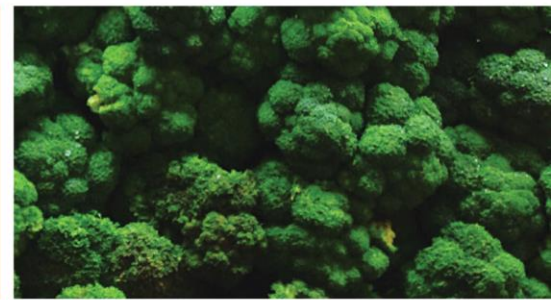




Maintaining food resilience in a time of uncertainty



Understanding the importance of food value chains in ASEAN and how to ensure their resilience during the COVID-19 crisis



Commissioned by



Foreword

ASEAN's food value chain is not only a major driver of GDP and employment in the region, but is crucial for ensuring the region's food security. ASEAN faces a number of long-term challenges to its food security, and based on this report, it is our contention that COVID-19 will exacerbate these challenges in the short-term. Supply chains will be increasingly strained by shortages of labour and inputs as it becomes more difficult for people and goods to move freely. A concerted effort will be required between corporates and governments to keep supply chains open and minimise disruption to the food system and ASEAN communities.

Positive and admirable steps are being taken, with governments and business across the region taking significant efforts to protect the industry and keep supermarket shelves well-stocked. However, it is essential that both continue to adopt the flexible and pragmatic attitudes we have seen to-date, to ensure continued supply of high quality, nutritious and affordable food. Central to this will be that food and its broader supply chain are recognised as “essential”, with this interpretation properly implemented. This may include clearer directives for local governments, further exemptions for other industries the food system relies on, and possibly special considerations for rural agricultural areas on which the entire system relies.

In addition, all stakeholders must make every possible effort to keep borders open to trade – with logistical hubs remaining efficient and additional trade barriers not being erected. The region's food system remains highly interdependent – and it must be recognised that disruption to any part of it will have significant unforeseen knock-on effects. Furthermore, given the broader disruption to all sectors – it will be crucial that as much financial assistance as possible is provided to the most vulnerable organisations and consumers during this period.

Businesses must nevertheless continue to take effective measures to mitigate the effects of the crisis as much as possible. This will include protecting workers and suppliers, whilst being operationally flexible with inventory management, production and distribution. Despite the unprecedented nature of the current crisis, businesses are showing remarkable agility.

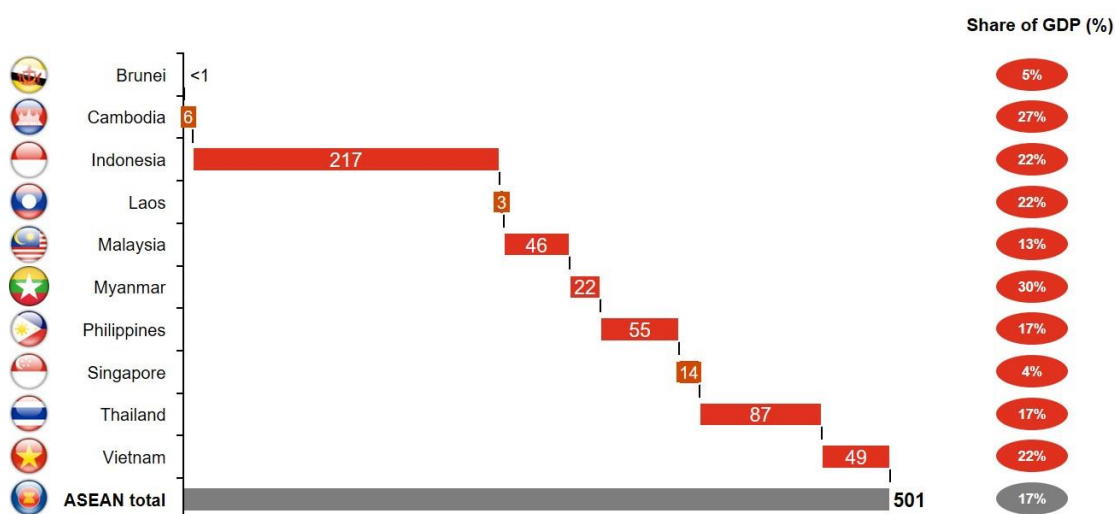
While 2020 will be a year of disruption and challenge, the lessons learnt from this crisis should help to build the resilience of the ASEAN food industry and its supply chains in the future. If stakeholders can effectively work together, the food system may well emerge stronger once these challenges subside.

ASEAN's food value chain is a major driver of GDP and employment in the region

The food industry is of major importance to the ASEAN region, providing essential nutrition to populations, but also driving a large share of economic output and employment. The food value chain contributes around US\$500 billion of economic output to the region, which is around 17% of ASEAN's total GDP (Figure 1). The share of employment is even higher, with the industry accounting for around 116 million jobs in ASEAN, or 35% of the total labour force (Figure 2). The food industry is therefore of huge importance to both the health and economic wellbeing of the region.

Figure 1 – Food and beverage contribution to ASEAN GDP by country, 2018

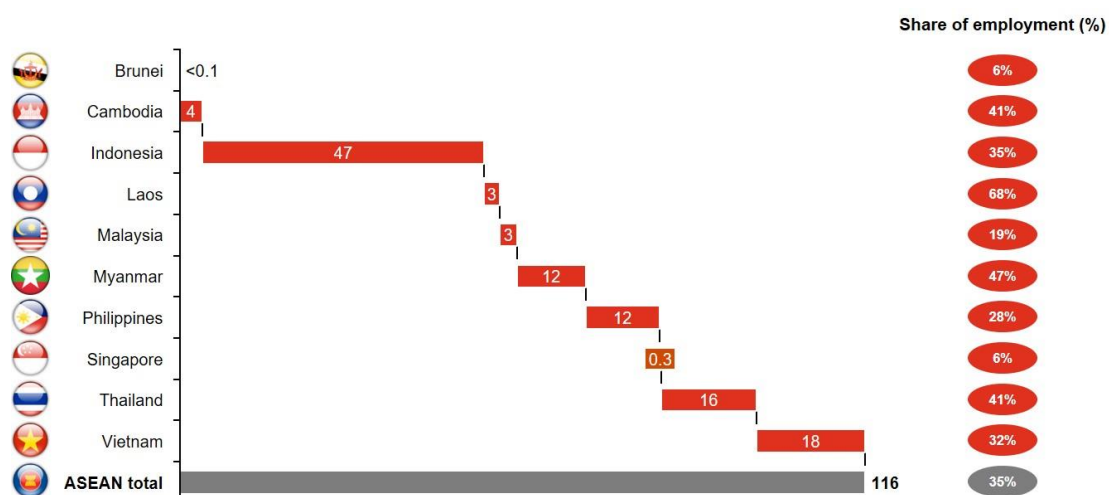
In USD \$bn



Source: United Nations, World Bank, International Labour Organisation, PwC/ FIA analysis

Figure 2 – Food & beverage contribution to ASEAN employment by country, 2018,

In millions employed



Source: United Nations, World Bank, International Labour Organisation, PwC/ FIA analysis

ASEAN already faces significant long-term food security challenges

ASEAN is at the heart of the global food security challenge given the confluence of demand and supply-side challenges. On the demand-side, ASEAN is experiencing rapid urbanisation and growth of the consuming class. By 2030, more than 90 million people are forecast to move to ASEAN cities¹, and the consuming class is expected to double to 163 million households². This growth will fuel demand - spending on food in ASEAN is expected to more than double to US\$1.5 trillion by 2030, driven by both a growing population and demand for safer, healthier and more sustainable food³.

However, addressing this growing demand is a major challenge for the food system. ASEAN will need to meet these growing demands whilst facing unprecedented supply side challenges:

- **Low availability of arable land:** perhaps the most pertinent limitation of ASEAN's food system is the low availability of arable land. While the United States has c. 470 arable hectares per 1000 people and the EU c. 205 hectares, ASEAN's figure is c. 110 hectares. If it was a single nation, this would place it 105th in the world for land availability per capita⁴. Land has continued to become more scarce, due to degradation linked to water shortages, poor soil management and competing land usages. This is expected to exacerbate as the effects of climate change are increasingly felt – due to desertification and salinisation the amount of arable land per capita may fall by as much as 5% by 2030⁵.
- **Stagnating yields:** low availability of land is compounded by the region's yields stagnating and falling short of other parts of the world. Despite the volumes of rice that are currently exported by many ASEAN members, the yield gap with the United States still stands at c. 40%; compared with Brazil the gap is c. 20%⁶. A key driver of this is that farms in ASEAN are much smaller than their American or European counterparts, with lower capacity or capability for investment in technology. It will remain increasingly difficult to develop such yields given the multiple threats introduced by climate change – including pests, droughts and flooding. The innovations being developed by the agri-tech sector in the region, many specifically aimed at smallholders, will be required with ever greater urgency.
- **Aging workforce:** furthermore, the region's smallholder population is aging, with the average age in many ASEAN countries now between 50 and 60⁷ ⁸. Younger generations are increasingly unwilling to stay in the sector – this may progressively create labour shortages whilst impacting productivity, with older farmers typically less likely to adopt new technologies or farm practices.
- **Food waste:** these effects are likely to be compounded by food waste. Globally, about 30% of all food that is produced is wasted, representing US\$1 trillion in lost economic value annually. ASEAN is a large and growing contributor to food waste, driven by a combination of fragmented supply chains, underinvestment in infrastructure such as cold storage systems, and growing consumer waste⁹.

The fact that the majority of ASEAN countries remain net food exporters (by c. USD 48bn per year across the region) should not distract from these rapidly approaching challenges¹⁰. The region's supply chain remains highly interdependent, with individual countries dependent on each other and the outside world for supply of specific commodity groups. Important examples include animal feed and dairy products (c. USD 12bn per year net imports combined) – for which ASEAN has limited regional capabilities. Despite the significant rice export volumes of Thailand and

¹ ASEAN Smart Cities Framework, November 2018, available at <https://asean.org/asean-smart-cities-framework/>

² Straits Times, 29 Aug 2019, available at <https://www.straitstimes.com/asia/south-asia/k-shanmugam-urges-india-to-tap-into-aseans-great-potential>

³ PwC, Rabobank, and Temasek (2019), *The Asia Food Challenge: Harvesting the future*. Available at: <https://www.theasiafoodchallenge.com/documents/afc-report-112019.pdf>

⁴ PwC analysis of World Bank data – available at <https://data.worldbank.org/>

⁵ PwC, Rabobank, and Temasek (2019), *The Asia Food Challenge: Harvesting the future*. Available at: <https://www.theasiafoodchallenge.com/documents/afc-report-112019.pdf>

⁶ US Department of Agriculture (2019)

⁷ Philippines Institute for Development Studies (2017) – available at <https://www.pids.gov.ph/pids-in-the-news/2899>

⁸ Bangkok Post (2017) – available at <https://www.bangkokpost.com/opinion/opinion/1384410/who-will-tend-the-farm-and-grow-the-rice->

⁹ Global Panel on Agriculture and Food Systems for Nutrition; Food and Agriculture Organisation of the United Nations

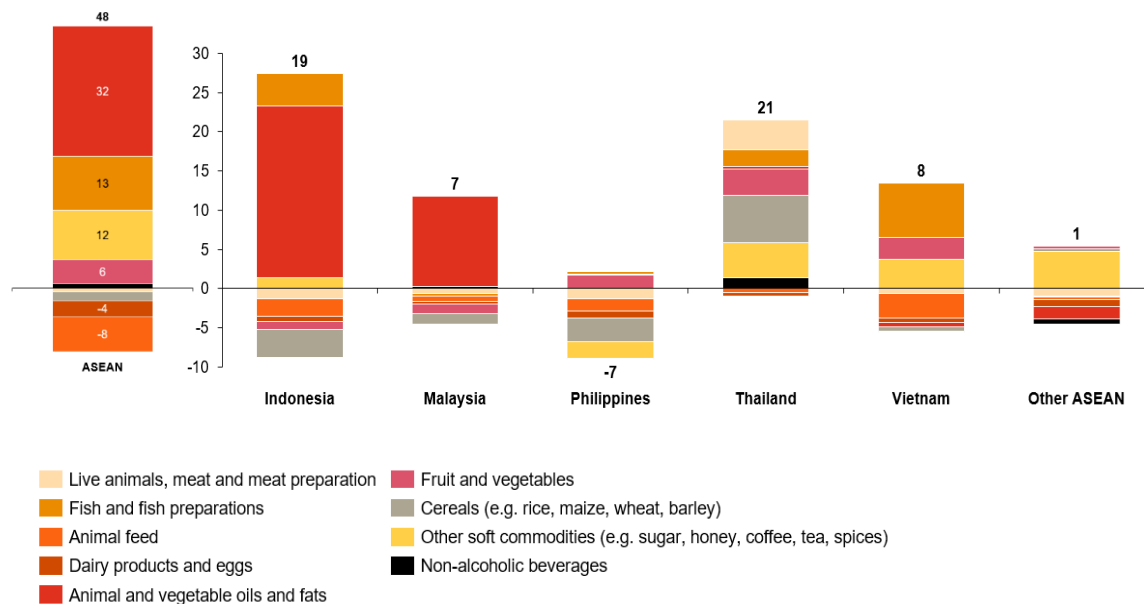
¹⁰ UNCOMTRADE

Vietnam, most ASEAN countries remain net importers of cereals, relying on wheat and maize imports from other regions (and in many cases rice as well).

Furthermore, this interdependence extends to the broad range of non-food inputs that go into production – including seeds, chemicals, oils and packaging. Simply put, the region’s food system remains very sensitive to shocks today, let alone when future challenges are considered.

Figure 3 – ASEAN food trade balance by country and commodity group, 2018

In USD \$bn



Source: UNCOMTRADE, PwC/ FIA analysis

COVID-19 will place further stress on ASEAN's food system

The spread of the COVID-19 pandemic throughout ASEAN and more widely will exacerbate the longer-term issues facing the region's food system. Whilst the region had its first confirmed cases in January, there has been a significant step-change in the impact of COVID-19 in March and April. Governments reacted with a number of policy measures to slow the spread, which have become increasingly stringent on a week-by-week basis.

Figure 4 – Restrictions announced and imposed by ASEAN countries in response to COVID-19
(as of 7 April 2020)

	Restrictions on movement		Restrictions on operations		
	Freedom of individual movement (e.g. intra-country travel)	International borders	Businesses and schools	Food service (e.g. restaurants & bars)	Food retail (e.g. supermarkets)
Indonesia	Severe Limitations	Severe Limitations	Severe Limitations	Severe Limitations	Some Limitations
Malaysia	Severe Limitations	Severe Limitations	Severe Limitations	Severe Limitations	Some Limitations
Myanmar	Severe Limitations	Severe Limitations	Severe Limitations	Severe Limitations	Some Limitations
Philippines	Severe Limitations	Severe Limitations	Severe Limitations	Severe Limitations	Some Limitations
Singapore	Some Limitations	Severe Limitations	Severe Limitations	Severe Limitations	Some Limitations
Thailand	Severe Limitations	Severe Limitations	Severe Limitations	Severe Limitations	Some Limitations
Vietnam	Severe Limitations	Severe Limitations	Severe Limitations	Severe Limitations	Some Limitations

Legend: ■ Severe Limitations ■ Some Limitations ■ Only guiding precautionary measures

Source: Government websites, press reports, interviews, PwC/ FIA analysis

As a general principle, governments have broadly aimed to minimise the movement and interaction of citizens in order to slow transmission and reduce the overall impact of the virus on public health. While governments have sought to balance economic considerations, these measures have had significant impacts on businesses in the region – including the food and beverage industry.

On the supply side, governments have largely refrained from implementing measures that explicitly close down food production, manufacturing and distribution, deeming these to be “essential services”. Exceptions do still exist, for example the Malaysian government is requiring critical industries to remain operational only under special terms and conditions, which includes only utilising a maximum of 50% of their regular workforce. Whilst Singapore's latest “circuit breaker” measures designate food as essential, individual companies must apply for the right to continue operations – with doing so at a limited capacity a possible government limitation. Nevertheless, measures in place have still created unintended challenges across the entire food value chain:

- **Labour shortages:** whilst many areas of the value chain are highly capital-intensive (e.g. processing of cereals), overall it is deeply dependent on labour. This labour is required at specific locations. Unlike many service industries, very little activity can be performed remotely from workers' residences. Any restrictive measures on the movement of individuals can therefore significantly impact businesses' ability to sustain their operations. Even in countries where food workers have been formally exempted from movement restrictions, they still face a number of barriers to working:
 - There are instances of government exemptions for essential food products not being fully implemented at regional and local levels, where some restrictions on movement of workers still exist. In rural Malaysia, this effect has already led to large quantities of produce being wasted – with insufficient labour to harvest it. Such farms are typically credit-strapped, and when facing losses may be forced to downscale production going forward.

- Travel to work has in many cases been made impractical for many low-wage workers when public transport has been closed, with alternatives often unaffordable.
- A significant amount of labour in the sector is foreign and migratory. For instance, across all industries, over 300,000 workers commute daily between Singapore and Malaysia¹¹. Foreign ASEAN nationals constitute around 5 million of the overall ASEAN labour force¹². Where border restrictions have been established, these workers have been forced to go back to their home countries, and those wishing to return are often unable.

“Confusion from local law enforcement around the meaning of essential services led to the temporary shut-down of one of our plants. Daily updates to regulation are making it challenging for both local authorities and businesses to understand new regulations and act accordingly.”

–Food ingredients MD, major food commodity manufacturer

- **Input shortages:** the food and beverage industry is dependent on many other industries for its inputs – which include packaging, chemicals, oils and electronics. Where production of these has been restricted (due to being classed as “non-essential”), this has had knock-on effects on the food supply chain. For example, one of the largest sources of the region’s dairy products is New Zealand, which has been relatively less affected by the current crisis. However, shortages of packaging have limited the capacity of regional bottling and other distribution operations, in turn impacting the supply of dairy products. In the Philippines, until recently animal feeds were not exempted from new regulations¹³. Similar situations have occurred where oil and chemical production has been restricted. Many governments have begun to recognise this – for example Malaysia has split exemptions into “essential goods” and products that are “part of the supply chain for essential goods”.
- **Border challenges:** where inputs or finished products have reached national borders, they have continued to face difficulties in clearing them. One factor behind this has been a lack of clear guidance around logistics workers (such as truck drivers) being allowed to cross-borders, given the broader restrictions now in place. Another has been logistical bottlenecks at network hubs such as ports. Labour shortages at regional ports have in many cases created sizeable backlogs of containers, exacerbated by non-essential industries not being able to collect previously ordered shipments. This has been compounded by the paper-based customs processes of many ports – with customs clearances not being able to be processed remotely and digitally. For example, as of the end of March, the quantity of unclaimed import containers at Manila’s port had increased by 66% compared with pre-crisis levels, much of it food¹⁴.

Restrictive measures have also impacted the demand side of the food supply chain, namely through:

- **Restrictions on food service:** in most countries, governments have ordered the closure of food service for on-site dining but have allowed establishments to serve take-aways. Until this week in Singapore, establishments had been allowed to operate for on-site dining, with some restrictions. Businesses in both cases have struggled to operate due to

¹¹ Straits Times, March 20th 2020, available at: <https://www.straitstimes.com/singapore/health/malaysians-with-work-permits-can-continue-working-in-singapore-says-mfa>

¹² Al Jazeera, March 30th 2020, available at: <https://www.aljazeera.com/news/2020/03/coronavirus-lockdown-leaves-migrant-workers-stranded-thailand-200328060111830.html>

¹³ South China Morning Post, 02 April 2020, available at <https://www.scmp.com/week-asia/economics/article/3078166/coronavirus-philippines-cargo-containers-packed-food-pile-ports>

¹⁴ Bloomberg, 30 March 2020, available at: <https://www.bloomberg.com/news/articles/2020-03-30/lockdown-leaves-thousands-of-containers-piling-up-in-manila-port>

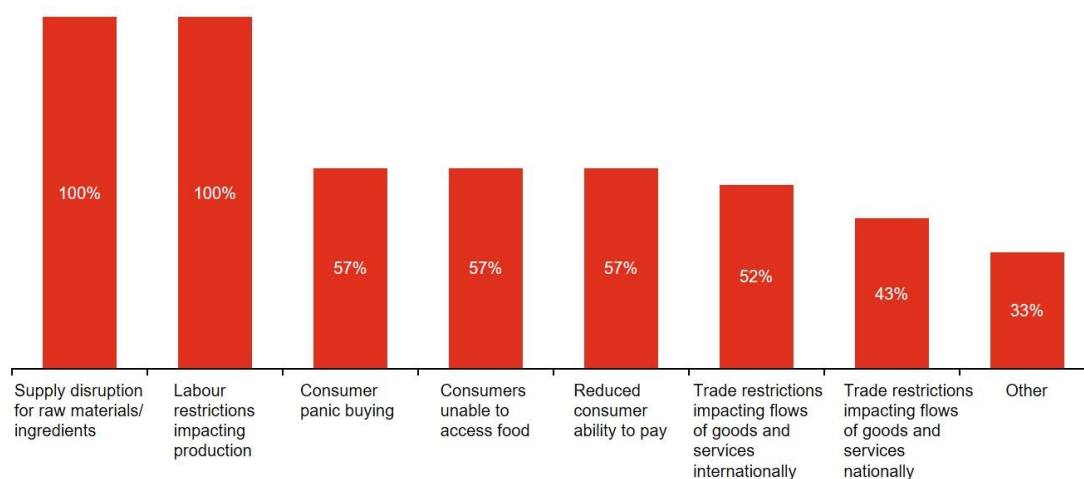
diminished footfall and takeaway-only limitations not making up for the volume of demand prior to the crisis. This has not only impacted the food service industry (although less so for online-focused players), but also the entire supply chain that supports them. Processors do not have unlimited flexibility in shifting production towards at-home products given the complexity of their operations.

- **Panic buying:** panic buying has led to short-term spikes in demand, increasing the required rate at which inventory must be replaced throughout the value chain. Whilst in most cases price increases have not been a major consequence so far, this could change over time. This behaviour has also changed the mix of demand – in many cases increasing the demand for less perishable, longer shelf-life goods. This is placing significant pressure on certain producers where they are required to shift production and labour to meet demand.
- **Impacts on consumers’ ability to pay:** the crisis is having a significant impact on the economy in a general sense – threatening the incomes of workers in nearly every industry. Many workers have already lost their jobs and face particularly acute challenges given low savings rates and minimal social security in many countries. Indeed, many workers in the region are typically only paid on a daily basis. This crisis clearly has the potential to severely impact access to affordable food without government and charitable support for the most vulnerable individuals.

“Our restaurant and food service sales have dipped more than they have in the last 25 years. Whilst at-home consumption has gone up, it has not compensated for this loss.”

– Regional MD, major food processing business

Figure 5 – PwC/ FIA survey: What are the top three challenges facing your business as a result of the current COVID-19 pandemic?



Source: PwC/ FIA survey

Governments and businesses have largely been able to sustain supply of food to-date. This has been due to a combination of the special exemptions implemented, and the operational agility of businesses. Both government and businesses can be expected to refine and improve these over time.

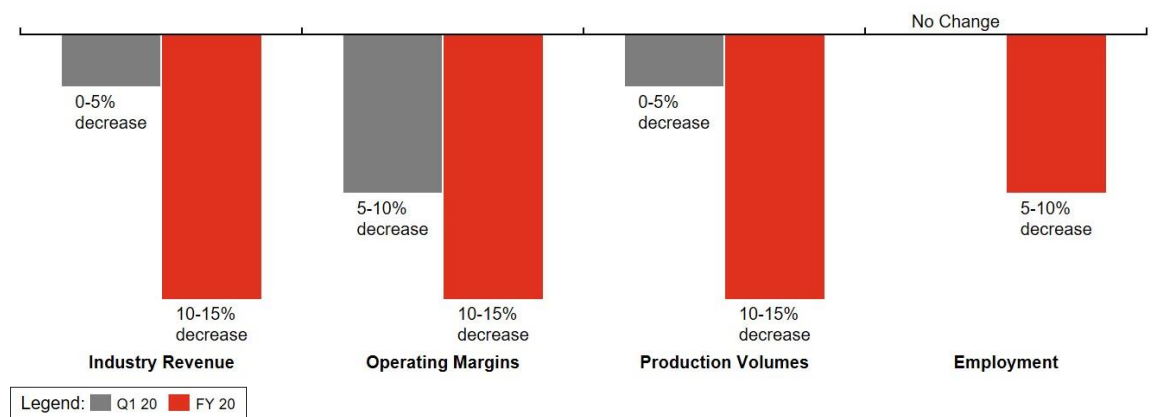
However, there are valid reasons to believe that as the crisis worsens, the effects on the food industry may become more and more visible:

- Businesses have faced daily operational challenges so far, and adaptive measures may not be sustainable in the long run. These include running plants at maximum capacity to meet supply gaps and running down finite inventory stockpiles in warehouses.
- The industry remains dependent on the broader economy and other sectors. Where these face increased challenges, there will be an impact on the ability to produce and manufacture food in the medium term.
- The effects of the crisis on rural areas, on which the entire food system relies, have so far not been the focus of most stakeholders. While processors have been able to run down stocks, if rural production is significantly impeded by shortages of inputs (seeds, fertiliser) or labour, a step-change in the degree of shortages could later occur. Many rural areas across ASEAN are already facing challenges accessing agricultural inputs – due to locally enforced restrictions on movement (often at the village-level). A significant degree of time criticality is involved here – the annual window of opportunity to plant certain crops can be as narrow as two weeks, whilst serious pest issues can arise within days where crop protection products cannot be applied.

What must be emphasised is that the whole value chain is highly integrated and interdependent. Whilst immediate impacts might be felt more acutely in any one segment or geography, they will eventually be felt across the entire supply chain.

Figure 6 – PwC/ FIA survey: In the following areas, what do you believe the impact (a) *has been to date* (Q1 vs pre-crisis expectations) (b) *could be* if the crisis lasts another 6 months (2020 vs pre-crisis expectations)?

Median responses from survey respondents shown



Source: PwC/ FIA survey

It is apparent that the impacts of the crisis could become more challenging over the coming months, if restrictions continue. If the main phase of the crisis was to continue for another six months, global food businesses responding to our survey predicted industry declines of 10-15% in production and revenue, and 5-10% in employment – when compared with pre-crisis expectations for 2020. If not properly managed, food insecurity could lead to prohibitive measures on food production and consumption e.g. food rationing or trade restrictions. Therefore, although the food industry has shown courage and conviction by adapting to the challenges presented so far, governments and businesses have an important role to play in mitigating the disruption the virus could have on the food supply chain across the ASEAN region.

There are various policies governments can pursue to protect the supply chain

Fundamentally, public health and economic support will remain the priorities for governments across all sectors. However, given the scale of the potential effects of disrupted food supply on broader society, it will be important for governments to also introduce targeted measures that can mitigate these impacts as much as possible. These policies will be diverse and directed at different areas of the value chain. Nevertheless, they all have a common prerequisite; the recognition of the food and beverage industry as an “essential” service. In what is a public health crisis, the importance of continued supply of safe, nutritious and affordable food to regional populations must be acknowledged.

There are several policy areas that could have particular importance:

- **Protection of labour supply:** governments can consider strengthening exemptions from movement restrictions for food and beverage workers - to keep the supply chain functioning. This allowance is likely to be conditional on employers implementing measures such as provision of personal protective equipment and safe distancing. Where parts of the agricultural sector are highly dependent on seasonal labour from overseas or out-of-state, it will be important to find solutions to allow continued access to such workers. Again, risks can be mitigated by mandating minimal movement for such workers, whilst requiring employers to provide sufficient protection and testing.
- **Financial assistance for small businesses:** the majority of food and beverage players are small and medium sized businesses, which may not be able to remain operational for long without financial assistance. Easily accessible, low-interest loans and tax holidays are examples of support that can be provided directly by public bodies. This can be supplemented by more indirect measures such as providing guarantees for existing lenders to offer similar support and encouraging larger suppliers and customers to offer more flexible payment terms.
- **Targeted measures for smallholders:** it must not be forgotten that >60% of labour in the sector consists of smallholder farmers¹⁵. These may require their own special measures, which could include targeted financial assistance. The way that such smallholders access inputs and sell products remains very traditional across much of the region, involving high-density markets that would constitute acute transmission risks at this time. To maintain agricultural production, countries may need to expand collection centres to reduce the requirement for mobility, as well as introducing mechanisms to minimise the requirement for face-to-face contact. This could involve the use of warehouse receipt systems, and accelerated implementation of digital e-commerce solutions.
- **Preservation of open borders for goods:** both external and domestic border management controls must be kept as efficient as possible to allow for continued access to raw materials and distribution of finished products to consumers. This could include exemptions for transport workers from border restrictions, priority lanes for freight transport (“green lanes”) and maintenance of staffing levels at network hubs such as ports, airports and train stations¹⁶. The imposition of new trade barriers such as tariffs and export restrictions may only lead to an escalating “tit-for-tat” response.
- **Consumer channel management:** restrictions on per-transaction purchase quantities of essential foods will continue to be important steps, to ensure supply is fairly distributed amongst consumers. This can be supported by mandating minimum social distancing and footfall control at food retail establishments. The continued reliance of many consumer segments on pre-prepared food must also be recognised – many of which may be even less able to visit supermarkets than before (e.g. serving quarantine orders). Where

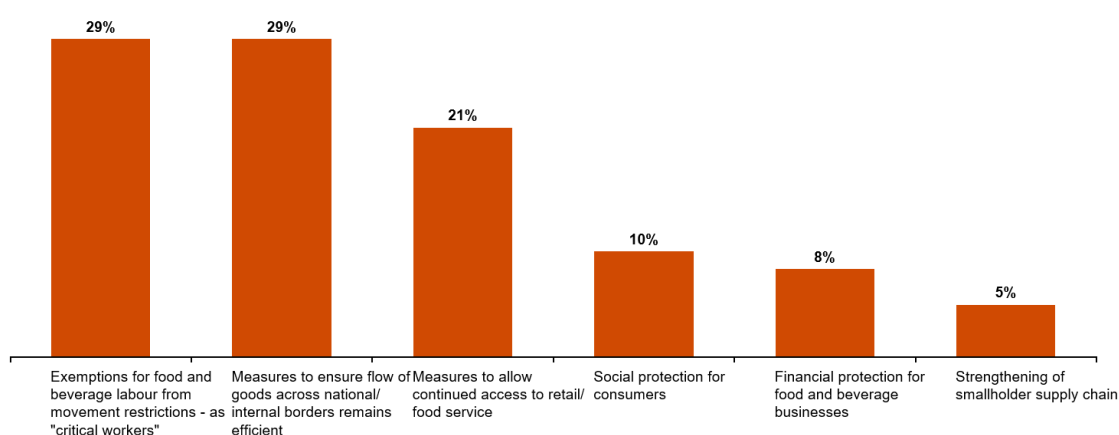
¹⁵ Al Jazeera – available at: <https://www.aljazeera.com/ajimpact/growing-pains-southeast-asian-farmers-cheaper-agritech-191227085148352.html>

¹⁶ As emphasized by the International Food & Beverage Alliance in their 20 March 2020 statement – available at https://ifballiance.org/uploads/ifbaResource/report/5e74dffe931e0_IFBA%20Statement%20on%20COVID-19%2020.03.2020.pdf

governments feel it necessary to close food service establishments, they could also consider allowing them to continue to operate as take-away and/or food delivery venues.

- **Social support for consumers:** even with the best functioning supply chain, stay-at-home restrictions will still deny some of the most vulnerable in society from earning a regular income and being able to afford essentials. Such households may need to be provided with financial support to allow them to continue to access these necessities. This may take the form of direct cash transfers, or holidays from tax or mortgage payments. Furthermore, with the closure of schools, many of the poorest children will be denied access to their most important source of nutrition. Community initiatives such as food banks could also be mobilised, whilst delivery of school meals would support vulnerable children and caterers alike.

Figure 7 – PwC/ FIA survey: What mitigation measures do you believe should be the main priorities of governments in ASEAN, to best protect the food and beverage supply chain?



Source: PwC/ FIA survey

Governments in ASEAN have overwhelmingly recognised the importance of keeping food and beverage supply chains running and have recognised the industry as “essential” accordingly. The specific policies that have so far been implemented have further built on this understanding, for example:

- ASEAN countries have generally allowed food service businesses to continue operating for take-away and delivery. The definition of “key workers” in Malaysia has been extended to include food delivery workers – allowing consumers to continue to access online food delivery during the crisis¹⁷.
- Several ASEAN members, including Singapore, Malaysia and Myanmar have reaffirmed their commitments to keeping borders open for goods during the crisis¹⁸. The alignment between Singapore and Malaysia has been particularly important, given the former’s dependence on the latter for continued daily supply of food.
- Most countries have worked with supermarkets to impose restrictions on panic buying, focusing on essentials such as rice, noodles, poultry and eggs. In Indonesia and the Philippines, specific limits have been centrally determined by the government

¹⁷ South China Morning Post, 31 March 2020 – available at <https://www.scmp.com/week-asia/health-environment/article/3077719/coronavirus-delivery-workers-keep-malaysia-connected>

¹⁸ Channel News Asia, 25 March 2020 – available at <https://www.channelnewsasia.com/news/singapore/coronavirus-covid-19-economy-supply-chains-trade-12573940>

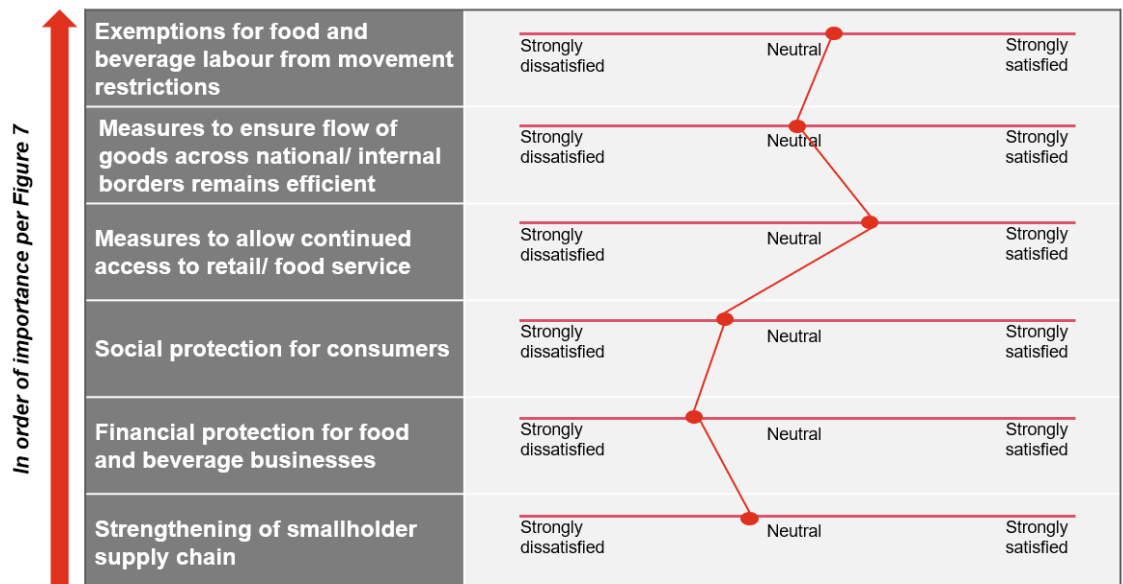
¹⁹, whilst in Singapore supermarkets have developed tailored restrictions within government guidelines²⁰.

ASEAN members have begun to develop targeted financial assistance for small businesses, including food & beverage organisations. In Singapore, food and beverage firms will receive a 50% wage offset for employees for the rest of the year (75% for April) and will also be exempted from property tax for the rest of 2020²¹. This has been supplemented by the provision of loans where the government bears 90% of the risk ²². In Malaysia, a stimulus package worth c. USD 57bn will include cash advances, loan holidays and wage subsidies for small businesses²³. Most other ASEAN members have already announced stimulus packages of varying degrees of scale.

“There are positive actions different governments have been taking to ensure supply chain activity continues. We may begin to see more of a convergence of these across ASEAN.”

–Leading Agri-food Academic

Figure 8 – PwC/ FIA Survey: For the measures outlined, how satisfied have you been with government mitigation measures to date in your largest market in ASEAN?



Source: PwC / FIA survey

Feedback from industry stakeholders has provided revealing insights into perceptions of the measures implemented to date (PwC/FIA survey results above – Figure 8). Firstly, stakeholders have generally commended core measures around movement restriction exemptions and consumer channel management. On these, they do however emphasise the importance that government measures are properly fed down to regional and local levels, and the practicalities of

¹⁹ Food Navigator, 30 March 2020 – available at: <https://www.foodnavigator-asia.com/Article/2020/03/27/Stop-COVID-19-hoarding-Indonesian-police-and-Philippines-government-order-purchase-limits#>

²⁰ Channel News Asia, 27 March 2020 – available at <https://www.channelnewsasia.com/news/singapore/covid19-fairprice-expands-purchase-limits-oil-canned-food-12581852>

²¹ Straits Times, 26 March 2020, available at: <https://www.straitstimes.com/politics/covid-19-50-per-cent-wage-off-set-for-food-and-beverage-firms>

²² Channel News Asia, 06 April 2020, available at <https://www.channelnewsasia.com/news/singapore/solidarity-budget-bill-allow-firms-individuals-defer-contractual-12613720>

²³ Straits Times, 27 March 2020, available at <https://www.straitstimes.com/asia/se-asia/malaysia-announces-rm250-billion-stimulus-package-to-deal-with-coronavirus-fallout>

their implementation are refined. This will include deeper consideration of industries the food system in turn relies on.

Secondly, the ability of goods to continue to move freely nationally and internationally remains a concern. Responses diverged quite significantly by country – whilst respondents in Singapore were most satisfied, surveyed stakeholders in Malaysia and the Philippines were less positive. It is evident that significant barriers to the movement of goods along the supply chain still exist in many countries, and it is of utmost importance to the industry that these are streamlined as soon as possible.

Thirdly, respondents are clear that several additional measures have received less attention to date, and that these will need further focus as the situation develops:

- ASEAN members could consider broadening and deepening existing financial aid measures for both consumers and businesses – learning from the experiences and ambitions of regional peers to date. This could include more comprehensive stimulus packages, loan and tax holidays. Such measures must of course also be considered in the context of the challenges facing other industries.
- The importance of rural areas on which the whole food system depends will also need to be carefully addressed. It may even be necessary to deal with rural and urban areas differently. Applying separate sets of restrictions may be complicated, but would ensure the continued supply of food whilst minimising the risk of transmission. It will also be important to consider that the rural-urban dependency works both ways – rural smallholders will remain dependent on inputs (e.g. seeds, fertilisers) which are overwhelmingly manufactured in urban areas.

These policy responses must be developed with attention to the lengthier cycles for some consequences to take effect. Whilst the immediate concern of governments will naturally be to secure food availability over the next few months, even if that is achieved disruptions may be felt later. For example, if crops are not planted or damaged on a sufficient scale in the coming months, supply and prices could be affected in late 2020 or even early 2021.

Governments may also need to examine where more stringent policies could have unintended negative effects. The most pertinent examples are the new restrictions on rice exports by Vietnam (the world's third largest rice exporter) and Cambodia²⁴. These have already had impacts on neighbouring countries' sourcing of Asia's main staple. Such a move will likely strain the supply chain further and may only lead to protectionist retaliation from neighbouring states. It is important that supply chains remain open, and any new regulatory barriers are agreed by consensus between the member states and the industry. Whilst the crisis has demonstrated the dependency ASEAN states have on each other – a more effective solution may be found in doubling down on multilateralism rather than falling back on unilateralism.

“The supply chain must be secured for both the current pandemic and the multi-year view. Any production constraints faced now, especially with commodity crops such as rice and corn, could have spill-over effects into 2021.”

– Regional President, major agricultural input manufacturer

²⁴ Reuters, 30 March 2020, available at <https://www.reuters.com/article/us-health-coronavirus-cambodia-rice/cambodia-to-ban-some-rice-exports-april-5-due-to-coronavirus-idUSKBN21H1E6>

Businesses must also follow their own mitigation steps

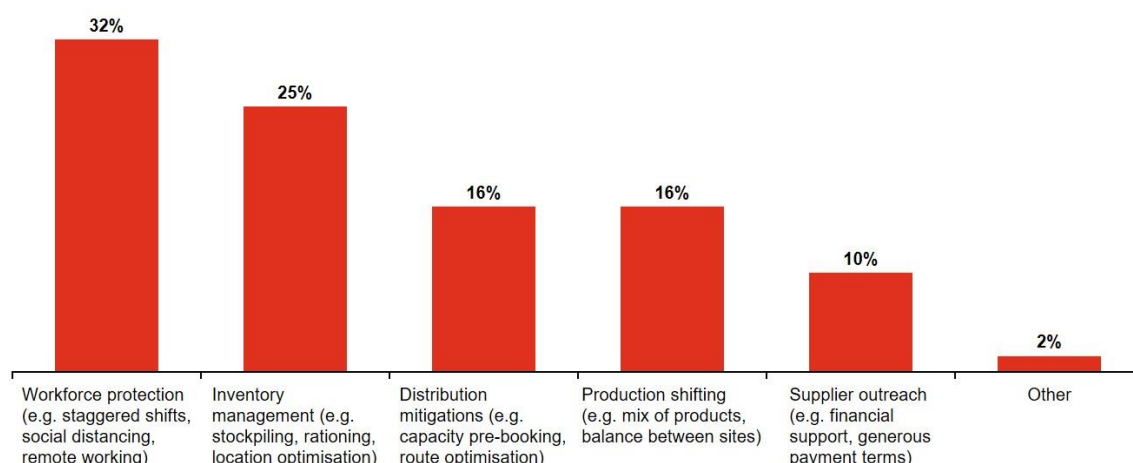
Responsibility for mitigating the impacts of COVID-19 of course does not only lie with governments. Food and beverage businesses are also stepping up to ensure their workers and customers are best protected from the crisis. Mitigation measures being prioritised by businesses in the region fall across a range of areas:

- **Workforce protection:** the biggest priority for businesses must be to protect their workers. For non-operational staff this will naturally involve emphasis on remote working arrangements. For operational workers who cannot work remotely, priority measures could include regular testing, provision of personal protective equipment and transport, mandated distancing and adjustments to shift patterns.
- **Customer and supplier outreach:** where organisations are fortunate enough to have the scale and flexibility to manage short term disruption, many are considering measures to support some of their more vulnerable suppliers and customers. This includes greater flexibility of payment terms to allow certain suppliers and customers to retain cash. Other initiatives include maintaining order levels where inputs are non-perishable and can be stored for future use.
- **Inventory management:** even where supply has remained resilient so far, businesses must account for the risk that this may not last. This will include stockpiling and rationing critical inputs, as well as moving inventory to relatively lower-risk areas.
- **Production flexibility:** where the nature of demand itself has fundamentally changed, the industry is proving nimble enough to adjust accordingly. The shorter-term impact of COVID-19 has been a general spike in demand for basic essentials as consumers, governments and other parts of the value chain look to stockpile. While this effect is expected to subside over the next month, other changes to consumer demand are likely to persist for longer, for example the shift towards at-home demand as food service establishments remain closed. Other shifts will vary by segment – lower income groups may focus more on essentials, while higher income groups may choose higher quality products to compensate for eating out less. Nevertheless, where possible, organisations should shift production towards these new types of demand, ensuring supply remains plentiful and the broader food supply chain remains operational.
- **Distribution mitigations:** organisations are taking opportunities to improve the resilience of their downwards logistics. This includes spreading distribution over multiple routes to reduce the impact of disruption at borders, and even agreeing to sharing capacity with other producers - for example where each party may be exposed to different geographical risks.

“One of our largest retailers ran out of a key product, and we doubled production over three days in order to fill this supply gap. Wherever we have spare capacity and a sufficient workforce, we will quickly ramp up production to protect the supply chain.”

–Food ingredients MD, major food commodity manufacturer

Figure 9 – PwC/ FIA survey: Which of the following measures are you prioritising as a company in reaction to the crisis?



Source: PwC/ FIA survey

Nevertheless, it is clear that more work needs to be done in the region by the industry to protect itself and its consumers. Businesses should communicate and collaborate as much as possible during this period, sharing best practices as they work through the crisis.

Where organisations are able to do so, they are also doing their part to protect the most vulnerable areas of society during the crisis. This will not only help them live up to their corporate social responsibility commitments, but develop trust and deeper relationships with the consumers they serve. Such initiatives have included product donations to food banks, cash donations to charities working on the frontline of the crisis, and provision of pro-bono expertise.

While these mitigation steps principally relate to maintaining operations and the supply of food, businesses must also consider their own financial health, particularly in light of more uncertain trading. This is likely to include better management of short-term liquidity and cash conservation, consideration of alternative and more flexible funding options, and potentially rapid cost reduction – e.g. reducing capex spend until more certainty returns to the market. Financial preservation of food production businesses is clearly essential for other food supply initiatives to be effective.

The impacts of COVID-19 on the industry will last long beyond the current crisis

It is important that government and businesses also consider what can be learnt from the current crisis over the longer term. Doing so will help protect supply chains against both future pandemics and other unforeseen events. However, even in times of relative stability lessons learnt will help provide consumers with safe, healthy, quality and affordable food. These impacts are likely to include the following:

- **Changed consumer purchasing habits:** the experience of lockdowns may accelerate some of the consumer trends that were already developing before the crisis. The biggest impact is likely to be on the online food delivery market, which can be expected to retain a proportion of the new customers and increased order frequencies it is capturing during the crisis. The effects on the at-home market are more uncertain – whilst some segments may generate a preference for higher-quality fresh ingredients (having had more time to cook at home), others may stick with lower cost products they relied on during the crisis, potentially reducing brand loyalty. Either way, businesses will need to carefully evaluate the effects of the crisis on consumer preferences and adapt accordingly.

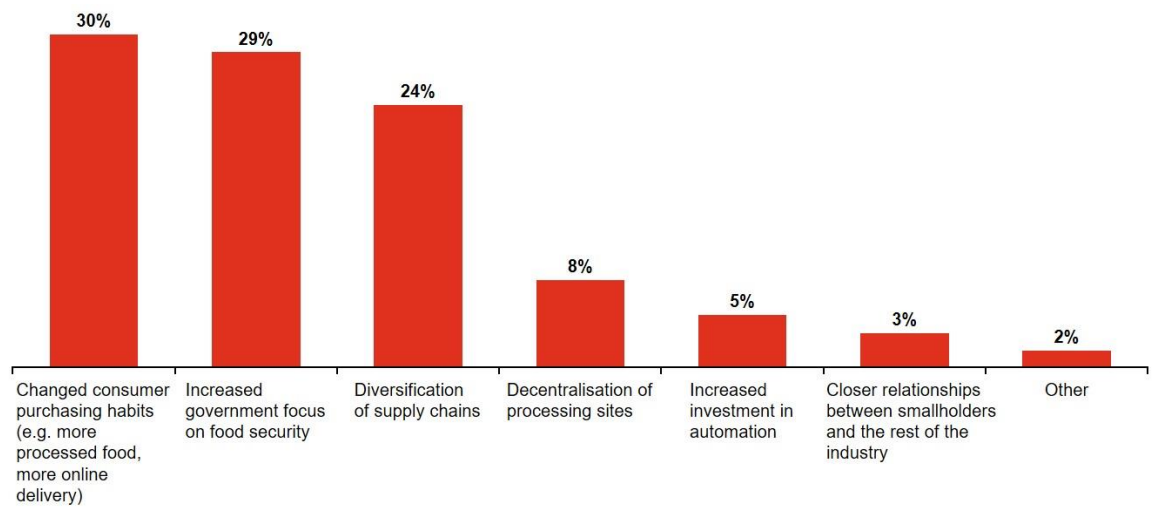
- **Increased government focus on food security:** the crisis can be expected to sharpen ASEAN countries' efforts to become less dependent on specific trading partners, and imports of food in general. Whilst Singapore is the most pertinent example given that it imports c. 90% of its food today, this dynamic is likely to apply to all countries to some degree. Whilst Vietnam and Thailand remain net exporters of rice, they are still dependent on imports of wheat and maize from North America, Europe and South America²⁵. The same can be said of Malaysia and Indonesia, despite their sizable export volumes of vegetable oil. Whilst climatic factors will mean that countries will never be able to efficiently produce the full scope of commodities, a partial strategic step back from external dependence can be expected to occur. Countries are likely to still pursue initiatives in parallel that will make trade more efficient – such as digitisation of customs processes and some aspects of regulatory approval.
- **Decentralisation of production:** for large players with multiple facilities, there is likely to be a greater emphasis on reducing reliance on any particular country or facility. This may require a larger number of smaller specialist operations, or existing facilities producing a greater variety of products. Such an approach would constitute a departure from prior philosophies around regional centralisation and economies of scale – and businesses will have to be careful to ensure they effectively balance the desire for reduced dependence versus profitability.
- **Diversification of supplier and customer bases:** businesses of all sizes can be expected to look to diversify the mix of their supplier bases to reduce their exposure to individual geographies. This logic will also extend to customers, with organisations looking to limit their concentration by product, geography and industry. This may increase organic and inorganic market entry activity, as businesses seek to broaden their focus.
- **Accelerated investment in automation:** food processors are likely to advance their investments in “Industry 4.0” technologies such as robotics, artificial intelligence and the Industrial Internet of Things (IIoT). This will reduce their dependence on on-site operational workers, with the new higher-value jobs created being ones that could in theory be done remotely (e.g. cloud computing specialists, data analysts). This in turn can be expected to boost productivity and accelerate the competitiveness of the ASEAN food and beverage industry on the global stage.
- **Closer relationships with smallholder producers:** the current crisis may also emphasise the importance of bringing smallholders more closely into the food system. This will involve accelerating digital solutions that provide clearer information to these producers, as well as microfinance initiatives that offer badly needed credit (especially in times of disruption like these).

“We will rethink our supply chain and the risk of being too exposed to a single plant. All companies will be more careful about this and look to diversify operations where possible.”

– Managing Director, global Agri trading business

²⁵ UN Food and Agricultural Organisation (FAO) Agricultural Outlook 2019 – available here: <http://www.agri-outlook.org/>

Figure 10 – PwC/ FIA survey: Which of the following do you believe are the most likely long-term impacts of the COVID-19 crisis on the food and beverage industry in ASEAN (i.e. 5 years plus)?



Source: PwC/ FIA survey

It is clear that the current crisis will impact the security and livelihoods of many across the ASEAN region. Nevertheless, the opportunity must not be missed for industry and government to build a stronger, more resilient supply chain in ASEAN. Efforts to-date should be applauded – supply chains are generally remaining intact and supermarket shelves are still well-stocked. However, it is essential that governments and businesses continue to work hard and maintain the nimble and pragmatic attitudes that have served ASEAN populations so well over the last few months.

“The current situation also creates an opportunity for the region to align and collaborate more than ever on critical food issues. I strongly believe this will be the direction we will take.”

–Leading Agri-food Academic



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Food Industry Asia (FIA) is a non-profit organisation that was formed in 2010 to enable major food manufacturers to speak with one voice on complex issues such as health & nutrition, food safety and the harmonisation of standards. From its base in Singapore, FIA seeks to enhance the industry's role as a trusted partner and collaborator in the development of science-based policy throughout Asia.

www.foodindustry.asia

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