

# INDEX

- Access-centred approach, 20  
Access-to-assets models, 71  
Action theory, 71  
Actor–network theories, 181  
Adaptive capacity, 75  
Adjustment costs, 135–136  
Adoption-Diffusion Model (ADM), 138  
AFNs. *See* Alternative food networks (AFNs)  
Agency-oriented factors, 71  
Agency theory, 144  
Agricultural Household Model (AHM), 129, 146  
Agricultural knowledge and innovation systems (AKIS), 5, 137, 173  
Agricultural knowledge systems, 172  
Agricultural livelihood strategy, 28  
Agro-food system, 108–109, 174  
Agro-industrial competitiveness, 141, 143  
Agro-industrial models, 114–115  
Alternative food networks (AFNs), 108, 109  
Analytical knowledge, 181  
Appraisal rules, 118  
Assemblages, 107–108  
    actor-centred vision, 113  
    agri-food models, 108–109  
    agro-industrial models, 114–115  
    cognitive factors, 114  
    domestic models, 114  
    ecological function, 116  
    food security, 109–110  
    GLAMUR project, 110, 112  
    governance, 117–119  
    intermediate system, 112  
    local and global supply chains  
        performance, 110, 111  
        modern and traditional types, 112  
        multidimensional and multilevel approach, 119  
        normative factors, 114  
        organic quality product, 114  
        policy tools, 117  
        re-assembling process, 116  
        regional food systems, 117  
        socio-technical configurations, 112  
        socio-technical entities, 113  
        sustainability assessment, 116, 117  
        sustainability dimensions and attributes, 110  
        territorialization, 114  
        territorialized food systems, 115, 117  
        TRANSMANGO project, 116  
    Bargaining-oriented approach, 185  
    Blurring farm borders, 143–144  
    Business resilience, 160  
    Civil society organizations (CSOs), 116, 118, 119  
    Climate change, 33, 43, 70–71, 138, 187, 196  
    Codified knowledge, 181  
    Cognitive institutions, 56  
    Commitment rules, 118  
    Community food security (CFS), 30–31  
    Conceptual model of food system, 2  
        activities, 45–48  
        barriers, 57–58  
        choices, 58  
        cross-level and cross-scale interactions, 60  
        demand, 50–51  
        ecosystem with technology, 44  
        feedbacks, 59–60

- food system regime, 44, 45
- human-made assets, 51–55
- institutions, 44, 55–57
- loss and waste management, 51
- multiple scales and levels, 59, 60, 61
- natural assets, 51–53
- outcomes, 55
- power relations, 44, 58–59
- socioecological system (SES), 44
- sociotechnical system (STS), 44
- supply, 48–50
- Conditions-Strategies-Performances (CSP) model, 150
- attitudes, 138
- decision-making process, 127–128
- external conditions, 130–136
- internal conditions, 128–130
- perception, 136–137
- producer performances, 157–159
- risk-aversion level, 138
- self-organizing system, 136
- social learning and knowledge, 137
- Contract, types, 155, 156
- Crisis and conflict theory, 71
- Cross-resources/cross-service costs, 52
- Cultural economy model, 42
- Decision-making process, 127–128, 139–140, 188, 199–200
- Demand-driven approach, 195
- Direct entitlements, 25
- Ecological services, 82, 101, 134
- Entitlement approach, 23, 25–26, 70
- Environmental awareness, 195
- Environmental security, 55
- Ericksen model, 11
- Ex ante and ex post risks, 154
- Export-oriented industrial food systems, 16
- Exposure, 74
- Extended governance, 63, 119
- External pressures, innovation drivers, 196
- Family farming strategies, 2, 129, 136, 161
- Farm-generated income, 32
- Financial assets, 54
- Financial market, 133
- Financial resources, 143
- Food and Agriculture Organization (FAO), 24, 28, 51, 172
- Food and nutrition security (FNS), 1–5, 10, 109
  - access dimension, 21–22
  - agency dimension, 23
  - availability dimension, 21
  - community food security (CFS), 30–31
  - control dimension, 23
  - ecosystem services, 43
  - entitlement approach, 23, 25–26
  - food citizenship, 30
  - food democracy, 29–30
  - food insecurity, 13
  - food security, defined, 20
  - food sovereignty, 26–27
  - vs. food system, 11, 12, 15
  - frames, 34
  - livelihoods approach, 27–29
  - neoproductivist framework, 24–25
  - outcomes, 52, 61
  - productivism, 24
  - Right to Food, 29
  - small farms' contribution. *See also* Small farms' contribution, 40
  - social and economic factors, 55
  - stability dimension, 22–23
  - sustainable, 14, 15, 21, 31–35
  - utilization dimension, 22
  - vulnerability assessment, 42
- Food chain models, 40, 41
- Food citizenship, 29, 30

- Food consumption system, 10, 13, 14, 15
- Food context models, 41
- Food cycle models, 41
- Food demand, 45, 46, 50–51, 62, 133
- Food democracy, 29–30
- Food insecurity, 20, 22, 28
- Food loss and waste management, 51
- Food poverty, 80
- Food processing and packaging, 50
- Food production system, 10, 13, 14
- Food security, defined, 20
- Food sovereignty, 4, 26–27
- Food supply, 48–50, 62
- Food systems
  - activities, 11, 40, 41
  - assemblages. *See* Assemblages
  - components. *See also* Conceptual model of food system, 41
  - conceptualizations, 11, 41, 42
  - consumption system, 13, 14, 15
  - cultural economy model, 42
  - defined, 10
  - diversity, 33
  - ecological aspect, 62
  - economic aspect, 62
  - Ericksen model, 11
  - export-oriented industrial food systems, 16
  - global environmental change (GEC), 43
  - governance, 13, 63–64
  - imported food, 14
  - insecurity, 13
  - mixed farming, 16
  - multi-actor systems, 17
  - multisystem interactions, 61–62
  - outcomes, 42, 43
  - political aspect, 62
  - production system, 13, 14
  - regional approach, 12, 16
  - self-production, 13
  - small farms, 17–18
  - small farms' connections, 12
  - social aspect, 62
  - spatial representation, 15
  - supermarketization, 10–11
  - technological aspect, 62
  - territorial approach, 12, 16
  - types, 41
  - vulnerability, 40, 42–43
- Food web models, 41
- Foresight Report, 24
- Foucault's theory, 181
- Fuzzy Cognitive Mapping (FCM), 100
- Giddens' theory, 181
- GLAMUR project, 110, 112
- Global Environmental Change and Food Systems (GECAFS), 42, 43
- Global environmental change (GEC), 43
- Granovetter' theory, 181
- High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security (HLPE), 9–12, 20
- Household resilience, 160
- Human assets, 54
- Human Ecology, 70
- Human-made assets, 45, 51–55, 57–59, 73
- Indirect entitlements, 25–26
- Innovation policies
  - agricultural/RD innovation, 172
  - agro-food system, 174
  - awareness, 173
  - conventional *vs.* alternative paradigms, 175
  - drivers role, 194
  - environmental impact, industrial agriculture, 172
  - first-order innovation, 175

- goals, 194, 195
- governance pattern, 199–200
- liberalization, 172
- MULTAGRI project, 175
- productivist, 174
- retailers, 173
- rural development, 172
- second-order change, 174
- second-order/radical innovation.
  - See also* Second-order/ radical innovation, 175
- small farmers, 194–199
- supermarkets, 173
- SUS-CHAIN project, 175
- tandem operation projects, 173
- top-down approach, 172
- transformational potential, 188
- Institutional arrangements (IAs)
  - conditions, 147, 148
  - contract types, 155, 156
  - coordination mechanisms, 154
  - dimensions, 152, 153
  - ex ante and ex post risks, 154
  - formal constraints, 147
  - formal rules, 148
  - governance types, 150
  - horizontal cooperation, 148–149
  - incentive mechanisms, 155
  - informal rules, 147
  - market organization, 148
  - overarching strategy, 150–152
  - relational contract, 155
  - settlement risks, 155
  - social environmental level, 147–148
  - socio-demographic conditions, 147–148
  - socio-institutional conditions, 148
  - supply chain, 152–153
  - vertical cooperation, 148–150
- Insurance market, 133
- Intellectual assets, 54
- Internal governance, 63, 119
- Internal pressures, innovation drivers, 196
- International Monetary Fund (IMF), 77
- Knowledge infrastructures, 200
- Learning process, 179–180
- Livelihood framework, 77
- Livelihood security model, 27–29
- Livestock production, 49
- Malnutrition, 22
- Market imperfections, 134–136
- Market organization, 148
- Market orientation, 143
- Millennium Ecosystem Assessment (MEA), 53
- MULTAGRI project, 175
- Multilevel perspective (MLP)
  - features, 177–178
  - macro level, 181–184
  - meso level, 180–181
  - micro level, 179–180
  - societal functions, 178
  - socio-technical landscape, 178
  - transition theory, 177, 178
- Natural assets, 45, 51–53, 57–59, 73
- Natural hazards approach, 70
- Neo-classical economic approach, 144
- Neo-institutional approach, 144
- Neoliberal development discourse, 26
- Neoliberal entrenchment, 24
- Neoproductivist framework, 24–25
- Non-agricultural livelihood strategy, 28
- Normative institutions, 56
- Nutrient management scheme, 196
- Nutrition security. *See also* Food and nutrition security (FNS), 21, 28, 29
  - consumers' awareness, 33
  - malnutrition, 22

- regional consumption, 31
- small farms, 20
- Organization for Economic Co-operation and Development (OECD), 12
- Panarchy Framework, 42
- Physical assets, 54
- Policy. *See also* Innovation policies, 133
- Post-war productivism, 24
- Pressure and Release model, 70
- Production-centred approach, 20
- Productivism, 24, 27, 35
- Purpose-filled-in matrix, 100
- Regional governance patterns, 64
- Regional production system, 13, 14
- Regulations, 133
- Regulative institutions, 56
- Relational contract, 155
- Resilience Alliance, 97
- Right to Food, 29
- Risk exposure, 133
- Risk management, 145–146
- Risk-taking activities, 50
- Royal Society report, 24–25
- Rural development, 144–145
- SALSA project, 4
- Second-order/radical innovation, 5
  - black box, 176
  - dynamics, 185–187
  - technological artefacts, 177
  - linear model, 176
  - multilevel perspective (MLP). *See* Multilevel perspective (MLP)
  - neo-classical models, 176
- Self-enforced contract, 155
- Self-organizing system, 136
- Self-reliance, 30–31
- Self-service, 173
- Self-weighting tools, 173
- Semi-subsistence farming, 32, 35
- Sensitivity, 74
- SES. *See* Socioecological system (SES)
- Settlement risks, 155
- Seven-step framework, vulnerability assessment
  - adaptation strategies, 103
  - characteristics, 96–97
  - cross-scale and cross-level connections, 95
  - ecological services, 101
  - factors identification and analysis, 93–95
  - food system profile, 90–91
  - framework matrix, 100, 102
  - Fuzzy Cognitive Mapping (FCM), 100
  - model pathways, 98–99
  - outcomes, 92–93
  - performance, 91–92
  - purpose-filled-in matrix, 100
  - qualitative and quantitative elements, 100
- Resilience Alliance, 97
- shocks and stresses, 88, 89
- social services, 101
- stakeholders engagement, 88–89
- TRANSMANGO matrix, 97
- two-way communication, 89–90
- Vulnerability Scoping Diagram (VSD), 99–100
- Small farms' behaviour
  - agro-industrial competitiveness, 141, 143
  - blurring farm borders, 143–144
  - complementary strategies, 140
  - Conditions-Strategies-Performances (CSP) model. *See also* Conditions-Strategies-Performances (CSP) model, 126
  - cope with decline, 146–147

- decision-making process, 126
- external factors, 127
- farmer-centred approach, 126
- institutional arrangements (IAs).  
     *See also* Institutional  
     arrangements (IAs), 126
- intermediate and cross-cutting  
     strategies, 139–140
- performances and farm resilience,  
     159–161
- political support, 146
- qualitative and quantitative  
     analysis, 126
- risk management, 145–146
- rural development, 144–145
- strategic planning, 127
- strategies range, 139
- strategy types and clusters  
     identification, 140–142
- Small farms' contribution, 31–35
- Social assets, 54
- Social capital, 180
- Social innovation, 173
- Social justice, 30
- Social learning, 180, 200  
     knowledge, 137
- Social-science frameworks, 81
- Socio-demographic factors, 134
- Socio-ecological resilience, 160–161
- Socio-ecological system (SES), 44, 59,  
     75–76, 87–88, 97
- Socioeconomic vulnerability factors,  
     71, 72
- Socioeconomic welfare, 61
- Socio-institutional factors, 133–134
- Socio-spatial knowledge networks  
     (SSKN), 137
- Socio-technical system (STS), 44, 59,  
     87–88, 186, 187
  - actors, 182–183
  - artefacts, 184
  - components, 182
  - material elements, 181
  - rules and institutions, 183–184
- Solidarity networks, 26
- Stakeholders engagement, 88–89
- Structure-Conduct-Performance  
     (SCP) approach, 127
- Subsistence farming, 32, 35
- SUFISA project, 126, 127, 129, 130,  
     131, 139
- Supermarketization, 10–11, 173
- Support schemes, 196
- SUS-CHAIN project, 175
- Sustainable intensification, 24, 25
- Sustainable Livelihood Framework,  
     52
- Synthetic knowledge, 181
- Tacit knowledge, 181, 186
- Technocratic development discourse,  
     26
- Technological devices and methods,  
     133
- Territorialized agro-food systems, 12,  
     13, 16, 115, 117
- Threats, 71
- Toronto Food Policy Council, 30
- Transaction costs, 134–136
- Transition theory, 177, 178, 188
- TRANSMANGO project, 80, 81, 97,  
     116
- United Nations Environment  
     Programme (UNEP), 10,  
     12, 112
- Unpacking food systems. *See* Food  
     systems
- Vulnerability, 2, 4, 48, 62, 177
  - assessment. *See also* Vulnerability  
     assessment, 42, 43, 52,  
     54–55
  - climate change, 43, 70
  - components, 73–75
  - defined, 73
  - Entitlements' approach, 70
  - external factors, 71, 72, 73

- generic factors, 73
- hazards, defined, 70–71
- households and regions, 40
- Human Ecology, 70
- human-made assets, 54–55
- institutional systems, 57
- internal factors, 71, 72, 73
- level, 53
- natural hazards approach, 70
- Panarchy Framework, 42
- perturbation, 71
- policy implications, 60
- Pressure and Release model, 70
- specific factors, 73
- sphere and knowledge domain, 71
- stress, 71
- Vulnerability assessment
  - ‘access’ model, 77
  - causes, 76–77, 80
  - determinants, 79
  - dimensions, 87
  - elements, 84
  - environmental change, 83
  - features, 81
  - individuals and households, 78–79
  - International Monetary Fund (IMF), 77
  - model, 84
  - observed systems, characteristics, 75–76
  - right-based approach, 78
  - root causes identification, 82, 87
  - seven-step method. *See* Seven-step framework, vulnerability assessment
  - social approach integration, 82
  - social-science frameworks, 81
  - sustainability, 84
  - synthesis, 83
  - system(s)/people drivers, 83
  - transgresses disciplines, 81
  - TRANSMANGO framework, 80, 81
- Vulnerability Scoping Diagram (VSD), 99–100