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## **Recent developments, challenges and opportunities in commodity markets**

**Note by the UNCTAD secretariat**

### *Summary*

This note contains a review of recent developments in key commodity markets and an analysis of factors that contributed to the trends in commodity prices observed in 2021. In January–December 2021, the prices of most commodities analysed in this note (food and agricultural commodities; minerals, ores and metals; and energy) trended upwards, due to a recovery in demand following the slowdown in economic activity during the pandemic and due to supply-related disruptions. Adverse weather conditions, logistical bottlenecks and rising energy prices affecting input costs also contributed to substantial rises in the prices of agricultural commodities and most minerals, ores and non-precious metals. In contrast to the prices of other commodity groups, the price of precious metals trended downwards due to a slump in demand as pandemic-related risks that had previously motivated demand declined and supply increased due to a rebound in mine production. Meanwhile, energy prices rose significantly, stemming from a jump in natural gas prices attributed to limited supply amid a rebound in demand following the initial waves of the pandemic. Geopolitical tensions and policy-related developments leading to the suspension of the certification of the Nord Stream 2 gas pipeline further contributed to the rise of energy prices, which is likely to continue well into 2022 with the onset of the war in Ukraine. Some policy issues are explored in this note with regard to recent developments in global commodity markets and recommendations are suggested to help commodity-dependent developing countries achieve sustainable development and inclusive growth.



## Introduction

1. The Accra Accord, in paragraph 208, gave a mandate to the Trade and Development Board of UNCTAD to establish a multi-year expert meeting on commodities. The mandate was reaffirmed in paragraph 17 of the Doha Mandate, which extended it to 2016, and in paragraph 100 (s) of the Nairobi Maafikiano, which extended it to 2020. The mandate has been further extended in line with paragraphs 123 and 127 (l) of the Bridgetown Covenant.

2. This note contains an analysis of commodity market developments in 2021, with a focus on price trends and the underlying causes of price fluctuations. It also highlights some policy issues associated with recent market developments and draws lessons in the form of policy recommendations to assist commodity-dependent developing countries in efforts to achieve sustainable development and inclusive economic growth. Commodities are grouped into three categories, namely, food and agricultural commodities (food, vegetable oilseeds and oils, tropical beverages and agricultural raw materials); minerals, ores and metals; and energy (crude oil, natural gas, coal and renewable energy).

## I. Recent developments in commodity markets

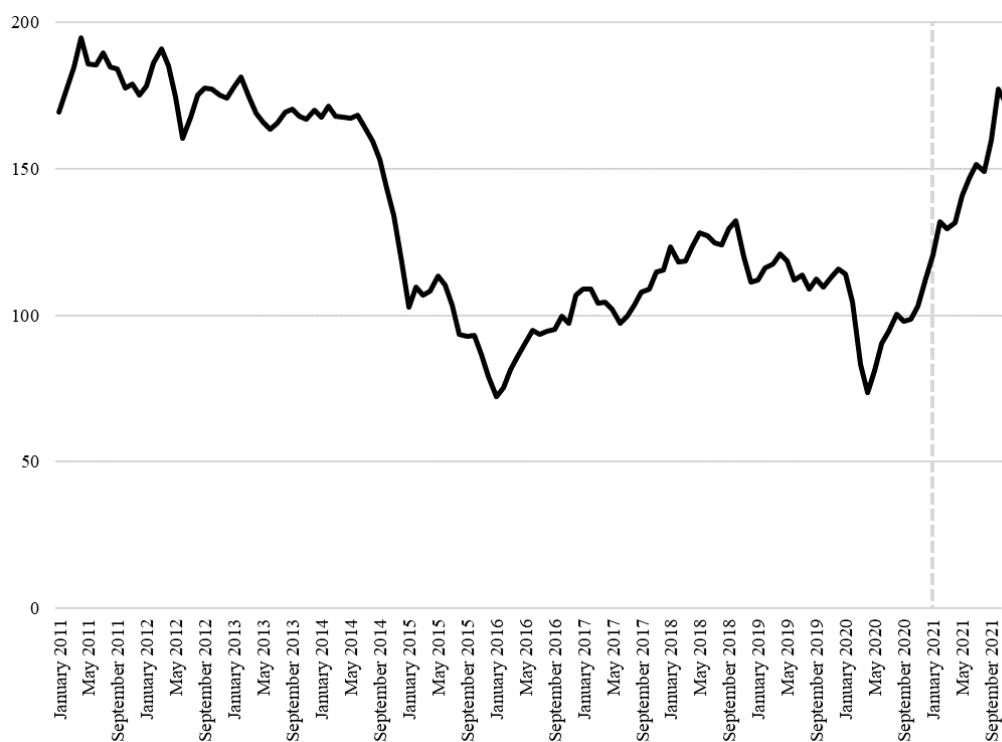
### A. Overview

3. The UNCTAD free market commodity price index<sup>1</sup> for all commodity groups increased by 52.2 points (43 per cent) in January–December 2021, averaging 172.9 points by end-2021. This sustained increase is attributed to economic recovery following the initial waves of the pandemic. During this period, energy costs soared, with natural gas and coal prices rising faster than crude oil prices. The resulting overall increase of 52.2 points was a significant jump compared with the net decline of 1.7 points in the previous year (figure 1).

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<sup>1</sup> This index has been rebased to 2015=100, with new commodities added and new weights used, and including separate indices for the group of fuels and a subgroup of precious metals.  
*Notes:* All websites referred to in this note were accessed in June 2022. All prices are in United States dollars. The term “tons” refers to metric tons.

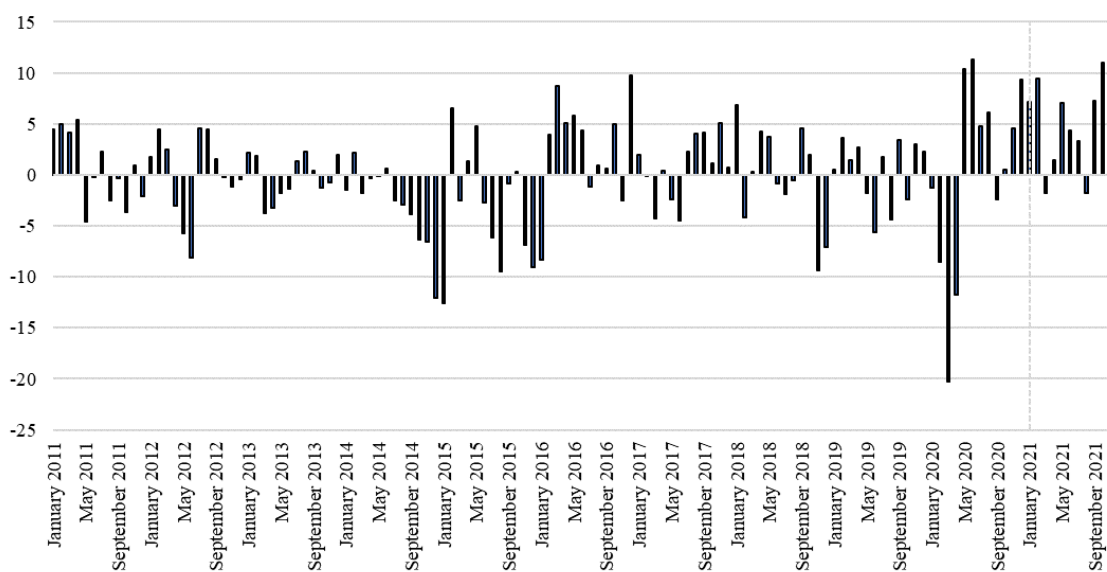
Figure 1  
**UNCTAD free market commodity price index, all groups**  
 (2015=100)



Source: UNCTAD secretariat calculations, based on data from the UNCTADstat database.

4. The monthly fluctuations of the commodity price index illustrate the degrees of variation in commodity prices (figure 2). With a few exceptions, in 2021, there were large monthly increases and, overall, wide monthly variations, due to numerous factors (see chapter II). The highest and lowest fluctuations occurred in October (10.9 per cent) and November (-2.6 per cent). The following chapter provides a review of market developments in major commodity groups.

Figure 2  
**Monthly fluctuations of the UNCTAD free market commodity price index, all groups**



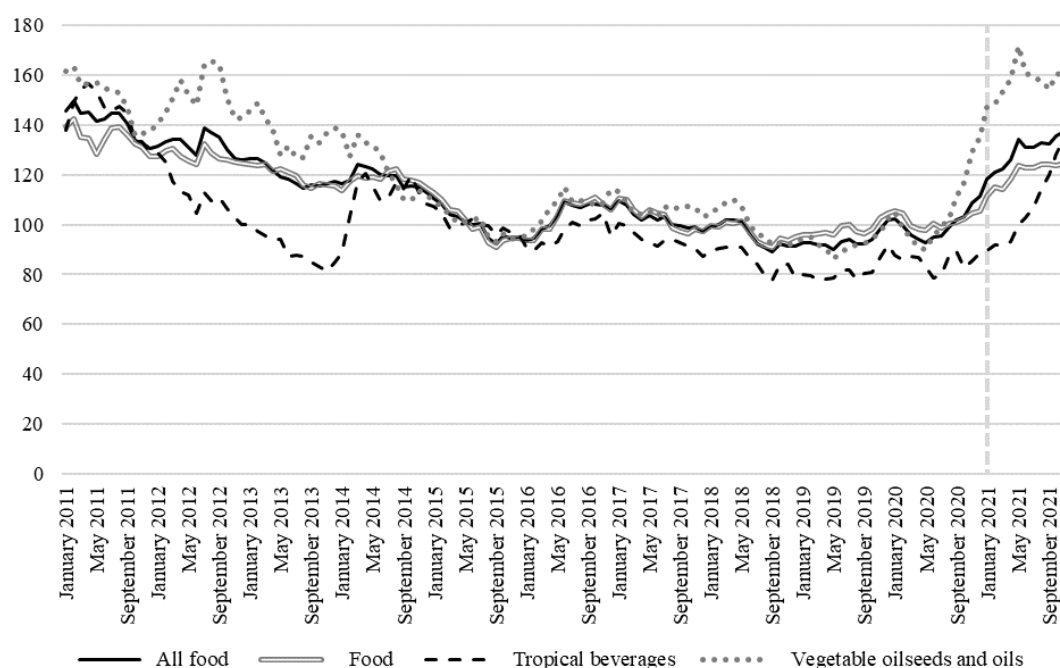
Source: UNCTAD secretariat calculations, based on data from the UNCTADstat database.

## B. Developments in key commodity sectors

### 1. Food and agricultural commodities

5. The UNCTAD monthly food index averaged 118.3 points in January 2021, a 6 per cent increase compared with the index in December 2020, with the index increasing for the eighth consecutive month (figure 3). The index maintained a steady increase until May 2021, when it dropped by 3 points before resuming an upward trend. This trajectory closely follows the variations in the price indices of food and vegetable oilseeds and oils, which had the greatest rise in prices among all food groups. Overall, in January–December 2021, this represents a 16 per cent increase in the food index, compared with a 9 per cent increase in the corresponding period in 2020.

Figure 3  
Price indices of selected commodity groups  
(2015=100)



Source: UNCTAD secretariat calculations, based on data from the UNCTADstat database.

6. Maize prices increased from an average of \$243 per ton in January 2021 to \$308 per ton in May 2021, reaching the highest level since the first quarter of 2013 (figure 4). Despite declines thereafter, prices remained elevated at end-2021, closing at \$273 in December (an increase of 12 per cent since January). The rise in prices was due to an increase in demand for animal feed, with unprecedented purchase levels by China, and a rebound in the manufacture of maize-based ethanol due to the easing of pandemic-related restrictions; and, on the supply side, unfavourable weather conditions in crop-growing areas in Brazil and limited stocks in the United States of America added to the upward pressure.<sup>2</sup> The forecast is that in 2022, global maize stocks will continue to tighten and consumption will marginally exceed production. A surge in fertilizer costs and adverse weather

<sup>2</sup> See Reuters, 2021, Wheat and corn up over 20 per cent in 2021, soybeans edge to third year of gain, 31 December, available at <https://www.reuters.com/markets/commodities/soybeans-eye-3rd-year-gains-corn-wheat-up-over-20-2021-12-31/>; and Food and Agriculture Organization of the United Nations (FAO), 2021a, Global maize market, available at <https://www.fao.org/3/cb5400en/cb5400en.pdf>.

conditions in South America, as well as the war in Ukraine, a major exporter of maize, are expected to lead to strong inflationary pressure.<sup>3</sup>

7. The international benchmark price of United States wheat increased by 31 per cent, from an average of \$288 per ton in January 2021 to an average of \$378 per ton in December 2021 (figure 4). The rise in prices was due to strong demand and tighter supply, particularly of higher-quality wheat.<sup>4</sup> Concerns about crop quality and lower levels of output in Canada and the United States, as well as in Europe, due to unfavourable weather conditions, also contributed to the rise.<sup>5</sup> The forecast is that in 2022, wheat production will remain limited, as reduced exports from the Russian Federation and Ukraine worsen already tight supply conditions.<sup>6</sup> Uncertainties as to whether other major exporters will be able to bridge the gap, export bans in some major wheat-exporting countries and fertilizer shortages due to soaring energy prices, as well as unfavourable weather conditions, are likely to further exert inflationary pressure on future prices.<sup>7</sup>

8. The benchmark price of Thailand rice decreased by 27 per cent, from an average of \$545 per ton in January 2021 to \$400 per ton in September 2021, then remained stable until end-2021 (figure 4). The decline in prices reflected efforts to stimulate sales amid weak demand due to high freight costs and pandemic-related logistical constraints.<sup>8</sup> This coincided with improved market supplies due to favourable growing conditions in Asia and Latin America and the Caribbean, which together increased world rice production by approximately 0.9 per cent compared with the record harvest in 2020.<sup>9</sup> Despite increased output, the forecast is that in 2022, rice consumption will marginally exceed production as demand from Africa continues to grow.<sup>10</sup> In addition, wheat supply concerns stemming from the war in Ukraine may increase the demand for feed and rice prices may rise as traders find alternatives for wheat as a staple.<sup>11</sup> These factors are likely to exert upward pressure on future prices.

9. The monthly average of International Sugar Agreement daily prices rose from 15.2 cents per pound in January 2021 to 19.6 cents per pound in September 2021 (figure 4). The rise in prices was partly due to strong import demand, particularly from China and India, and increased demand for sugarcane-based ethanol in Brazil and India.<sup>12</sup> Adverse weather conditions and a delayed harvesting season in Brazil, the world's largest sugar exporter, further contributed to the rise.<sup>13</sup> After peaking in September 2021, prices steadily declined, to 18.8 cents per pound at end-2021, due to improved production prospects. The forecast is that prices will rise in 2022 due to strong demand and lower levels of exports from Brazil and India.<sup>14</sup>

<sup>3</sup> See Bloomberg, 2022, Corn nears record high, wheat surges on crop supply concerns, 18 April, available at <https://www.bloomberg.com/news/articles/2022-04-18/corn-hits-8-a-bushel-for-first-time-since-2012-on-supply-woes>.

<sup>4</sup> FAO, 2021b, Food price monitoring and analysis bulletin No. 10, available at <https://www.fao.org/3/cb7976en/cb7976en.pdf>.

<sup>5</sup> FAO, 2021c, Food price monitoring and analysis bulletin No. 7, available at <https://www.fao.org/3/cb6677en/cb6677en.pdf>.

<sup>6</sup> See Reuters, 2021.

<sup>7</sup> See Bloomberg, 2022.

<sup>8</sup> FAO, 2021c.

<sup>9</sup> FAO, 2021d, *Food Outlook: Biannual Report on Global Food Markets* (Rome).

<sup>10</sup> Ibid.

<sup>11</sup> See <https://www.bloomberg.com/news/articles/2022-03-03/rice-soars-as-ukraine-war-starts-scramble-for-any-and-all-grains>.

<sup>12</sup> FAO, 2021d; see <https://www.bloomberg.com/news/articles/2021-11-09/sugar-prices-to-stay-high-for-a-while-says-ceo-of-u-k-producer>.

<sup>13</sup> See <http://www.eiu.com/industry/commodities/article/421231425/sugar/2021-08-01>.

<sup>14</sup> Ibid and FAO, 2021d.

10. Soybean prices declined from an average of \$562 per ton in January 2021 to \$462 per ton in December 2021, with short-term fluctuations (figure 4). In January 2021, after reaching the highest levels since 2014, associated with strong demand for biofuels, soybean prices declined by 17 per cent, to \$464 per ton in April 2021. The decline in prices was due to increases in cultivated areas and output in Brazil.<sup>15</sup> Thereafter, prices experienced small upward and downward movements, mainly due to variations in rainfall in major crop-growing regions and, ultimately, dry and arid conditions in Argentina and Brazil pushed prices up to \$462 per ton at end-2021.<sup>16</sup> The forecast is that in 2022, prices will continue to increase if unfavourable weather conditions persist in South America.<sup>17</sup> However, markets also forecast a fall in demand for soybeans from China, associated with lower levels of feed requirements, which is likely to subdue a significant rise in prices.<sup>18</sup>

11. The price of Australia and New Zealand beef trended upwards, from an average of \$4.45 per kilogram in January 2021 to \$5.95 per kilogram in December 2021, an increase of 34 per cent (figure 4). The rise in prices was due to rising animal feed prices due to high transport and fertilizer costs and agricultural commodity prices.<sup>19</sup> Logistical disruptions and pandemic-related labour shortages in Australia and the United States also contributed to the rise.<sup>20</sup> The forecast is that in 2022, prices will continue to trend upwards due to rising feed costs, exacerbated by the war in Ukraine.<sup>21</sup>

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<sup>15</sup> See <https://www.ers.usda.gov/webdocs/outlooks/101171/ocs-21e.pdf?v=5858.5>.

<sup>16</sup> See <https://www.reuters.com/markets/europe/us-wheat-slips-after-earlier-rebound-corn-slightly-down-2021-12-13/> and <https://www.reuters.com/markets/commodities/soy-hits-highest-price-since-august-south-america-crop-worries-2021-12-21/>.

<sup>17</sup> See <https://www.globaltrademag.com/lower-supply-in-south-america-to-raise-soybean-price-forecast-in-2022>.

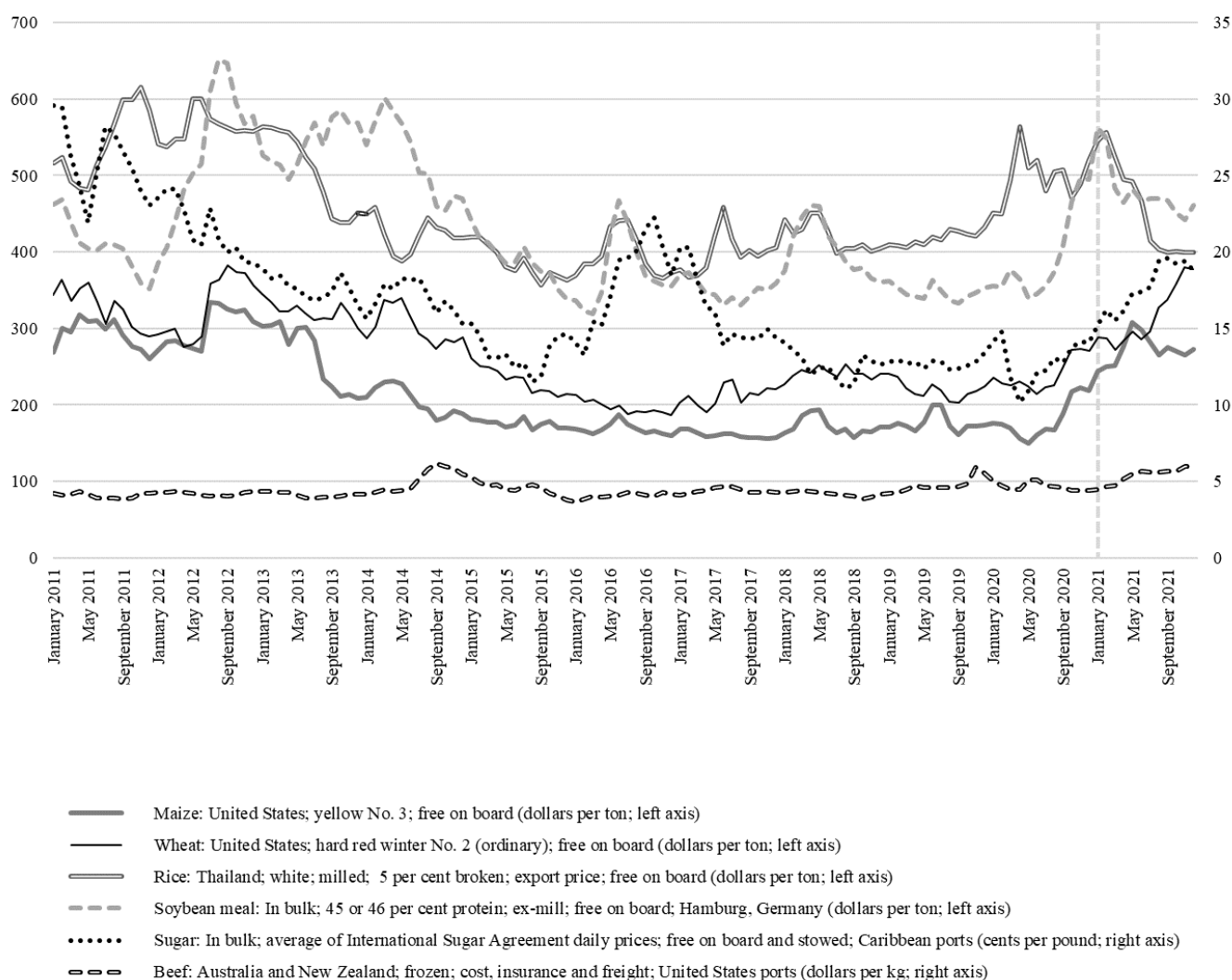
<sup>18</sup> See <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/agriculture/042122-market-forecasts-chinas-2022-soybean-demand-falling-up-to-6-as-feed-requirements-dip>.

<sup>19</sup> Economist Intelligence Unit, 2022, Data focus: Ukraine war will push up dairy and meat prices, 5 April, available at <http://www.eiu.com/industry/article/1502010333/data-focus-ukraine-war-will-push-up-dairy-and-meat-prices/2022-04-05>.

<sup>20</sup> See <https://www.farmweekly.com.au/story/7533754/labour-shortage-to-squeeze-processors/> and <https://www.bloomberg.com/news/articles/2021-11-04/meat-prices-higher-in-u-s-as-3-000-bonuses-fail-to-end-worker-shortage>.

<sup>21</sup> Economist Intelligence Unit, 2022.

Figure 4  
Price trends of selected food and agricultural commodities



Source: UNCTAD secretariat calculations, based on data from the UNCTADstat database.

12. The UNCTAD vegetable oilseeds index increased from 147 points in January 2021 to 171 points in May 2021, due to a substantial rise in soybean oil prices due to limited supply and strong import demand (figure 5). Thereafter, the index decreased to 158 points in December 2021, due to a decline in sunflower oil and soybean prices. In January–December 2021, the index rose by 8 per cent, compared with a 29 per cent increase in the corresponding period in 2020.

13. Palm oil prices rose by 28 per cent in 2021, from an average of \$990 per ton in January to \$1,270 per ton in December, after a brief decline in June (figure 5). The rise in prices was due to many factors, including high export taxes in Indonesia and limited production in Malaysia, along with demand recovery in India and the global biofuels industry.<sup>22</sup> The forecast is that in 2022, prices will continue to rise, due to supply concerns and high fertilizer prices, along with an increase in demand, to replace sunflower oil.<sup>23</sup>

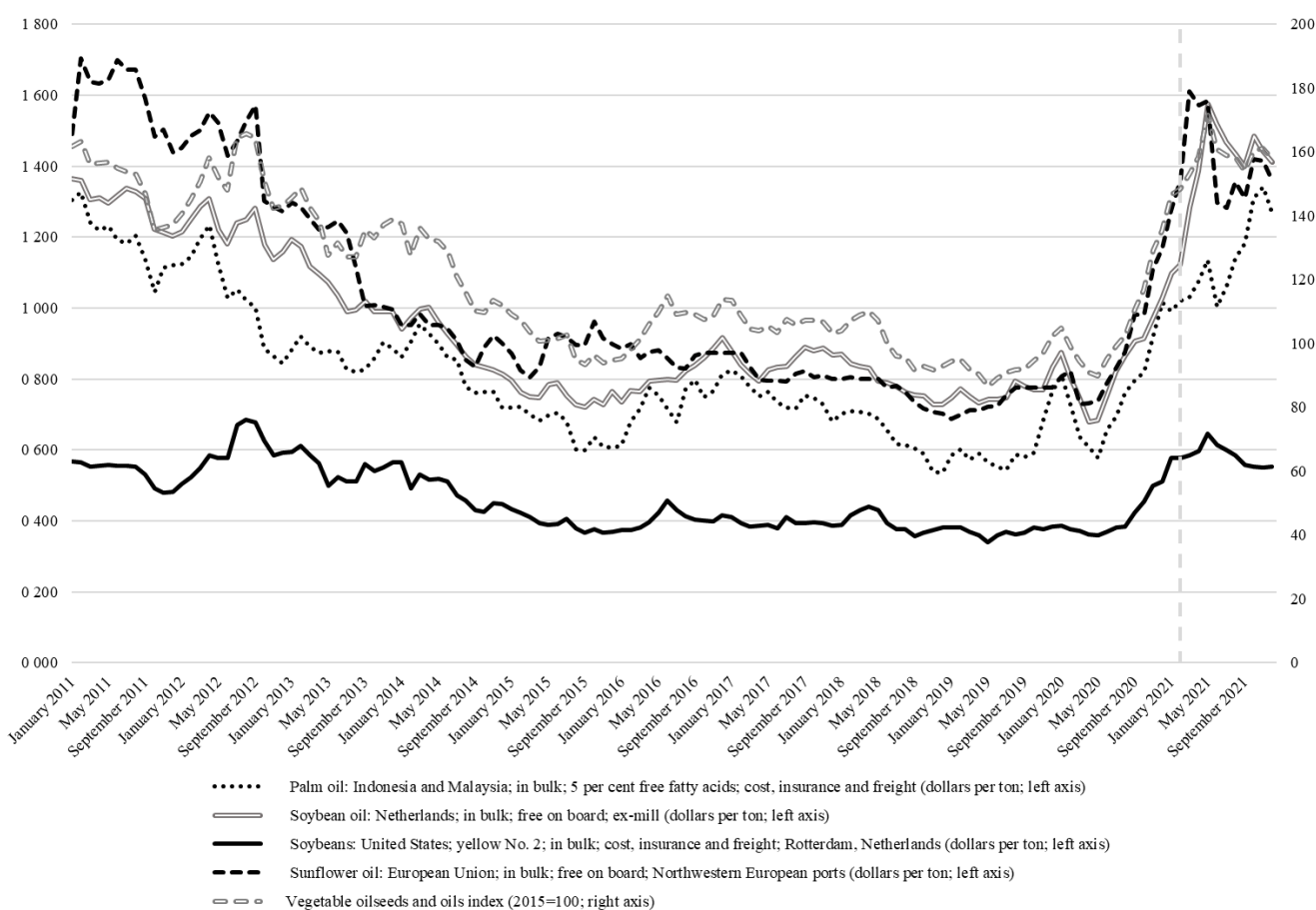
<sup>22</sup> Standard and Poor's, 2021a, *Commodities 2022: Palm oil prices could retreat by H2*[second half of year] as low demand, higher production play on markets, 31 December, available at <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/agriculture/123121-commodities-2022-palm-oil-prices-could-retreat-by-h2-as-low-demand-higher-production-play-on-markets>.

<sup>23</sup> Ibid; see <https://www.reuters.com/business/energy/palm-oil-becomes-costliest-vegoil-ukraine-war-halts-sunoil-supply-2022-03-01/>.

14. Soybean oil prices rose by 43 per cent, from an average of \$1,099 per ton in January 2021 to a record-high \$1,575 per ton in May 2021 (figure 5). The rise in prices was due to strong global demand, including from the biodiesel industry amid tight supply.<sup>24</sup> Thereafter, prices decreased by 10 per cent, to \$1,411 per ton in December 2021, due to subdued import demand and a lower uptake expectation from biodiesel producers in the United States.<sup>25</sup> The forecast is that in 2022, soybean oil prices will rise due to renewed interest in biofuels and limited export availabilities in South America, heightened by an increase in export taxes on soybean oil in Argentina.<sup>26</sup> In addition, supply disruptions in Ukraine with regard to sunflower oil are likely to add to the inflationary pressure on future prices.

15. Sunflower oil prices increased from an average of \$1,276 per ton in January 2021 to \$1,585 per ton in May 2021, maintaining an upward trajectory since May 2020, due to limited supply.<sup>27</sup> After a sharp decline in July 2021 due to improved output in the Russian Federation and Ukraine, prices fluctuated in the second half of 2021, reaching \$1,362 per ton in December. The forecast is that in 2022, due to the war in Ukraine, prices will rise sharply due to supply disruptions in the Russian Federation and Ukraine, which account for more than 75 per cent of global exports.<sup>28</sup>

Figure 5  
Price trends of selected vegetable oilseeds and oils



<sup>24</sup> FAO, 2021e, Oilseeds, oils and meals: Monthly price and policy update, May, available at <https://www.fao.org/3/cb4717en/cb4717en.pdf>.

<sup>25</sup> FAO, 2021f, Oilseeds, oils and meals: Monthly price and policy update, July, available at <https://www.fao.org/3/cb5818en/cb5818en.pdf>.

<sup>26</sup> Standard and Poor's, 2021a; see <https://www.fao.org/markets-and-trade/commodities/oilcrops/fao-price-indices-for-oilseeds-vegetable-oils-and-oilmeals/en/>.

<sup>27</sup> See <https://www.refinitiv.com/perspectives/future-of-investing-trading/whats-ahead-for-black-sea-sunflower-oil-prices/>.

<sup>28</sup> See <https://www.bloomberg.com/news/articles/2022-03-04/record-cooking-oils-are-latest-threat-to-surging-food-inflation>.



*Source:* UNCTAD secretariat calculations, based on data from the UNCTADstat database.

16. The UNCTAD tropical beverages index rose by 56 per cent, from an average of 89 points in January 2021 to 139 points in December 2021, compared with an increase of 1 per cent in the corresponding period in 2020 (figure 6). The steady upward trajectory of the index is attributed to a surge in the prices of arabica and robusta coffee, which exhibited increases of 109 and 64 per cent, respectively, due to persistent supply shocks.

17. Cocoa bean prices averaged 108 cents per pound in January 2021 and remained at the same level in December 2021, despite short-term fluctuations due to varying output expectations and concerns that new waves of the pandemic might limit demand (figure 6).<sup>29</sup> The forecast is that in 2022, prices will rise as consumption will increase faster than production due to lower-than-expected output in Cameroon, Côte d'Ivoire and Ghana.<sup>30</sup>

18. Tea prices trended downwards, from an average of \$2 per kilogram in January 2021 to \$1.8 per kilogram in July 2021, due to resumed shipments from Sri Lanka and higher levels of exports from China and Kenya (figure 6).<sup>31</sup> Thereafter, the trend reversed, with prices climbing by 18 per cent, to \$2.6 per kilogram in December 2021, as global consumption increased amid weather-related shortfalls in Kenya, where production, in 2021, dropped by 10 per cent, compared with in 2020.<sup>32</sup> The forecast is that prices will rise, as consumption growth is anticipated to outpace production.<sup>33</sup>

19. The International Coffee Organization average monthly composite indicator price increased from 115 cents per pound in January 2021 to 203 cents per pound in December 2021, reaching a record high since September 2011 (figure 6).<sup>34</sup> The steady and consistent upward trend was due to unfavourable weather conditions in major producing regions; the surge in arabica prices was primarily due to drought, frosts and supply bottlenecks in Brazil.<sup>35</sup> Meanwhile, dry weather and pandemic-related restrictions in Viet Nam, as well as the increasing costs of freight routes in Asia, led to production-related and logistical challenges in the robusta market.<sup>36</sup> Rising fertilizer costs added to the inflationary pressure on prices. The forecast is that in 2022, coffee prices will maintain an upward trajectory, as consumption is projected to exceed production.<sup>37</sup>

<sup>29</sup> See <https://www.comunicaffe.com/cocoa-market-report-prospects-for-cocoa-production-during-the-2021-22-main-crop/>.

<sup>30</sup> International Cocoa Organization, 2021, Cocoa market report, December; see <https://www.reuters.com/article/cocoa-outlook-idUSL8N2UX8ZA>.

<sup>31</sup> FAO, Committee on Commodity Problems, 2022, Current global market situation and emerging issues, CCP:TE22/CRS 1, Rome, 23 February, available at <https://www.fao.org/3/ni282/ni282.pdf>.

<sup>32</sup> World Bank, 2021a, *Commodity Markets Outlook: Urbanization and Commodity Demand* (Washington, D.C.).

<sup>33</sup> See <http://www.eiu.com/industry/commodities/article/181595601/tea/2021-12-01>.

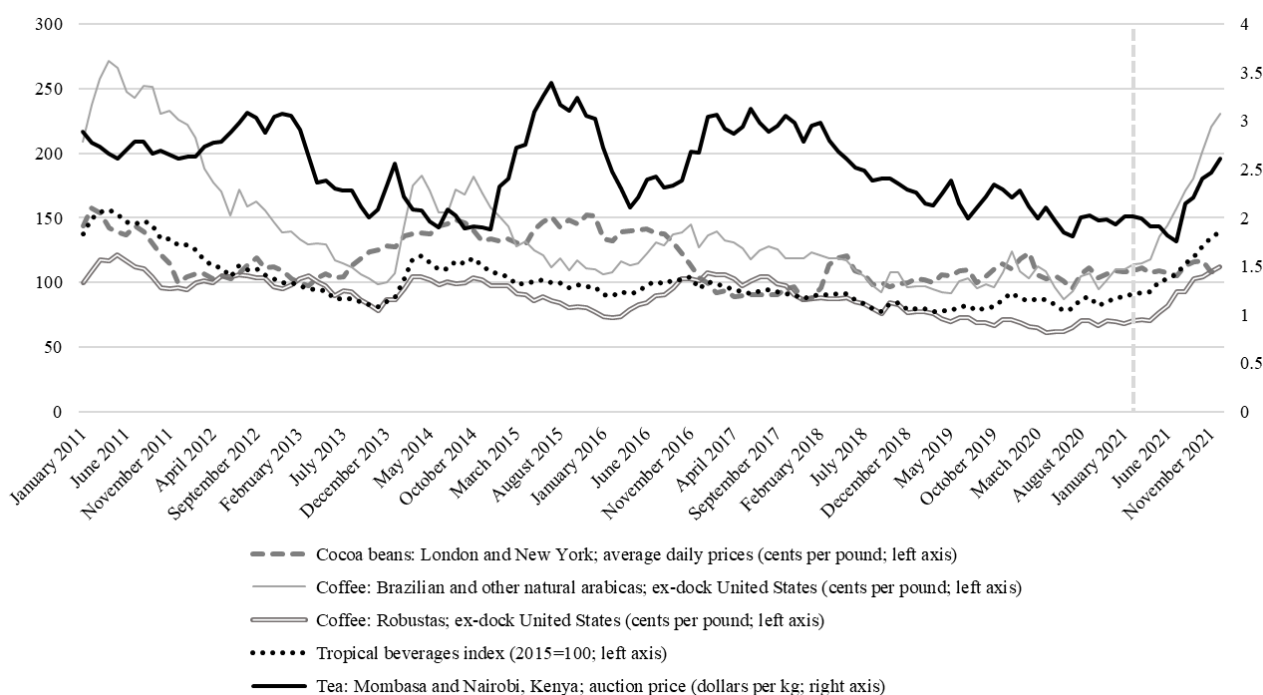
<sup>34</sup> International Coffee Organization, 2021, Coffee market report: December.

<sup>35</sup> See <https://www.bloomberg.com/news/articles/2021-11-17/coffee-jumps-to-highest-in-almost-a-decade-on-supply-worries>.

<sup>36</sup> Ibid and World Bank, 2021a.

<sup>37</sup> See <https://www.bloomberg.com/news/articles/2022-02-09/coffee-surges-to-10-year-high-with-supply-concerns-mounting>.

Figure 6  
Price trends of selected tropical beverages



Source: UNCTAD secretariat calculations, based on data from the UNCTADstat database.

20. The UNCTAD agricultural raw materials index rose by 4 per cent, from an average of 108 points in January 2021 to 112 points in December 2021, oscillating at around 110 per cent during the observed period, compared with a 7 per cent increase in 2020 (figure 7).<sup>38</sup> The increase was due to a rise in cotton prices, which offset declining rubber prices.

21. The cotton A index price, a benchmark for world cotton prices, averaged \$1.92 per kilogram in January 2021 and sustained increases through 2021, peaking at \$2.79 per kilogram in November before declining to \$2.65 per kilogram in December (figure 7). The 38 per cent rise in January–December 2021 was due to lower levels of production associated with unfavourable weather conditions in India and the United States, as well as delays in sowing in Brazil amid growing demand post a pandemic-related contraction.<sup>39</sup> The forecast is that in 2022, despite projected increases in production, prices will rise by 5 per cent due to strong demand.<sup>40</sup>

22. Natural rubber prices, after increasing in early 2021, to 236 cents per kilogram in March, declined by 19 per cent, to 192 cents per kilogram in December (figure 7). The decline in prices was due to reduced demand caused by an unexpected slowdown in vehicle production stemming from a semiconductor shortage.<sup>41</sup> Increased output, led by Indonesia and Viet Nam, also contributed to lower prices. The forecast is that in 2022, an adverse climate and labour shortages in some producing countries, coupled with demand growth driven by the automotives and health-care sectors, will exert upward pressure on prices.<sup>42</sup>

<sup>38</sup> World Bank, 2022, Commodity markets, available at <https://www.worldbank.org/en/research/commodity-markets>.

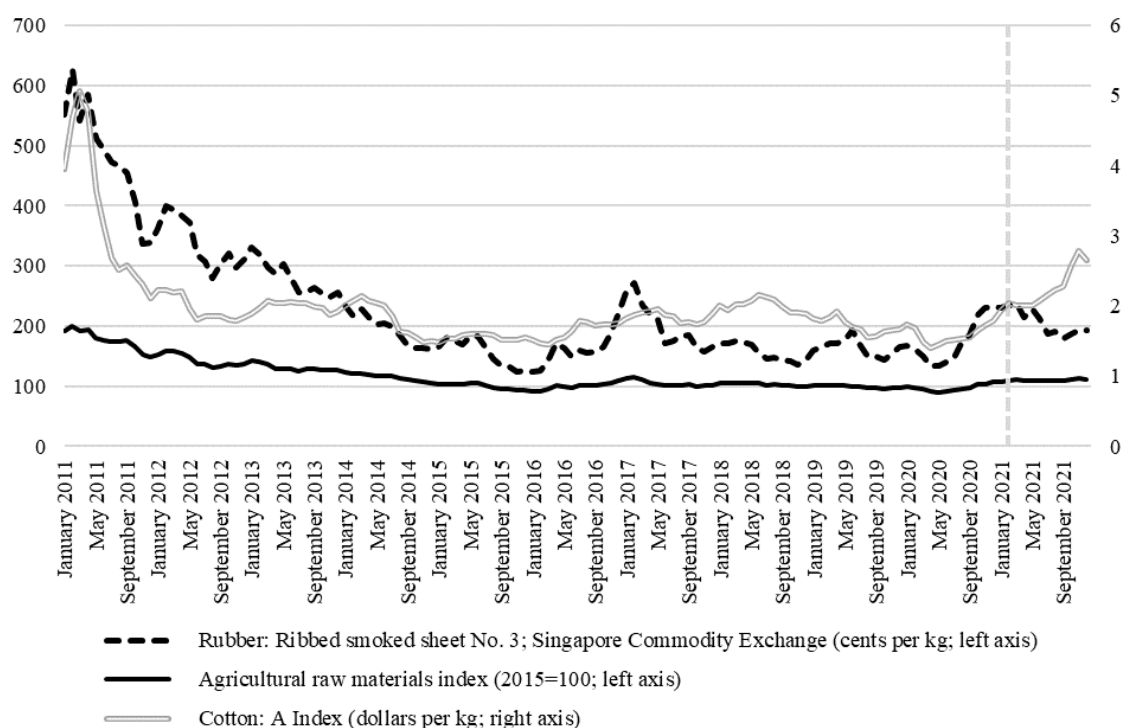
<sup>39</sup> See <https://www.cnbc.com/2021/10/10/cotton-prices-hit-10-yr-high-what-it-means-for-retailers-and-shoppers.html> and <https://www.reuters.com/article/brazil-cotton-idUSKBN2KF2KU>.

<sup>40</sup> World Bank, 2021a.

<sup>41</sup> Ibid.

<sup>42</sup> See <https://www.european-rubber-journal.com/article/2091134/anrpc-anticipates-positive-outlook-for-2022>.

Figure 7  
Price trends of selected agricultural raw materials



Source: UNCTAD secretariat calculations, based on data from the UNCTADstat database and the World Bank commodities database.

## 2. Minerals, ores and metals

23. The UNCTAD minerals, ores and non-precious metals index rose from an average of 187 points in January 2021 to 227 points in July 2021, due to price increases in all commodities in the group, particularly iron ore, copper and aluminium (figure 8).<sup>43</sup> In August 2021, the upward trend reversed and the index fell by 6 per cent, reaching 191 points in December 2021 due to a decline in the price of heavily weighted iron ore. Despite this decline, the index exhibited a net increase of 2 per cent in January–December 2021, compared with a 35 per cent increase in 2020.

24. Iron ore prices increased in the first half of 2021, from an average of \$170 per dry ton in January to \$214 per dry ton in June, reaching a record high in the observed period (figure 8). The increase in prices was due to a reduction in steel production in China aimed at meeting national decarbonization targets. Exports increased from Australia and Brazil, the two largest producers, yet extreme weather and mining accidents, as well as unexpected maintenance requirements at an iron ore mining site and beneficiation plant in Brazil, thwarted global output.<sup>44</sup> Iron ore prices declined in the second half of 2021 by 45 per cent, from \$214 in June to \$117 per dry ton in December, due to falling demand for steel products and raw materials in China, stemming from the construction sector, with an overall net decline of 31 per cent in January–December 2021.<sup>45</sup> The forecast is that in 2022, prices will rise due to upside risks in the near term, including energy-related supply disruptions, additional pandemic-related lockdown measures and environmental policies.<sup>46</sup>

<sup>43</sup> World Bank, 2022.

<sup>44</sup> Ibid.

<sup>45</sup> See <https://www.reuters.com/markets/commodities/chinas-property-distress-sours-steel-sector-warning-sign-economy-2021-12-19/>.

<sup>46</sup> World Bank, 2021a.

25. Copper prices increased by 20 per cent, from an average of \$7,972 per ton in January 2021 to \$9,551 per ton in December 2021 (figure 8). The increase in prices was due to low levels of inventory and strong demand arising from the stimulus in China, recovery in global economic activity and a push towards sustainable energy generation and consumption.<sup>47</sup> Supply disruptions in major producers, namely, Chile and Peru, also contributed to the increase.<sup>48</sup> The forecast is that in 2022, despite an anticipated increase in supply, primarily from the Democratic Republic of the Congo, prices will maintain an upward trend, supported by the green energy transition and a boost in demand for electric vehicles, charging stations, renewable power generation and grid storage.<sup>49</sup>

26. Aluminium prices continued on an upward trend, from an average of \$2,004 per ton in January 2021 to \$2,696 per ton in December 2021 (figure 8). The increase in prices was partly due to high demand associated with the recovery from the pandemic-related downturn.<sup>50</sup> On the supply side, output reductions in China, policies to limit energy intensity and consumption, higher input costs and energy supply shortages pushed up prices.<sup>51</sup> The production of aluminium is energy-intensive and rising energy prices therefore increased production costs and smelter shutdowns in Europe, which also contributed to the upward pressure on prices.<sup>52</sup> The forecast is that in 2022, prices will increase due to recovery growth and rising energy prices, which are set to be exacerbated by the war in Ukraine. Reduced exports from the Russian Federation will also contribute to the increase.

27. Zinc prices rose by 32 per cent, from an average of 131 cents per pound in January 2021 to 172 cents per pound in December 2021, primarily due to energy-driven supply cuts in China and Europe (figure 8). As with aluminium, energy shortages increased the production costs of zinc, leading to large-scale shutdowns or production cuts at smelters.<sup>53</sup> A rebound in demand after Governments eased pandemic-related restrictions also contributed to higher prices. The forecast is that in 2022, prices will increase, due to rising energy prices amid strong demand, particularly in the industrial sector, as zinc is used to galvanize steel.<sup>54</sup> Despite this expected increase, a slowdown in the property sector in China and a cap on steel production by the Government could strain demand for zinc, potentially narrowing the supply deficit in 2022.

28. Nickel prices increased from \$17,863 per ton in January 2021 to \$20,016 per ton in December 2021, despite a short-term drop in March 2021 (figure 8). The rise in prices was due to demand from the battery and stainless steel sectors.<sup>55</sup> Despite growth in supply in Indonesia, strikes in Canada, flooding in mines in the Russian Federation and pandemic-related restrictions in New Caledonia reduced global output and contributed to higher prices.<sup>56</sup> The forecast is that in 2022, similar to most commodities in the group, nickel prices will continue on an upward trend, due to higher energy prices and reduced supply.<sup>57</sup>

<sup>47</sup> See <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/metals/011821-copper-price-to-rise-in-2021-analysts>.

<sup>48</sup> See <https://www.mining.com/top-copper-stories-of-2021-and-what-to-expect-in-2022/>.

<sup>49</sup> World Bank, 2021a; Standard and Poor's, 2021b, Energy transition to boost demand for copper, nickel over next decade, 7 October, available at <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/100721-energy-transition-to-boost-demand-for-copper-nickel-over-next-decade-macquarie>.

<sup>50</sup> See <http://www.eiu.com/article1631886346.html?pubtypeId=960000296>.

<sup>51</sup> World Bank, 2021a.

<sup>52</sup> See <https://www.reuters.com/markets/commodities/power-price-surge-keeps-aluminium-near-2-month-highs-2021-12-23/>.

<sup>53</sup> See <https://www.bloomberg.com/news/articles/2021-10-14/zinc-surges-to-highest-since-2007-as-energy-crisis-deepens>.

<sup>54</sup> See <https://www.spglobal.com/marketintelligence/en/news-insights/blog/see-it-in-charts-metals-mining-research-march-quarter-2022>.

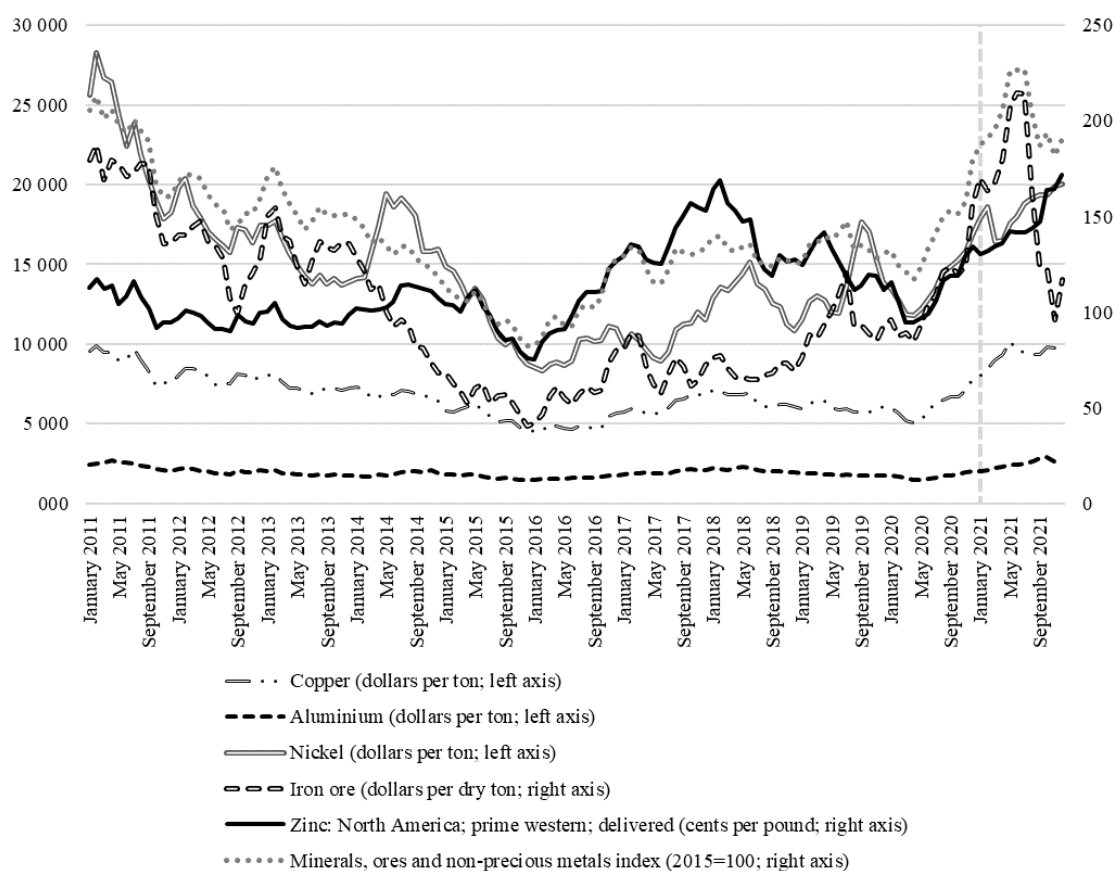
<sup>55</sup> Ibid.

<sup>56</sup> Standard and Poor's, 2021b.

<sup>57</sup> See <https://www.reuters.com/markets/europe/nickel-prices-soar-supply-angst-russia-ukraine-crisis-escalates-2022-03-07/>.

Growing demand for nickel in the electric vehicle and stainless steel sectors is also likely to exert upward pressure on prices.<sup>58</sup>

Figure 8  
Price trends of selected minerals, ores and non-precious metals



Source: UNCTAD secretariat calculations, based on data from the UNCTADstat database and the World Bank commodities database.

29. In contrast to the prices of most of the other commodity groups, the UNCTAD precious metals index declined from 159 points in January 2021 to 150 points in December 2021, with short-term fluctuations throughout the period (figure 9).<sup>59</sup> The decline in prices was due to decreases in the prices of all commodities in the group. In January–December 2021, the index declined by 5 per cent, compared with an increase of 20 per cent in the corresponding period in 2020.

30. Gold prices, following an increase in 2020, trended downwards and declined by 5 per cent, from an average of \$1,867 per troy ounce in January 2021 to \$1,790 per troy ounce in December 2021, with short-term fluctuations throughout the period (figure 9). The decline in prices was partly due to slowing central bank purchases and a slump in investment demand as rising bond yields in the United States weighed down the safe-haven appeal of gold.<sup>60</sup> In addition, physical demand recovered from the decline in 2020, yet remained below pre-pandemic levels.<sup>61</sup> A rebound in mine production following shutdowns during the pandemic also exerted downward pressure on prices.<sup>62</sup> The forecast is that in

<sup>58</sup> Standard and Poor's, 2021b.

<sup>59</sup> World Bank, 2022.

<sup>60</sup> See <https://www.reuters.com/markets/europe/gold-slips-six-week-high-equities-rally-2022-01-03/>.

<sup>61</sup> World Bank, 2021b, *Commodity Markets Outlook: Causes and Consequences of Metal Price Shocks* (Washington, D.C.).

<sup>62</sup> Ibid.

2022, the downward trend will be reversed and prices will increase, as investors rebalance portfolios towards safe-haven assets amid geopolitical tensions due to the war in Ukraine.<sup>63</sup>

31. Silver prices trended downwards throughout 2021, falling from \$26 per troy ounce in January to \$23 per troy ounce in December (figure 9). The decline in prices was due to the unwinding of pandemic-era stimuluses and industrial disruptions, particularly in China and Japan, which are major producers of products containing silver in the electronics and solar industries.<sup>64</sup> The forecast is that in 2022, prices will rebound, supported by the focus of Governments on the green energy transition, as silver is a key input in electronics and solar panels.<sup>65</sup>

32. Platinum prices increased in the first five months of 2021, rising from \$1,091 per troy ounce in January to \$1,214 per troy ounce in May, due to initial higher demand in the automotives, industrial and jewellery sectors, countering low investment demand (figure 9).<sup>66</sup> However, prices declined steadily, by 22 per cent, to \$945 per troy ounce in December. The decline in prices was due to a slump in demand in the automotives industry, in which a global semiconductor chip shortage reduced production and lowered the demand for platinum for autocatalysts.<sup>67</sup> Meanwhile, supply rebounded, with mines in South Africa resuming normal operations after production had been hindered by pandemic-related shutdowns and plant outages, contributing to the deflationary pressure on prices.<sup>68</sup> The forecast is that in 2022, prices will decline, due to the continuing semiconductor shortage and as markets remain in surplus.

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<sup>63</sup> See <https://capital.com/gold-price-forecast>.

<sup>64</sup> World Bank, 2021a; Bloomberg, 2021, Four charts show why silver's surge is set to fade, 29 October, available at <https://www.bloomberg.com/news/articles/2021-10-29/silver-s-surge-to-fade-as-fed-taper-and-energy-crisis-hit-demand>.

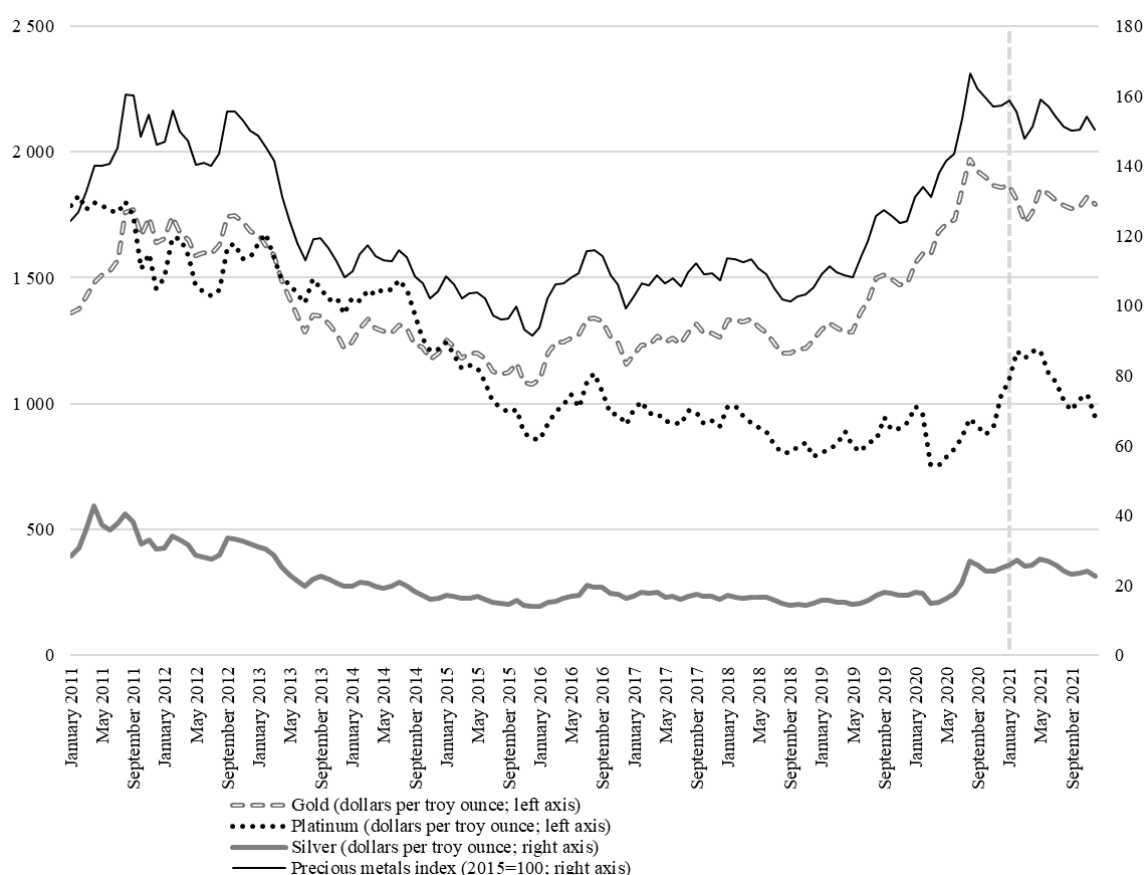
<sup>65</sup> Bloomberg, 2021.

<sup>66</sup> See World Platinum Investment Council, 2021, Platinum quarterly, quarter 1, available at <https://platinuminvestment.com/supply-and-demand/platinum-quarterly/archive>.

<sup>67</sup> See <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/metals/112421-platinum-market-surplus-to-extend-into-2022-investment-council>.

<sup>68</sup> Ibid and World Bank, 2021b.

Figure 9  
Price trends of selected precious metals



Source: UNCTAD secretariat calculations, based on data from the UNCTADstat database and the World Bank commodities database.

### 3. Energy

33. The UNCTAD fuels price index increased from an average of 104 points in January 2021 to an average of 186 points in December 2021, as it came under pressure from a sharp climb in the prices of all commodities in the group (figure 10).<sup>69</sup> This represented an increase of 78 per cent in January–December 2021, compared with a decrease of 15 per cent in the corresponding period in 2020.

#### *Crude oil*

34. Crude oil prices trended upwards in 2021, from an average of \$55 per barrel in January to \$84 per barrel in October (figure 10). The rise in prices was due to recovering demand and tight supply following production cuts by the Organization of Petroleum Exporting Countries and oil-producing allies, implemented at the height of the pandemic as of March 2020.<sup>70</sup> Prices then declined by 11 per cent, to \$74 per barrel in December 2021, due to concerns about the latest wave of the pandemic.<sup>71</sup> However, prices remained high, amounting to a 36 per cent increase in January–December 2021. The forecast is that in 2022, prices will continue trending upward due to major supply disruptions in the Russian Federation.

<sup>69</sup> World Bank, 2022.

<sup>70</sup> See <https://www.reuters.com/markets/commodities/oil-prices-mixed-us-crude-falls-after-covid-19-flight-cancellations-2021-12-27/>.

<sup>71</sup> See <https://www.reuters.com/markets/commodities/oil-heads-biggest-yearly-gains-since-2009-2021-12-31/>.

*Natural gas*

35. The natural gas index, composed of prices from three distinct regional markets in the United States, Asia and Europe, increased by 224 per cent, from an average of 73 points in January 2021 to 236 points in December 2021, despite a short-term decline in March (figure 10). The increase was driven by substantial rises in prices in the markets, with the greatest increase in Europe. The monthly average price of natural gas in the United States Henry Hub market increased steadily, from \$2.56 per million British thermal units in March 2021 to \$3.73 per million British thermal units in December 2021. The increase was due to several factors, including demand growth, colder than average temperatures and winter storms resulting in extreme supply and demand tensions.<sup>72</sup> However, Henry Hub gas prices have remained lower than international prices elsewhere, due to increased liquefied natural gas production capacity and exports.<sup>73</sup> In the liquefied natural gas market in Asia, prices also increased significantly, from an average of \$9 per million British thermal units in January 2021 to \$15.3 per million British thermal units in December 2021. The increase was due to strong demand associated with colder than usual winter temperatures and subsequent low levels of inventory.<sup>74</sup> Supply also experienced some disruptions due to pandemic-related restrictions that prolonged or halted construction and maintenance work at various key sites.<sup>75</sup> In the European market, natural gas prices rose from \$7.3 per million British thermal units in January 2021 to \$38 per million British thermal units in December 2021. This increase of 423 per cent was due to policy developments and geopolitical tensions impacting energy-related relations between the European Union and the Russian Federation, the region's largest supplier.<sup>76</sup> The suspension of the certification of the Nord Stream 2 gas pipeline and increasing political tensions due to the war in Ukraine contributed to a 24 per cent year-on-year decrease in supply and exerted upward pressure on prices.<sup>77</sup> Lower than expected production in the Netherlands and Romania, gas field maintenance in Norway, low levels of gas storage following a cold winter and the return of electricity consumption to pre-pandemic levels also contributed to higher prices. The forecast is that in 2022, prices will remain elevated due to ongoing political tensions and the suspension of the certification of the Nord Stream 2 pipeline.

*Coal*

36. Australian thermal coal prices increased by 159 per cent, from \$87 per ton in January 2021 to \$225 per ton in October 2021, reaching an all-time high (figure 10). Prices fell to \$170 per ton in December 2021 due to intervention by the Government of China to balance the market, yet remained elevated, amounting to an increase of 95 per cent in January–December 2021.<sup>78</sup> The increase was due to demand outpacing supply in China, as well as supply disruptions and higher natural gas prices globally.<sup>79</sup> In addition, unusually hot weather in some countries boosted electricity demand for cooling, while electricity production from renewable sources declined in several countries due to drought and low wind speeds.<sup>80</sup> The forecast is that in 2022, prices will continue to rise, underpinned by demand growth from China and India and surging gas prices that are likely to increase demand beyond supply.<sup>81</sup> Geopolitical tensions impacting energy-related relations between the European Union and the Russian Federation, the region's largest supplier, will add to

<sup>72</sup> See <https://www.iea.org/reports/global-energy-review-2021/natural-gas>.

<sup>73</sup> United States, Energy Information Administration, 2021, United States liquefied natural gas exports grew to record highs in the first half of 2021, available at <https://www.eia.gov/todayinenergy/detail.php?id=50625>.

<sup>74</sup> United States, Energy Information Administration, 2021.

<sup>75</sup> See <https://www.reuters.com/business/energy/whats-behind-wild-surges-global-lng-prices-risks-ahead-2021-10-01/>.

<sup>76</sup> European Commission, 2022, Quarterly report on European gas market, quarter 4, available at [https://energy.ec.europa.eu/data-and-analysis/market-analysis\\_en](https://energy.ec.europa.eu/data-and-analysis/market-analysis_en).

<sup>77</sup> *Ibid.*

<sup>78</sup> International Energy Agency, 2021, Coal 2021: Executive summary, available at <https://www.iea.org/reports/coal-2021/executive-summary>.

<sup>79</sup> *Ibid.*

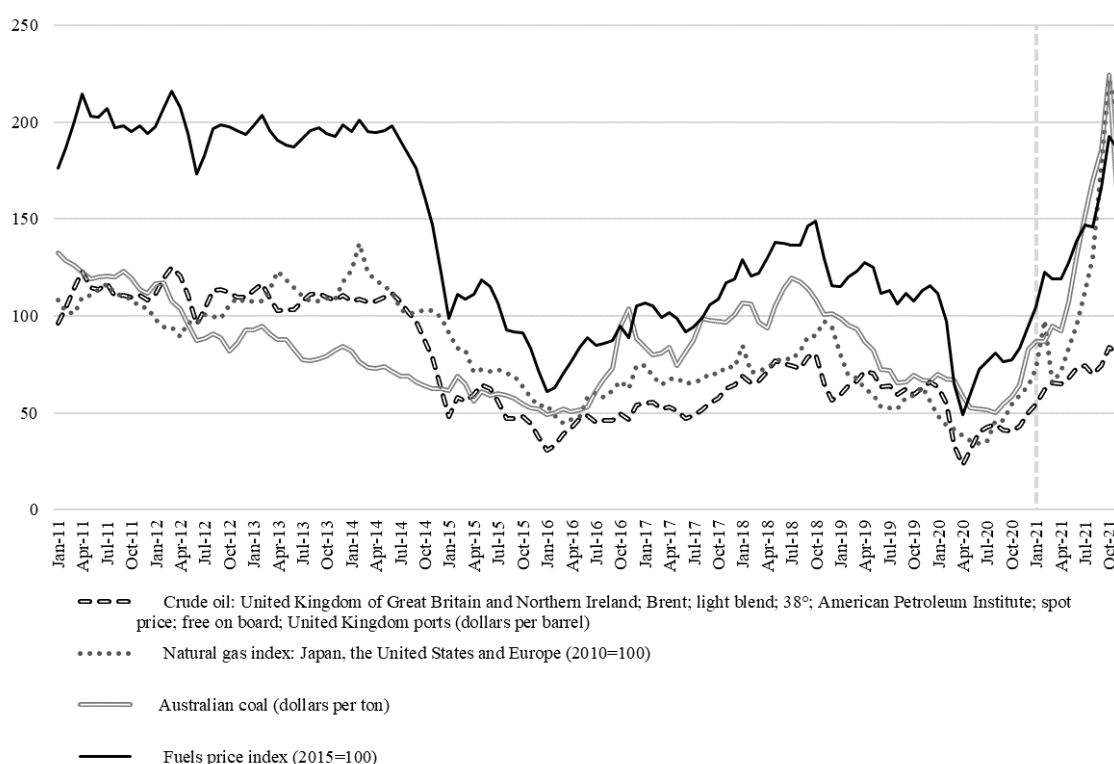
<sup>80</sup> World Bank, 2021a.

<sup>81</sup> International Energy Agency, 2021.



this inflationary pressure, as might a proposed ban on coal imports from the Russian Federation.<sup>82</sup>

Figure 10  
Price trends of selected fuels



Source: UNCTAD secretariat calculations, based on data from the UNCTADstat database and the World Bank commodities database.

### Renewable energy

37. Renewable energy was the only energy source for which demand increased in 2020 despite the pandemic; demand increased by 9.7 per cent for biofuels, solar and wind combined and by 1 per cent for hydropower. Despite higher input prices, demand for solar and wind energy remains strong, supported by government policies and climate-related targets. Generating capacity also increased significantly, growing at an average of 276 gigawatts per year in 2020–2021.<sup>83</sup> Most of this growth came from the solar energy industry, projected to reach an annual addition of 162 gigawatts in 2022. The yearly wind energy market growth slowed in 2021 yet continued to increase and was 50 per cent higher than the average in 2017–2019.<sup>84</sup> Rising input prices and freight rates have increased costs for renewable sources, yet solar and wind energy generation remains more competitive than the use of fossil fuels, notably given the rise in the prices of natural gas and coal. However, rising costs, along with a rebound in demand, are likely to exert upward pressure on renewable energy prices, reversing the cost reduction trend in this area in the past decade.<sup>85</sup> The annual consumption growth rates of major renewable energy sources are shown in figure 11.

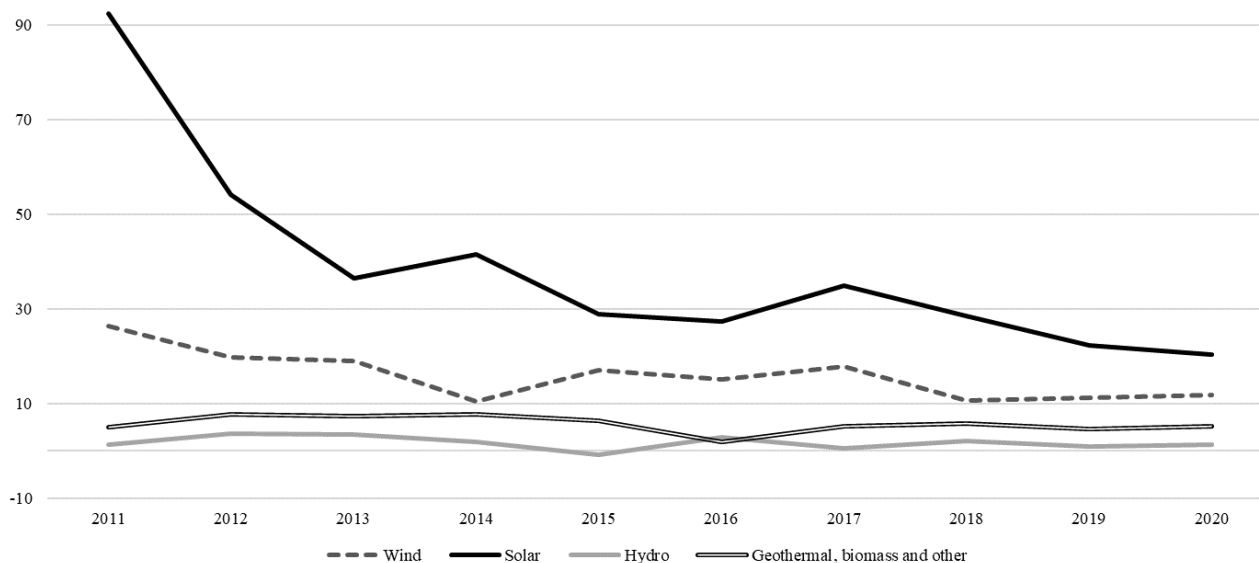
<sup>82</sup> See <https://www.dw.com/en/how-can-the-eu-survive-without-russian-coal/a-61379128>.

<sup>83</sup> See <https://www.iea.org/reports/renewable-energy-market-update-2021>.

<sup>84</sup> Ibid.

<sup>85</sup> See <https://www.iea.org/articles/what-is-the-impact-of-increasing-commodity-and-energy-prices-on-solar-pv-wind-and-biofuels>.

Figure 11  
**Annual consumption growth rates of major renewable energy sources**  
 (Percentage)



Source: UNCTAD secretariat calculations, based on data from BP, 2021, *Statistical Review of World Energy*, London.

## II. Some policy issues arising from recent market developments

38. Market trends as analysed in this note show significant price variations in 2021, notably inflationary pressures across different commodity groups. The upward trajectory was primarily driven by supply and demand fluctuations associated with the pandemic and the easing of related measures. Geopolitical tensions in Europe have also contributed to the fluctuations. Such price movements have implications for countries dependent on commodity imports and/or exports, particularly net food and fuel importers. For example, a rise in commodity prices may contribute to improvements in the export and fiscal revenues of exporting countries, allowing for increases in current and capital government expenditures, easing debt servicing and facilitating budgeting and development planning. By contrast, in import-dependent developing countries, including many of the world's poorest countries, high prices for food staples and fuels lead to inflationary pressures and difficulties in securing access to food and energy supplies at affordable prices. Higher food and energy import bills also lead to a worsened balance of trade. Ultimately, the net effect of such processes depends on whether a country is a net importer or net exporter of a particular commodity.

39. Policy issues arising from the recent developments in commodity markets highlighted in this note are briefly discussed in this chapter, along with policy options with regard to achieving sustainable development in commodity-dependent developing countries.

### A. Enhancing food security

40. Maize, wheat and rice are food staples that make up more than 40 per cent of the world's food energy intake.<sup>86</sup> An increase in maize, wheat and rice prices and in the overall food index poses a significant challenge to the availability of and access to food in low-income net food-importing countries. Rising fertilizer prices and unfavourable weather

<sup>86</sup> See FAO, 2018, *Once neglected, these traditional crops are our new rising stars*, 10 February.

have adversely impacted supply amid a rebound in demand due to the easing of pandemic-related restrictions. In addition, reduced exports of maize and wheat, due to the war in Ukraine, present an additional shock to commodity markets and an emerging threat to food security in an already fragile global post-pandemic economy. The Russian Federation and Ukraine together account for approximately half of the global trade in sunflower oil and seeds, a quarter of the global trade in wheat and a seventh of the global trade in maize and, in these markets, major disruptions in international supply chains had already occurred and prices surged in the first months of 2022.<sup>87</sup> UNCTAD, in a rapid assessment of the impact on trade and development of the war in Ukraine, highlighted that the crisis was of particular concern for countries in Africa and the least developed countries, which are particularly dependent on wheat imports from the Russian Federation and Ukraine; as many as 25 countries in Africa, including many of the least developed countries, import more than one third of their wheat from the Russian Federation and Ukraine and 15 countries import over half.<sup>88</sup> Higher food prices will disproportionately affect the poorest countries and populations, as they tend to spend a larger proportion of their incomes on food. Other food import-dependent countries will face larger food bills, a worsening balance of payments and rising exchange rate pressures.

41. Improving access to safe and nutritious food, and maintaining food security in times of crisis, involves collective efforts to protect the most vulnerable. Drawing from experiences during the pandemic, there is a need for social and economic policies that include social assistance and insurance programmes designed to counteract the effects of adverse economic cycles and serve as a buffer against income shocks. According to FAO, by May 2021, most countries had implemented at least one social protection initiative, including cash and in-kind transfers, labour regulations and the waiving or postponement of financial obligations.<sup>89</sup> Such programmes may present significant fiscal challenges in low-income countries, yet their continuation would be particularly beneficial for the most vulnerable population groups, given the current upward trend in food prices. In addition, Governments are encouraged to establish food security stocks as part of national food security strategies, in line with international trade policy. Such reserves could help lessen the negative impacts of spikes in global food prices on local consumers. Intervening along food supply chains may also lower the costs of nutritious foods, particularly in times of extreme price volatility.

42. Equally important is building more resilient and productive food systems. To this end, it is essential to strengthen agrifood productivity and market linkages along food supply chains and increase investments for a more productive and diverse agricultural sector. This is of the utmost importance in the light of the imperilled food security situation in various countries due to shocks associated with the pandemic and the war in Ukraine. Regional food supply chains, in which food is sourced in geographic proximity to consumers, can add resilience and flexibility to food systems while benefiting small-scale food producers that would otherwise face challenges in accessing larger markets.<sup>90</sup> Diversifying food import sources is also encouraged, to reduce vulnerability due to supply disruptions and enhance food security, particularly in net food-importing countries. For example, Singapore imports more than 90 per cent of food supply from over 170 countries, to effectively reduce the risks of reliance on a single source.<sup>91</sup> This is a key aspect of the food security system in Singapore, which also highlights the importance of engaging with industry players to facilitate food imports as a way of responding to logistical issues that might arise from external shocks. In addition in this regard, the Singapore Food Agency aims to further enhance food security by targeting increased local food production, to meet 30 per cent of national food needs.<sup>92</sup>

<sup>87</sup> UNCTAD, 2022, The impact on trade and development of the war in Ukraine: UNCTAD rapid assessment, available at <https://unctad.org/webflyer/impact-trade-and-development-war-ukraine>.

<sup>88</sup> Ibid.

<sup>89</sup> FAO, ed, 2021, *The State of Food Security and Nutrition in the World 2021* (Rome).

<sup>90</sup> RS Evola, G Peira, E Varese, A Bonadonna and E Vesce, 2022, Short food supply chains in Europe: Scientific research directions, *Sustainability*, 14(6):3602–3621.

<sup>91</sup> See <https://www.sfa.gov.sg/food-farming/sgfoodstory/our-singapore-food-story-the-3-food-baskets>.

<sup>92</sup> Ibid.

43. Major food-exporting countries need to respect commitments under the rules of the World Trade Organization, to ensure the free flow of food products and refrain from imposing export bans and other trade-distorting measures that can hinder the availability of food imports in vulnerable food-importing countries.<sup>93</sup> The need for open food, fuel and fertilizer trade, avoiding ad hoc policy measures such as trade restrictions, is highlighted amid ongoing geopolitical tensions due to the war in Ukraine.

## **B. Mitigating price volatility**

44. Fuel prices increased substantially in January–December 2021. Oil prices rose by 36 per cent, coal prices rose by 95 per cent and the natural gas index increased by 224 per cent in the same period. High fuel prices can provide a boost for commodity exporters as they attempt to rebuild economies in the aftermath of the pandemic, yet net fuel importers face significant challenges. A surge in fuel prices has already caused disruptions, with various regions facing power shortages and increasing electricity and transportation bills that have affected overall economic activity. Persistent high fuel costs threaten energy security, as they reduce the accessibility of energy sources at affordable prices. The war in Ukraine is set to add to these inflationary pressures in the near future, due to trade restrictions and reduced exports of oil, natural gas and coal from the Russian Federation.

45. Various strategies are available to mitigate the impact of highly volatile prices on commodity-dependent countries. Net oil-importing countries are recommended to maintain strategic reserves that can serve as a temporary measure to counter short-term oil shortages. The International Energy Agency, for example, requires each member State to hold emergency oil stocks equivalent to a minimum of 90 days of net oil imports, in order that they may be utilized in case of a severe oil supply disruption.<sup>94</sup> A fuel price mechanism can also insulate the economy from oil price volatility in the short term. This strategy entails countries carrying part of a price increase, to alleviate the social and economic burden this might have on domestic consumers. However, this can often lead to tax revenue volatility and high fiscal costs in the long term, in the case of persistent price increases. Therefore, based on the assumption that substantial price changes are usually transitory, countries may adopt a mechanism that incorporates price smoothing to delay the full pass-through of significant price changes to domestic markets.<sup>95</sup> Such a strategy, along with the implementation or expansion of social schemes that target the most vulnerable segments of the population, can also be employed to mitigate the effects of a price shock and fiscal volatility. For example, Jordan, in 2005, initiated a gradual increase of energy prices, to be in line with international market prices; the total price pass-through was achieved in 2008 and domestic fuel prices were increased by up to 76 per cent for certain petroleum products.<sup>96</sup> At the same time, concessionary electricity prices were maintained for households whose consumption was under a given threshold and cash transfers were provided to low-income households to lessen the burden of the rise in prices.<sup>97</sup> Adoption of such a mechanism, along with public expenditure on social protection initiatives, can help mitigate the impact of extreme price fluctuations at a relatively low fiscal cost. However, implementation of this type of measure may be unpopular, and requires concerted efforts to protect vulnerable groups.

46. Ultimately, such strategies cannot help withstand repeated price shocks. Instead, the long-term goal of net fuel-importing countries should be to reduce reliance on imported oil and other fuels through energy conservation, energy efficiency and diversification in the energy mix.<sup>98</sup> To this end, Governments are encouraged to promote investments that

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<sup>93</sup> See <https://unctad.org/news/covid-19-and-food-security-vulnerable-countries>.

<sup>94</sup> See <https://www.iea.org/articles/oil-stocks-of-iea-countries>.

<sup>95</sup> International Monetary Fund, 2012, Automatic fuel pricing mechanisms with price smoothing, available at <https://www.elibrary.imf.org/view/journals/005/2012/003/article-A001-en.xml>.

<sup>96</sup> *Ibid*; see <https://www.reuters.com/article/jordan-prices-idUSL0844342520080208>.

<sup>97</sup> International Monetary Fund, 2012.

<sup>98</sup> See <https://www.gov.uk/research-for-development-outputs/oil-shock-mitigation-strategies-for-developing-countries>.

incentivize improvements in energy efficiency systems along the value chain of energy-intensive sectors. Investments in alternative energy sources should also be encouraged. This would reduce not only the vulnerability of net fuel-importing countries, but also, potentially, their carbon footprints.

### **C. Renewable energy**

47. High prices for fossil fuels narrow competitiveness gaps with lower-carbon alternatives, which may appear more attractive and also support the goal of reaching a low-carbon future. Volatile energy prices can serve as a catalyst to accelerate the green energy transition but also present challenges. The current priority of Governments, particularly in net fuel-importing developing countries, should be to lessen the burden of increasing energy bills on vulnerable populations, to ensure access to energy for all at affordable prices, in line with Sustainable Development Goal 7. In the short term, this may add pressure to raise fossil fuel subsidies and risk shifting investments back into fossil fuel energy generation, thereby diluting planned support packages for low-carbon technologies due to tight fiscal capacities and the limited production of renewable energy. However, given the threat of climate change and the need for a green recovery, countries should resist the inclination to reinstate or increase support for fossil fuels. Instead, they should adopt policies that incentivize investments in sustainable green infrastructure, particularly in low-carbon technologies needed for greater capacity in renewable energy and energy efficiency improvements and storage, to ensure consistent and reliable energy supplies. As clean energy is mostly generated in the form of electricity, the expansion of electricity grid infrastructure and electrification is also encouraged, to allow for fuel switching and lower greenhouse gas emission rates in the long term.

48. Governments are also encouraged to facilitate access to finance for renewable energy and energy efficiency projects, which often require high upfront costs, and phase out subsidies on fossil fuels that distort prices relative to renewable energy sources. Building partnerships is also important, to enable the transfer of knowledge and technologies needed to boost renewable energy use and promote investments in resilient infrastructure for such sources. In addition to reducing greenhouse gas emissions, doing so would offer the prospect of diversifying the energy mix and building more resilient energy systems, as well as creating opportunities for new jobs and economic development.

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