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EDITORIAL

Food and Industrial Property in Context

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Almost a decade ago, after years of negotiations, the General Assembly of the United Nations adopted a Resolution on "Transforming our world: the 2030 Agenda for Sustainable Development."[1] The Resolution set 17 Sustainable Development Goals (SDG) comprising 169 targets that are to be reached by 2030. The first goal is "End poverty in all its forms everywhere", and the second "End hunger, achieve food security and improved nutrition and promote sustainable agriculture." The latter goal is specified by targets designed to "end hunger and ensure access by all people … to safe, nutritious and sufficient food all year around" (target 2.1), to "end all forms of malnutrition …" (target 2.2), "to double the agricultural productivity and incomes of small-scale food producers …" (target 2.3), and to ensure sustainable food production systems and resilient agricultural practices that increase productivity and production …" (target 2.4).

At mid-term of the Agenda 2030, the General Assembly endorsed a Political Declaration adopted at the High-level Political Forum on Sustainable Development that noted that "the achievement of the SDGs is in peril" because of the scant progress made, reaffirmed the principles of the 2030 Agenda and its goals, and expressed the commitment of governments to reinforce their efforts to achieve the Agenda's goals, in particular by comprehensive and targeted measures to eradicate poverty, by accelerating actions to end hunger, food insecurity and malnutrition in all its forms, and by promoting sustainable and resilient agriculture and food

[1] UN General Assembly, Resolution of 25 September 2014, United Nations, A/RES/70/1.

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systems.[2] In fact, however, the Declaration has hardly produced any effect. Thus, the FAO's 2024 assessment of "The State of Food Security and Nutrition in the World" reports "a continuing lack of progress towards the goals of Zero Hunger", and that virtually no progress has been made towards the global nutrition targets.[3] Worldwide, between 8.1 and 9.4% of the population suffer from undernourishment – the rate is 20.4% in Africa; 28.9% suffer from moderate or severe food insecurity; and 10.7% from severe insecurity. Populations in rural areas generally are more exposed to these hardships than populations in urban areas.[4] At the same time, in 2022, 35.5% of the world's population were unable to afford a healthy diet, the cost of which amounts to, on average, 3.96 PPP $ per person per day.[5]

Three main drivers hamper secure and affordable access to (healthy) food:[6] first, disruptive and lasting political conflicts, such as (civil) wars; second, climate variability and weather extremes or volatility resulting in, e.g., droughts or floods, loss of harvests or even of arable land, which all entail supply shortages and/or price increases;[7] third, economic slowdowns and outright downturns.[8] Frequently enough, two – or all three – of these driving phenomena occur simultaneously, interact and produce compounded negative effects, e.g., high inflation rates,[9] and they tend to hit

[2] *See* UN General Assembly, Resolution of 29 September 2023 with Annex "Political Declaration adopted at the High-level Political Forum on Sustainable Development" (HLPF) under the auspices of the General Assembly in September 2023, A/RES/78/1, *passim*, in particular para. 38. In part, this Declaration of the Sustainable Development Goals Summit was a reaction to the COVID-19 crisis, but overall, it constitutes a broad mid-term assessment of the state of the Agenda 2030.

[3] Food and Agricultural Organization of the United Nations (FAO) et al., 2024, The State of Food Security and Nutrition in the World – Financing to End Hunger, Food Insecurity and Malnutrition in all its Forms, Rome (FAO) 2024, p. xviii, xx, 4 *et seq*., 22 *et seq*.

[4] In numbers: worldwide 713 to 757 million people suffer from undernourishment; 2.33 billion people from moderate to severe food insecurity; 864 million people from severe food insecurity. For details *see* FAO et al. (2024), *supra* note 3, p. xviii *et seq*. (Ex. Summ.), 4 *et passim* (Ch.2). Northern America and Europe are least affected (4%), *ibid*. Fig. 5 with text p. 16; for the difference between urban and rural areas *see ibid*. Fig. 6 with text p. 17. Moderate food insecurity means a lack of consistent access to food that diminishes dietary quality, disrupts normal eating patterns, and can have negative consequences for nutrition, health and well-being. Severe food insecurity exists when people have likely run out of food, experienced hunger, and, at the most extreme, gone for days without eating, putting their health and well-being at grave risk; *see* FAO et al. (2024), *ibid*., Annex 2.

[5] FAO et al. (2024), *supra* note 3, p. xix *et seq*. (Ex. Summ.), 22 *et seq*. (Ch.2). This indicator rests on national estimates of the costs of acquiring the cheapest possible healthy diet in a country. PPP stands for "purchasing power parity". For regional cost differences and price increases *see* FAO et al. (2024), *ibid*. p. 24 *et seq*.

[6] For the following *see* FAO et al. (2024), *supra* note 3, p. 56, 58 *et seq*.

[7] For details *see* FAO (2018), 2018 The State of Food Security and Nutrition in the World – Building Climate Resilience for Food Security and Nutrition, Rome (FAO) 2018, p. 38 *et passim* (Part 2). It is not only climate variability and weather extremes as such, but their steadily increasing frequency and non-predictability that makes them a severe driver of food insecurity in already vulnerable countries.

[8] For details *see* FAO (2019), 2019 The State of Food Security and Nutrition in the World – Safeguarding Against Economic Slowdowns and Downturns, Rome (FAO) 2019, p. 50 *et passim* (Part 2). An important aspect is that dependence on exports or imports of (primary) commodities, *i.e.*, a structural deficit of diversification, characterizes the economies of most low-income countries (LICs) and lower middle-income countries (LMICs), and systematically reinforces the negative impacts of economic slowdowns and downturns on food security.

[9] *See* World Bank (2024), Food Security Update December 13, 2024, p. 3 and Annex A.

low-income countries or lower middle-income countries most strongly and almost systematically.[10] Although these drivers are of quite a different nature – by definition climate change is a global and lasting phenomenon that actually or potentially affects the resources for and the bases of food production and supply in all countries – the high exposure of low-income and lower middle-income countries to them points to a common denominator that is of interest here, namely to structural poverty.[11]

Poverty is referred to here not in its socio-political connotation but in its simplest meaning as a fundamental limitation of disposable income, i.e., as the absence of purchasing power. The structural dimension it has in the economies of low-income and lower middle-income countries reveals the basic conflict that exists between the need of general accessibility to affordable food on the one hand, and, on the other, the availability of industrial property protection in the food sector. Industrial property protection inherently leads to prices beyond competitive levels because it rests on a trade-off between the grant of a time-limited position of exclusivity on the market for the protected product and open competition for making that product generally available at the lowest possible price. Under conditions of structural poverty, that trade-off cannot be made legitimately at the expense of the accessibility to basic food and the security of its availability, the less so as the rationale underlying the trade-off does not or at least not fully apply. The purpose of the grant of exclusivity is to secure for its holder alone the profit opportunities that otherwise competitive markets offer for its innovative products. This means that the "IP incentive" depends on what demand is willing to pay. However, under conditions of structural poverty and necessity, there is no or only insufficient room for such willingness or, put differently, for free choice. In short, because the protection of industrial property constitutes a market mechanism, it fails when markets do not work. If, nevertheless, it is implemented and relied upon, it tends to either exclude entire segments of the population or to systematically exploit their structural dependency. In addition, a closer look at the markets for food in low-income and lower middle-income countries would be necessary in order to find out whether or to what extent they are open to competition or rather subject to regulation, including price regulation, or to forms of subsidization of the offer or the

[10] *See* FAO et al. (2024), *supra* note 3, Figs. 17, 18 and accompanying text.

[11] For the relationship between food insecurity and the extent of structural poverty in a country *see* FAO (2019), *supra* note 8, p. 79 *et seq*. (Part 2, sub 2.3). The broad definition of food security used in the FAO's reports explains why the relationship appears to be ambivalent. However, as poverty is generally defined by reference to different levels, namely 2.15 PPP $ (= extreme poverty), 3.65 PPP $ (= LMIC level), and 6.85 PPP $ (= level of upper middle-income countries) per person per day, its prevalence coincides with the countries that are most exposed to the drivers of food insecurity, *see* World Bank (2024), Poverty, Prosperity and Planet Report 2024: Pathways out of the Polycrisis – Overview, Washington D.C. (World Bank) 2024, p. 1 *et passim*.

demand by public and/or private money, the purpose of which is other than to benefit the holders of industrial property.[12]

While the upshot of this analysis of food insecurity is that industrial property is likely to contribute the least to – domestic – innovation in countries where innovation is needed most,[13] it does not mean that industrial property has no role to play in relation to food. It only means that the role industrial property may play depends on the context in which it is called upon, and that this context needs to be defined more broadly than as industrial property protection as it applies to food. What matters is the overall context in which industrial property and food meet in an economy. An example is the common justification of industrial property protection in sensitive sectors, such as health or precisely food, which is that protection is needed in the interest precisely of the provision of healthier or more easily affordable food. Whatever value that argument may have in the abstract, it becomes plausible only if the legislative implementation of protection by normative terms determining the grant, the scope and the enforcement of protection takes account of the socio-economic conditions of a country and if the authorities and courts interpret them accordingly. Thus, the trade-off may shift, albeit only within the limits set by international law. More particularly, the standards of protection may be made more demanding, its scope may be narrowed or exceptions may be read liberally.[14]

Admittedly, even if in a given country political circumstances are favorable to such a country-specific approach, it will be anything but easy to follow this approach. Despite a huge body of theoretical literature and empirical studies, our knowledge of the conditions of an economic and socio-political optimum of protection remains unsatisfactory, and the complexity of the interacting factors and forces is such as to make outcomes unpredictable.[15] At any rate, an instrumentalist approach to industrial property protection that selectively targets particular goals, areas or subject-matters of innovation is doomed to fail. Industrial property systems are technology-neutral framework regulations of markets that function properly only if, first, market actors may freely choose the innovation opportunities they think will allow a profitable recoupment of the investments they make, and if, second, they have to select and exploit these opportunities under conditions of effective competition. In this regard, the development, production and distribution

[12] For the "Financing to end hunger, food insecurity and malnutrition in all its forms" *see* FAO et al. (2024), *supra* note 3, p. 45 *et passim* (Ch. 3), 71 *et passim* (Ch.4); for the precarious nature of private financing of domestic production of food *see ibid*. p. 88 *et seq*.

[13] Accordingly, the number of applications for and grant of patents in LICs and LMICs is rather low, with non-resident applications typically outnumbering applications by residents; *see* WIPO (2024), World Patent Indicators 2024, Geneva (WIPO) 2024, Tables A9, A10, A15, A16, A18. A notable exception is India; *see ibid*., p. 10.

[14] *See inter alia*, M. Lamping, R. M. Hilty, et al. (2014) "Declaration on Patent Protection – Regulatory Sovereignty Under TRIPS", 45 IIC p. 79; M. Lamping and R. M. Hilty (2016) "Patent Declaration: Reasons and Purposes" 6 UC Irvine L.Rev. p. 469.

[15] For the former *see* K. Maskus (2017) "Cognitive dissonance in the economics of patent protection, trade and development" in G. Ghidini, H. Ullrich and P. Drahos (eds) Kritika – Essays on Intellectual Property, Vol. 2, Cheltenham (Elgar), 1 *et passim*; for the latter E. Gold (2024) "Regulatory capitalism and legal evolution" in H. Ullrich, P. Drahos and G. Ghidini (eds) Kritika – Essays on Intellectual Property, Vol. 6, Cheltenham (Elgar), pp. 193, 199 *et passim*.

of food constitutes no exception since it is not an isolated sector of the economy. The value-creating chain from farm to table depends on the use of efficient machinery, on the existence of reliable systems and means of transportation, on the availability of safe and proper packaging, storage, conditioning and preservation of food, and on all levels on the use of modern chemicals and the means of advanced digital transformation of production, distribution etc., thus on the inputs of a large diversity of industries. The requirements of environmental sustainability and the constraints resulting from climate change and demographic growth only add to the pressure on traditional agrifood systems that the lasting trend toward industrialization puts on them and, in fact, on all agrifood systems.[16]

There are no exceptions or escapes from this trend, not even in the field of plant breeding, which, due to modern genetics, is more and more driven by technology. Therefore, the fundamental principle takes on ever more importance, which is that industrial property does not have a value in itself but is granted for a purpose. It has to serve dynamic competition for innovation on the markets it covers and, thereby, to contribute to socio-economic progress. Although the Agenda 2030 sets universal goals and targets for sustainable development in all countries, it is for each individual country to reach them by policies and strategies corresponding to their particular needs and circumstances.[17] It is only if adapted to the country's context and limited to its purpose that industrial property will adequately serve goals 1 and 2 of the Agenda.

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[16] *See* FAO (2022), The State of Food and Agriculture 2022 – Leveraging Automation in Agriculture for Transforming Agrifood Systems, Rome (FAO) 2022, p. 1 *et passim*, 17 *et passim*; FAO (2024), The State of Food and Agriculture 2024 – Value-driven Transformation of Agrifood Systems, Rome (FAO) 2024, p. 8 *et passim*, 17 *et passim*, the latter report pointing out that by share of GDP the hidden (environmental, social, health) costs of traditional agrifood systems are considerably higher than those of industrial agrifood systems, the former being typical of LICs and MLICs and the latter of high-income countries.

[17] *See* UN General Assembly, Resolution of 25 September 2015 (Agenda 2030), *supra* note 1, para. 55.