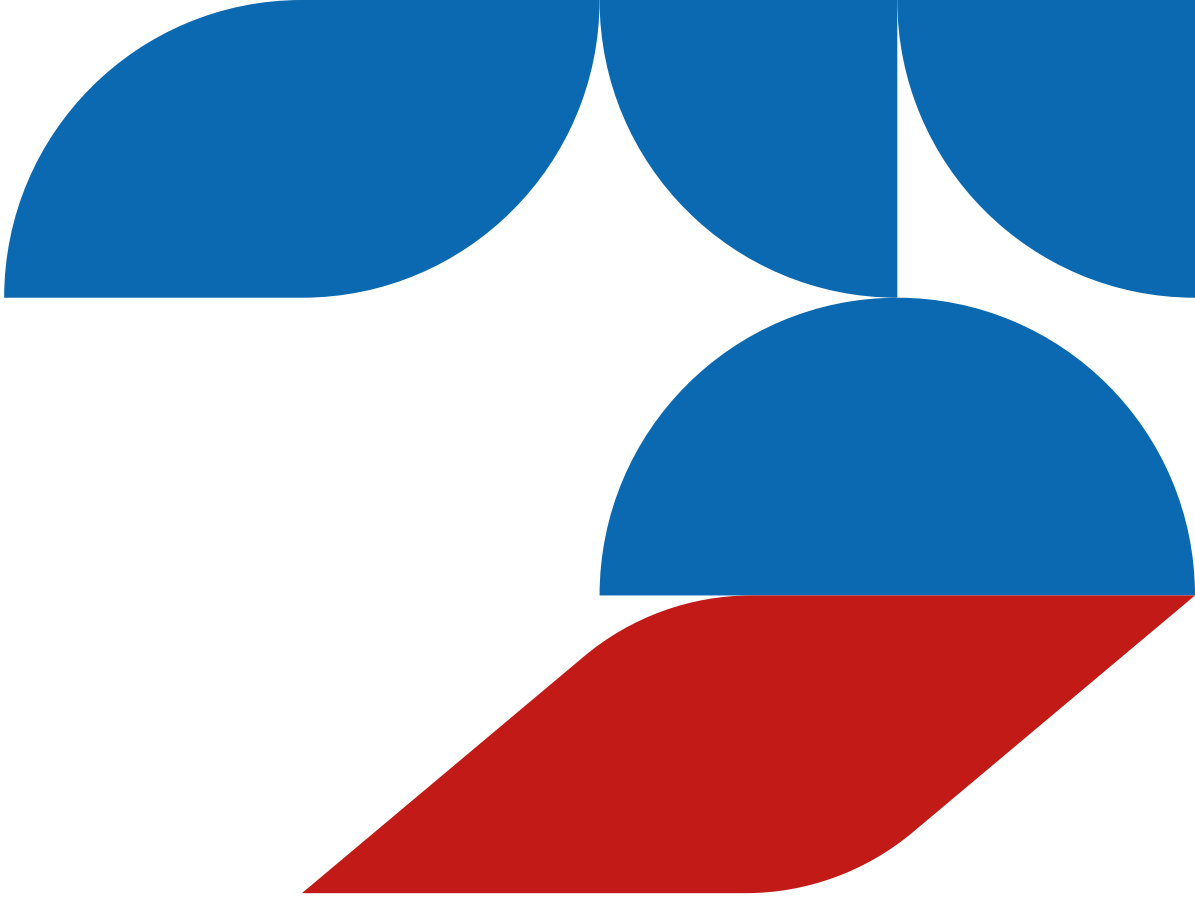
Appendix 1:
MSME definitions and figures in India

India's MSME landscape is vast but difficult to quantify due to differing definitions, data sources and coverage gaps across surveys and administrative systems. Estimates vary significantly depending on whether they include only unincorporated firms or also incorporate formal enterprises, and whether they align with the updated MSME classification. The figures below highlight the main data sources and how they relate to one another:

- The most widely cited figure, 63.4 million MSMEs, comes from the 2015–16 National Sample Survey, which excludes incorporated enterprises. This estimate reflects unincorporated, non-agricultural firms and does not align with the current definition. It is also 10 years old (India, Ministry of MSME, 2024).
- A more recent survey, the 2023–24 Annual Survey of Unincorporated Sector Enterprises (ASUSE), estimates the number of MSMEs has increased to 73.4 million. The survey report also attempts to apply the updated MSME classification using ASUSE data, and found that the vast majority of the enterprises captured in ASUSE fall within the MSME thresholds (India, MoSPI, 2024a).
- ASUSE data does not include data on the so-called incorporated sector, meaning it could exclude a small proportion of MSMEs. Data on the incorporated sector, such as those under the Companies or Factories Acts, do not disaggregate by enterprise size, making it difficult to distinguish MSMEs from this data (India, MoSPI, 2024c; India, Ministry of Corporate Affairs, 2025). Moreover, given that MSME criteria in India focus on investment and turnover and not number of employees, it is likely that companies are included here which are small companies by popular definition (e.g. they only have a few employees), but whose investment and turnover falls outside of the MSME definition.
- The Udyam Registration platform, launched in 2020 to align data collection with the updated definition, has recorded over 41.5 million enterprises, but there is still a way to go before it reaches full coverage (India, Ministry of MSME, 2024).





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