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# PRE-MARKET AUTHORIZATION OF ALTERNATIVE PROTEINS: WHAT DOES IT MEAN FOR LOW- AND MIDDLE-INCOME COUNTRIES IN THE CONTEXT OF FOOD SYSTEMS TRIPLE CHALLENGE?

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As climate change is expected to have considerable impacts on food security and food safety, food systems around the world are increasingly confronted with what is commonly described as a triple challenge: (1) ensuring the right to adequate food for a growing population; (2) sustaining incomes and livelihoods along food chains while supporting rural development; and (3) reconciling food and livelihood objectives with environmental sustainability. This work examines the role of pre-market authorization of alternative proteins in ensuring food security and food safety—both embedded in the United Nations Sustainable

Development Goals—with particular attention to the protection of public health and the maintenance of consumer trust, analysed through the lens of low- and middle-income countries. It was developed based on a strategic reading methodology of documents produced by leading international institutions involved in food systems and food safety governance. Alternative proteins have emerged as potential contributors to food system transformation and protein supply diversification. Many, however, fall under the classification of novel foods and are subject to pre-market authorization in several jurisdictions. According to the Codex Alimentarius, New Food Sources and Production Systems (NFPS)—such as plant-based protein products, foods derived from fermentation, insect-based foods and cell-based products—raise specific safety considerations. The analysis highlights that, in low- and middle-income countries, technical, scientific and regulatory challenges are particularly pronounced. These countries often face greater vulnerability to the impacts of climate change. At the same time, food safety systems in many of these contexts are characterised by limited resources, including limitations in data availability, infrastructure and technical expertise, as well as fragmented regulatory frameworks and constrained institutional capacity, for conducting robust risk assessments. These conditions shape how risk assessment requirements for alternative proteins are implemented and raise important questions for their governance in unequal food systems.

Palavras-chave: new food sources and production systems; nfps; novel foods; food safety; risk assessment.