Regional outlook: South and Southeast Asia

The regional briefs in the *Outlook* highlight broad trends for the regions defined by the FAO in the implementation of its global workplan. Recognising regional diversity, the intention is not to compare results across regions. Instead, they illustrate some of the latest regional developments, highlighting responses to global challenges and emerging trends, and relating these to the main messages of the *Outlook*. The assessments generally compare the end point of the *Outlook's* projection (2033) to the base period of 2021-23.

Agrifood systems globally have navigated multiple disruptions in recent years, including the COVID-19 pandemic, the impact of Russia's war against Ukraine, weather related supply fluctuations in several regions, surging energy prices, a cost-of-living crisis and spiralling inflation. The sharp rise in food prices impacted the cost and affordability of healthy diets as well as food security in several regions. Differences in resource endowments, economic structure, development and income levels mean that the magnitude of these impacts are not uniform in all regions. These briefs do not present a quantitative assessment of the impacts of these disruptions, though they do account for the latest expectations with respect to macro-economic developments as the world emerges from them. The trends and issues presented are those expected to underpin the *Outlook* in the medium term. They assume that the adverse effects on food, feed and fuel production, consumption and trade will gradually moderate, recognising that several uncertainties remain.

This chapter contains seven sections, with text, tabular and graphic information for each region following a similar template. A background section provides the key regional characteristics and provides the setting from which the projection is described in the subsequent sections for production, consumption, and trade. Each regional brief contains an annex providing common charts and tables outlining the key aspects for the region concerned.

Background

Strong demand on account of robust income growth and expanding population

The South and Southeast Asia region is home to 35% of the global population, making it the most populous region amongst those covered in this chapter. Just over half of its 2.7 billion people reside in India. Conversely, its 575 Mha of agricultural land equates to merely 12% of the global total. This translates to an average of 0.2ha of agricultural land per person, only a third of the global average of 0.6 ha. With a further 10% expected to be added to the population by 2033, resource pressures will escalate, underscoring the importance of further productivity gains which were critical to enabling past growth. Given existing pressure on its resource base, sustainability will need to be at the core of further enhancements to productivity.

The region encompasses a range of countries with significant heterogeneity in terms of income and development. An average, income level of USD 3 273 per capita is the second lowest amongst the regions covered in this chapter, exceeding only Sub Saharan Africa. However, income ranges from USD 1 350 amongst its least developed nations to USD 12 488 in Malaysia and more than USD 60 000 in Singapore. Urbanisation is rising slowly across the region and the share of population residing in urban areas is expected to surpass 47% by 2033, from an average of 41% in 2021-23.

At almost 4% p.a., growth in per capita income is expected to outpace all other regions in the coming decade. The resilience of income growth was evident by its rebound from the COVID-19 pandemic induced recession, as well as robust performance through global disruptions such as the Russia's war against Ukraine, rising energy costs and monetary tightening globally to curb spiralling inflation. In several countries endowed with energy or commodity reserves, the initial rebound was supported by the higher commodity price cycle, which has since waned.

With strong economic growth, the average share of food in household expenditures in the region has fallen to below 17%. However, within the least developed countries this share is as high as 27%.¹. In these countries, where consumers already dedicate a higher share of total expenditure to food, elevated consumer inflation, which averaged almost 10% from 2021 to 2023 with a peak of 11% in 2022 can have grave consequences for food security. This is reflected in the rising prevalence of moderate or severe food insecurity in Southeast Asia in 2021. While robust income growth has enabled a slight improvement since, food insecurity and the prevalence of undernourishment in South and Southeast Asia remains well above pre-pandemic levels.

A growing, increasingly urbanised population with rising spending power suggests that demand growth for food products will remain strong. Nevertheless, the evolution of consumer preferences is less clear, particularly with respect to animal sourced products. Urbanisation typically carries the expectation of rising consumption of higher value, more processed and convenience food products, but large parts of the population are either vegetarian (particularly in India) or averse to pig meat consumption. This suggests potential divergence in dietary trends compared to other regions although preferences within the region are also diverse with rapid growth in meat product demand observed in some countries.

The region has maintained a small positive trade balance, but it encompasses a number of leading importers and exporters of different agriculture and food products. The Southeast Asia region is considered a major player in many global value chains such as fisheries and cassava or those involving vegetable oils and their further processed products.² It currently exports around a third of agriculture and fish production, with rice and vegetable oil sustaining a global market share of 82% and 61% respectively. In this regard, the challenges associated with shipping in the Red Sea can impact on trade performance. The Suez Canal represents the shortest trade route from Southeast Asia to Europe and the need to reroute away from it amid current disruptions adds significant time and costs to shipping.

The region faces momentous challenges in sustainably boosting productivity and fostering innovation, especially amidst constraints posed by limited resources, climate change and a burgeoning population. Despite past advances, the region still harbours about one-third of the world's undernourished population. Continuing progress in improving food security will require sustained income growth in a less supportive global environment characterised by increased geopolitical fragmentation and escalating trade costs. Thus, key policy deliberations include the nature and extent of market intervention schemes and how they affect global market interactions.

Production

Sustainable productivity gains are paramount to offset resource constraints

The South and Southeast Asian region is the second largest contributor to the global value of global output from agriculture and fisheries, after Developed and East Asia. Growth of 1.8% p.a. over the *Outlook* period is among the fastest of all regions and it is expected to account for the largest share of global production growth by 2033. Around half of its agricultural production value is derived from crops but this share is declining as livestock production growth is faster.

By 2033, crop production is expected to expand by 17% compared to the 2021-23 base period, despite a mere 3.5% increase in land used for crop production. This reflects intensification, crop mix changes and enhanced productivity, which combine to accelerate growth in the value generated per hectare of cropland compared to the past. A 17% increase in fertiliser application rates, partly enabled by the normalisation in prices from 2022 peaks, will contribute to envisaged productivity gains.

The region is a notable contributor to global output for a variety of food products, including rice, wheat, vegetable oil, pulses and sugar. Apart from pulses and vegetable oil, where it remains stable, the region's share in global production is expected to rise for all these products. Cereal production is concentrated in India, Indonesia, Pakistan and LDC's such as Bangladesh, Cambodia, and Myanmar, but half of cereal production comes from India alone with a further 15% attributed to the region's LDC's. Growth is also concentrated in India, which accounts for 80% and 45% respectively of wheat and rice production growth. While India's wheat area is expected to expand by 7%, rice production growth is almost exclusively yield based. LDC's are also expected to contribute 27% of the growth in rice production through a minor area expansion of 3.3% by 2033 and yield gains of 1.5% p.a. over the ten-year period.

India's dominance also stretches to sugar, where it accounts for almost 60% of regional production but this share is expected to decline as growth of 1.9% p.a. in Thailand is sufficient to boost its share in regional production to 21% by 2033 from 17% in the 2021-23 base period. Thailand's growth is productivity based, as a mere 5% increase in sugarcane area is contrasted by a 24% improvement in yields by 2033 relative to the base period. Such gains will likely be supported by varietal improvements and extraction gains.

Led by Malaysia and Indonesia, South and Southeast Asia contributes 44% and 88% respectively of global vegetable oil and palm oil production. The palm oil sector faces mounting constraints, such as sustainability concerns and reduced consumer acceptance particularly in higher income countries. Combining these with its vulnerability to changing climates, multiple weather-related disruptions in recent years, labour mobility challenges and high financing costs, it becomes clear that incentives to replant aging oil palm plantations have been limited, though these would be required to provide the yield gains that would support production growth. Under baseline conditions, palm oil production in the region is only expected to rise by 0.7% p.a. compared to almost 3% p.a. over the past decade. Indonesia is expected to account for three quarters of additional production.

By 2033, the value of livestock output from the region is expected to rise by 38%, sufficient to increase its share in total agricultural value added above 30% from just 27% in the 2021-23 base period. This growth is underpinned by rising production of dairy products, mainly in India and Pakistan, which contribute more

than 90% of the region's dairy production between them. Milk production growth of 38% stems from a 23% expansion in cow numbers and a 13% improvement in milk yield per cow. Two thirds of the expansion in the region's cow inventory is attributed to India.

Meat production growth is dominated by poultry, which already accounts for half of total meat production in the base period and also constitutes 55% of its growth. Growth in this sector is largely the result of breeding improvements and increased feed intensity. Pig meat production in the region is limited and concentrated mainly in Viet Nam and Thailand. The former has recovered from the devastating ASF outbreak in 2018 and growth of 3.6% p.a. is sufficient to account for half of pork production growth by 2033. Bovine meat production is expected to rise by 2% p.a., with India and Pakistan maintaining their combined share of 70% of total output by 2033.

Fish production constitutes 22% of total agricultural output, more than in most other regions. However, growth of 12% by 2033 is the slowest amongst the three subsectors, reducing its contribution over time. Whilst expansion of capture fisheries is limited by resource constraints, growth in aquaculture has been such that it surpassed capture fisheries in 2023. By 2033, it is expected to account for 54% of total production, as growth decelerates to 2% p.a., from more than 5% in the past decade. This reflects a growing focus on sustainability in the policy space.

Total direct GHG emissions from agriculture are set to rise by 7.2% by 2033 relative to 2021-23, driven by a combination of livestock and crops. While crop-related emissions will rise by 7.3%, livestock-related emissions, which reflect ruminant herd expansion, will increase at 0.6% p.a., marginally slower than the past decade. By 2033, 29% of agriculture-related GHG emissions globally will be attributable to the region, more than to any other, and also marginally higher than the 28% accruing to it in the base period. This year's *Outlook* features a scenario that simulates the impact of halving food losses along supply chains and food waste at the retail and consumer levels by 2030 (SDG 12.3). The scenario projects that total agricultural emissions in the region could be reduced by 4.8% relative to the baseline, while calorie intake improves. This implies that by 2030, agricultural GHG emissions could increase by only 0.5% from the average level in the 2021-23 base period.

Consumption

Distinct regional preferences in demand but India remains dominant in the region

Having made great strides in improving food security in the past, the combination of reduced income through the COVID-19 pandemic and subsequent high food price inflation just as income levels started recovering severely strained affordability. Consequently, despite some modest improvements in 2022, both the prevalence of food insecurity and undernourishment remain well above pre-pandemic levels. On the back of robust income growth and softer agricultural commodity prices, improvements in calorie availability are expected to accelerate. By 2033, average calorie availability for consumption is projected to increase by 270 kcal/person/day to exceed 2800 kcal, just 5% below the world average. Accounting for household waste reduces it to 2455 kcal/person/day. Food waste and losses in the region are comparatively high, estimated at 22% above the global average. More than half of the calories lost or wasted are attributed to cereals, reflecting their prevalence in the consumption basket, with a further 12% accruing to fruit and vegetables (Figure 2). In the Outlook scenario where food waste and losses can be halved by 2030, as envisioned in SDG targets, calorie intake in the region could be increased by 6.2% relative to the baseline and the number of undernourished people in the region could decline by 24%, while at the same time, reducing GHG emissions. This implies that by 2030, calorie intake could increase by 14.6% relative to the average level in the 2021-23 base period and the number of undernourished people in the region would decline by 165 million.

The combination of improved purchasing power and consistent, albeit slow urbanisation would typically be expected to evolve dietary patterns to include more calorie and nutrient dense food (Reardon et al., 2014_[2];

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Kelly, 2016_[3]; Law, Fraser and Piracha, 2020_[4]), but product mix is also dictated by the region's somewhat unique preferences, with a significant share of the population being vegetarian. Thus growth in calorie intake comprises a mix of cereals, dairy products, vegetable oil, sugar and pulses, with a comparatively small contribution from meat.

Cereals still account for 53% of the calories available for consumption in the region and while these remain popular, as evidenced by further gains in per capita consumption of wheat (1.1% p.a.) and rice (0.2% p.a.), some slow diversification is expected. In several countries, such as Viet Nam, Iran and Thailand, per capita rice consumption will decline at the expense of wheat. Furthermore, by 2033, the share of cereals in total calories consumed is expected to fall to 52%, with modest increases evident in calories attained from dairy, vegetable oil, fruits and vegetables.

Average protein intake remains well below the global level but, with gains of almost 9g/person/day by 2033, the deficit is expected to be close to 14%. This is derived from increased consumption of dairy products and plant-based proteins with a smaller but still positive contribution from meat consumption growth. Per capita dairy consumption in the region is already 16% above the global average, and this is expected to rise to 35% by 2033. This picture is somewhat skewed by India, where dairy accounts for 27% of additional protein with pulses a further 15%. In Malaysia, Viet Nam, the Philippines and Indonesia, meat is more prominent with respectively 84%, 62%, 49% and 28% of additional protein derived from meat. Meat consumption growth in the region occurs from a small base with consumption in the 2021-23 base period only 33% of the global average but expected to rise to almost 40% by 2033. At the regional level, more than half of the growth in meat consumption is attributed to poultry, but in Viet Nam and Thailand it is mainly driven by pig meat.

The South and Southeast Asia region is responsible for 16% of animal feed use globally with the biggest share attributed to India but notable quantities also in Indonesia and Viet Nam. By 2033, feed use in the region is expected to rise by 25% compared to the 2021-23 base period due to a combination of herd expansion and rising feed use intensity in meat and dairy production. The evolution of production practices, technology and genetics, combined with the growing share of poultry in the meat production mix, are expected to support significant improvements in feed conversion, expanding feed use at a slower rate than meat and milk production. The use of maize and protein meal, the primary ingredients in feed rations, is expected to expand by 31% and 26% respectively by 2033, implying that the combined share of these ingredients will rise to 57%.

The region is a notable user of biofuel, accounting for 8% of ethanol use and 23% of biodiesel use globally. It is also expected to be a significant driver of growth, accounting for almost 35% and 39% of the expected growth in global ethanol and biodiesel use globally by 2033. In the case of ethanol, this is mainly attributed to India, where sugarcane-based ethanol is expected to contribute substantially to reaching a 15% blending rate by 2025 and 17% by 2033. In the case of biodiesel, growth in Southeast Asia is underpinned by rising transportation fuel demand and industrial use. Thailand has developed blending targets as part of its Alternative Energy Development Plan and Indonesia's blending rate expected to remain above its ambitious 30% target. Consequently, biodiesel use in Indonesia is expected to rise by 56% over the *Outlook*, accounting for more than 80% of additional biofuel use in the region and reducing its dependency on imported fossil fuels. It will also direct domestic palm oil supplies to the biodiesel market, providing a regular market and price stability that could rekindle investment in the renewal of oil palm plantations.

Trade

Declining exports from India lead a transition to net imports for the region

Trade dynamics in the South and Southeast Asia region are shifting with a small trade surplus in the base period expected to transition to a deficit by 2029. India stands out as a major driver of this shift. Historically the biggest net exporter in the region, its trade surplus by 2033 is expected to reach only 22% of the base

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period level, which is less than that of Indonesia and Thailand. Southeast Asia is expected to maintain a modest but consistent surplus while net imports from the LDC's and other developing nations continue to rise. Consequently, the net effect is that by 2033, the region's trade deficit will equate to almost 60% of the surplus that was observed through the 2021-23 base period.

Total net exports from the region are expected to contract by 6.5% over the next ten years. Export products consist mainly of vegetable oil, rice, fruit and sugar. Vegetable oil exports are primarily from Malaysia and Indonesia, the biggest palm oil exporters in the world, but further growth is limited, at only 2.5% for the tenyear period, resulting in a declining share of global exports. By contrast, rice and sugar exports are expected to expand rapidly by respectively 2.8% and 2.2% p.a., enabling the region's share in global exports to expand to 86% and 27% respectively by 2033. More than half of the growth in rice exports is attributed to LDC's such as Myanmar and Cambodia with a further 25% coming from Thailand and 12% from Viet Nam. Growth in sugar exports is almost exclusively from Thailand. Currently, the region also contributes more than a quarter of global fish exports but this share is expected to decline due to strong demand within the region.

While a substantial share of trade occurs within the region, the combination of disruptions to major shipping routes such as water level constraints in the Panama Canal and the conflict in the Red Sea that is affecting transit through the Suez Canal is a major risk. While the conflict remains, trade from Southeast Asia into Europe and North Africa will have to reroute away from Suez Canal around the Cape, adding time and costs to shipping that can be disruptive to supply chains.

In line with strong demand growth, the regions dependence on imports is growing and its total import bill for food and agricultural products is expected to be 26% higher by 2033 compared to the 2021-23 base period. Import dependence is expected to rise for most commodities, along with the region's share in global imports. Imports of meat and dairy products are comparatively small in the total import basket where the major products include wheat, maize, protein meal, soybeans, fruit and cotton.



Figure 1. Slowing growth of agriculture and fish output in South and Southeast Asia region

Note: Estimates are based on historical time series from the FAOSTAT Value of Agricultural Production domain which are extended with the *Outlook* database. Remaining products are trend-extended. The Net Value of Production uses own estimates for internal seed and feed use. Values are measured in constant 2014-2016 USD.

Source: FAO (2024). FAOSTAT Value of Agricultural Production Database, <u>http://www.fao.org/faostat/en/#data/QV</u>; OECD/FAO (2024) "OECD-FAO Agricultural *Outlook*", OECD Agriculture statistics (database), <u>http://dx.doi.org/10.1787/agr-outl-data-en</u>.

Figure 2. Distribution of food waste and losses in South and Southeast Asia in terms of calories and proteins, 2021-2023



Note: Other animal food products include egg and fish.

Source: OECD/FAO (2024), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), http://dx.doi.org/10.1787/agr-outl-data-en.

StatLink 2 https://stat.link/ovnr4p



Figure 3. Land use change and livestock production in South and Southeast Asia

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Source: OECD/FAO (2024), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), http://dx.doi.org/10.1787/agr-outl-dataen.

StatLink 2 https://stat.link/azcrnw

Figure 4. Demand for key commodities, food availability and agricultural trade balances in South and Southeast Asia



Annual growth in total demand of food, feed and other uses (a)

Notes: Estimates are based on historical time series from the FAOSTAT Food Balance Sheets and trade indices databases and include products not covered by the *Outlook*. a) Population growth is calculated by assuming per capita demand constant at the level of the year preceding the decade. b) Fats: butter and oils; Animal: egg, fish, meat and dairy except for butter; Staples: cereals, oilseeds, pulses and roots and tubers. c) Include processed products, fisheries (not covered in the FAOSTAT trade index) based on outlook data.

Source: FAO (2024). FAOSTAT Value of Agricultural Production Database, http://www.fao.org/faostat/en/#data/QV; OECD/FAO (2024) "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), http://dx.doi.org/10.1787/agr-outl-data-QV; OECD/FAO (2024) "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), http://dx.doi.org/10.1787/agr-outl-data-QV; OECD/FAO (2024) "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), http://dx.doi.org/10.1787/agr-outl-data-en.

StatLink 2 https://stat.link/6pzl29

Table 1. Regional Indicators: South and Southeast Asia

	Average			%	Growth ²	
	2011-13	2021-23 (base)	2033	Base to 2033	2014-23	2024-33
Macro assumptions						
Population ('000)	2 444 747	2 737 645	3 020 406	10.33	1.08	0.88
Per capita GDP ¹ (kUSD)	2.43	3.27	4.96	51.57	2.63	3.89
Production (USD bln 2014-16)						
Net value of agricultural and fisheries ³	602.3	734.3	894.7	21.85	1.94	1.84
Net value of crop production ³	338.8	377.1	442.3	17.29	1.31	1.40
Net value of livestock production ³	143.9	199.1	274.7	37.99	2.84	3.01
Net value of fish production ³	119.6	158.1	177.8	12.42	2.39	1.25
Quantity produced (kt)						
Cereals	516 668	592 977	697 216	17.58	1.72	1.51
Pulses	27 024	33 283	41 617	25.04	2.64	2.10
Roots and tubers	40 956	54 609	70 018	28.22	2.83	2.04
Oilseeds ⁴	31 384	39 194	45 026	14.88	4.58	1.35
Meat	32 329	41 110	55 318	34.56	1.70	2.65
Dairy⁵	30 7 18	46 555	64 592	38.74	3.79	3.06
Fish	42 475	57 208	65 316	14.17	2.67	1.26
Sugar	49 303	57 790	67 769	17.27	1.27	1.68
Vegetable oil	73 401	99 186	110 363	11.27	2.97	0.80
Biofuel production (mln L)						
Biodiesel	4341.54	15485.34	23118.87	49.30	15.45	2.05
Ethanol	4 585	9 852	19 012	92.98	8.49	4.68
Land use (kha)						
Total agricultural land use	549 474	573 337	586 198	2.24	0.53	0.18
Total land use for crop production ⁶	319 057	346 154	358 119	3.46	0.94	0.28
Total pasture land use ⁷	230 417	227 183	228 079	0.39	-0.08	0.04
GHG emissions (Mt CO2-eq)						
Total	1 571	1 693	1 815	7.20	0.88	0.56
Сгор	657	679	728	7.27	0.59	0.53
Animal	895	993	1 063	7.00	1.05	0.57
Demand and food security						
Daily per capita caloric food consumption ⁸ (kcal)	2 369	2 541	2 810	10.55	0.65	0.90
Daily per capita protein food consumption ⁸ (g)	62.1	69.9	78.6	12.45	1.1	1.2
Per capita food consumption (kg/year)						
Staples ⁹	169.0	171.3	186.4	8.86	0.23	0.66
Meat	8.6	9.3	11.3	21.54	0.18	1.72
Dairy⁵	13.1	16.9	21.2	25.41	2.33	2.11
Fish	14.7	17.4	18.7	7.46	1.23	0.58
Sugar	19.2	20.4	22.0	7.55	0.72	0.65
Vegetable oil	8.2	9.7	10.6	9.45	0.87	0.75
Trade (bln USD 2014-16)						
Net trade ³	46	43	-25	-157.24		
Value of exports ³	188	247	231	-6.54	3.07	-0.23
Value of imports ³	142	204	256	25.55	2.16	2.12
Self-sufficiency ratio (calorie basis)10	102.5	97.6	95.1	-2.56	-0.14	-0.16

Notes: 1 Constant 2010 USD. 2. Least square growth rates (see glossary). 3. Follows FAOSTAT methodology, based on commodities in the Aglink-Cosimo model. 4. Oilseeds represent soybeans and other oilseeds. 5. Milk solid equivalent units. 6. Area accounts for multiple harvests of arable crops. 7. Land for grazing. 8. Food availability, not intake. 9. Cereals, oilseeds, pulses, roots and tubers. 10. Production / (Production + Imports - Exports)*100.

Sources: FAO (2024). FAOSTAT Food Balance Sheets and trade indices databases, <u>http://www.fao.org/faostat/en/#data;</u> OECD/FAO (2024), "OECD-FAO Agricultural *Outlook*", OECD Agriculture statistics (database), <u>http://dx.doi.org/10.1787/agr-outl-data-en</u>.

Notes

¹ Source OECD-FAO interpolated for 2017-19 from the database of the Global Trade Analysis Project (GTAP) 2011, using food expenditure and GDP data used in this *Outlook*.

² See "Southeast Asia, Prospects and Challenges" in the OECD-FAO Agricultural *Outlook* 2017-2026.