

Index

A

- Above-ground biomass (AGB), 292
- Absorbed photosynthetically active radiation (APAR), 47
- Adaptation
 - adaptive management, 291
 - cross scale interaction, 292
 - decision making, 291
 - definition, 291
 - livelihood, 292
 - local knowledge, 292
 - options, 291, 292
 - typologies, 291
- AGB storage
 - agro-ecological settings, 308
 - EO, 307
 - fuelwood collection, 308
 - global change, 308
 - human impacts, 308
 - quantitative assessment, 309
 - standard forestry observations, 307
- Agriculture, forestry and other land use (AFOLU), 35
- Agro-forest systems, 10
- Agropastoral activities
 - animal husbandry, 273
 - carbon input/output activities, 275
 - crop planting and harvesting, 274
 - Gatlang VDC, 273
 - parma*, 274
 - women contribution, 277
 - work calendar, 274
- Alpine grassland ecosystem, 152, 164, 175, 177
 - animal husbandry, 166
 - CO₂/O₂ balance, 165
 - degradation, 166
 - ecological function, 165
 - function, 165
 - life function, 166
 - livelihood function, 166
- Alpine grasslands, 187
- Alpine grazing system, *see* Grazing
 - exclusion; Optimized grazing management; Qinghai-Tibetan Plateau (QTP)
- Alternative Energy Promotion Center (AEPC), 79
- Animal distribution, 112
- Animal husbandry, 80
- Anthropogenic emissions, 146
- Anti-poverty programs, 318
- Artificial grassland
 - alpine meadow and alpine grassland ecosystem, 216
 - carbon cycle research, 216
 - carbon sequestration, 216
 - ecological environment, 215
 - economic benefits, 322, 323
 - global carbon cycle, 216
 - legume grass pasture and gramineous pasture, 215
 - local plant seeds, 321
 - perennial and annual, 215
 - soil carbon content, 322
 - Tibetan plateau, 215
 - unicast, 215
- Asian Water Tower, 28
- Australian TERN program, 18

B

- Bali roadmap, 4
- Bhutanese Himalayas
 - fuel use pattern
 - biogas, 82
 - biomass, 82
 - land use pattern and carbon management
 - CBFs, 81
 - environmental protection, 80
 - forest resources, 80
 - rangeland, grassland, pasture and pastoralism, 81
 - shifting cultivation, 80, 81
 - physiography and indigenous people, 79
- Biochar
 - alpine grasslands, 188
 - application, 191, 192
 - biomass, 189
 - domestic yaks, 189
 - economic and ecological services, 187
 - environmental and socio-economic factors, 188
 - grasslands ecosystem, 186
 - harsh environment, 187
 - mountain grasslands, 192
 - porous structure, 191
 - production, 190
 - properties, 192
 - pyrolysis units, 193
 - QTP, 187, 189
 - soil properties, 189
- Biochar application, 193
- Biodiversity, 29
- Biogas Support Program Nepal (BSP-N), 79
- Biomass energy, 70, 71, 77
- Biome Parameter Look-up Table (BPLUT), 51

C

- Carbon and livelihood balance, 202–203
- Carbon compensation
 - accurate and coordinative- evaluation systems, 11, 12
 - carbon sinking benefit, 16, 17
 - climate governance, 17
 - ecological service and carbon benefit accounting, 14, 15
 - field work design, 13
 - innovative action, 12, 13
 - livelihood benefits, 15
 - livelihood improvement, 17
 - social-economy strategy, 17
 - sustainable development, 16

- Carbon cycle, 19
 - HKH region (*see* Hindu Kush-Himalayan (HKH))
- Carbon dynamics
 - beneficial ecosystem services, 47
 - data analysis
 - DEM, 52
 - MODIS GPP, 50, 51
 - ecosystem change, 47
 - glaciers, 46
 - GPP estimation, 58, 59
 - HKH region, 48, 50
 - methodology, 47
 - MODIS GPP, 48, 57, 58
 - physiographic landscapes, 46
 - sustainable development, 47
 - terrestrial GPP, 47
 - variation (*see* GPP variation)
 - vegetation productivity, 47
- Carbon emission, 117, 120
 - atmosphere, 120
 - CH₄ emission, 117
 - industrialization, 120
 - livestock production emission, 119
 - pastoral system, 119
- Carbon fixation effect
 - ecosystem plants, 219
 - factors, 219
 - grazing and enclosure, 219
 - human management, 219
 - non-degraded grassland, 219
- Carbon-fixation-livelihood, 10
- Carbon-livelihood equivalent model, 15
- Carbon-livelihood strategies, 316
- Carbon management
 - agropastoral activities, 273, 274
 - collaborative network and feedback mechanism, 18, 19
 - decision-making, 268
 - household decision making, 277
 - indigenous knowledge system, 267
 - labor contribution, 276
 - emission, 277
 - households, 276
 - input, 275
 - livestock dung, 276
 - output, 275
 - long-time monitoring and evaluating plots system, 18
 - methodology
 - Gatlang VDC, 269
 - purposive sampling method, 270
 - rangelands, 268
 - repeatable evaluation techniques, 18

- transhumance pastoralism, 268, 270
- women's role, 271, 273
- Carbon management campaign, 316, 318, 330, 332
- Carbon payment schemes, 309
- Carbon pool, 32
 - afforestation activity, 7
 - carbon budget, 5
 - forest ecosystem, 5
 - Garhwal Himalaya, 7
 - land types, 7
 - land utilization, 7
 - Quercus semecarpifolia*, 6
 - shrubland and grassland ecoregions, 6
 - topographical change, 6
 - vegetation coverage, 7
- Carbon sequestration, 66, 282
 - assessments, 305
 - community-based land management projects, 305
 - community-oriented, 304
 - correlation, 218
 - ecosystem services, 309
 - grassland management, 218
 - grass planting and grassland vegetation, 217
 - land management practices, 309
 - Medicago sativa*, 217
 - plant's growth and the carbon transport, 217
 - pro-poor carbon storage, 310
 - recovery effect, 217
 - soil carbon source and sink function, 218
 - storage, 305
 - trade-off, 305
- Carbon sinks, 138
 - afforestation reward, 37
 - CH₄ fluxes, 139
 - ecological industry, 36
 - education, 38
 - emission reduction and fixed numerical criteria, 36
 - global warming, 138
 - infrastructure, 37, 38
 - Paris Agreement, 35, 36
 - public-private reasonable configuration, 37
 - remote areas, 138
 - resources, 30
 - technical assistance, 38
 - terrestrial ecosystems, 138
 - wetland sediments, 137
- Carbon stock changes
 - carbon sink, 32
 - carbon source, 32, 33
- Carbon storage
 - AGB, 307
 - below ground carbon, 306
 - climate change mitigation, 306
 - SOC, 306
- Cation exchange capacity (CEC), 192
- CBM-CFS3 model, 15
- Central Bureau of Statistic (CBS), 269, 276
- China Council for International Cooperation on the Environment and Development (CCICED), 256
- China's Grassland Law, 201
- China's National Climate Change Program (CNCCP), 255
- Classical Mountain Nomadism, 111
- Climate change
 - adaptation policy, 289, 291
 - glaciers, 26
 - natural and human factors, 26
 - pastoralist, 285
 - physical stimuli, 292
 - third pole, 286
 - uncertainties, 291
 - yak husbandry, 287
- Climate Change Strategy and Action Plan (CCSAP), 253
- Climate governance, 4, 26
- Climate variability, 283, 285
- Climate warming, 286, 306
- Combined Mountain Agriculture, 111
- Common-pool theory, 304
- Community-based forest management (CBFM), 70
- Community based forests (CBFs)
 - Bhutanese Himalayas, 81
 - Indian Himalayas, 69, 70
 - Nepalese Himalayas, 76, 77
- Community based management (CBM), 304
- Community cooperation programs, 326
- Community forest program (CFP), 77
- Community forestry, 81
 - carbon storage/tree density, 325
 - definition, 325
 - evaluation, 325
 - food security, 326
 - pathways linking, 326, 327
 - REDD+ program, 326
- Community forestry management (CFM)
 - Nepal
 - benefits, 235–236
 - CFUGs, 233, 234
 - community plan, 234
 - conservation and protection, 234
 - development strategies, 234

- Community forestry management (CFM) (*cont.*)
 environmental quality, 235
 forest products, 234
 legal and policy framework, 235
 outcomes, 235
 policies, 235
 private sector, 236–237
 protection and management, 233
- Community forest user groups (CFUGs), 76, 234
- Community pasture
 community cooperation programs, 326
 cooperation model, 327
 culture and industries, 328
 ecological compensation, 327
 ELSBs, 328, 329
 natural resource management system, 328
- Conservation islands, 330
- Conservation Reserve Program (CRP), 66
- Cooperation model, 327
- Cordyceps*
 business, 287, 288
 cultural tourism, 288
 growing grassland, 287
 harvesting, 288
 soft gold, 287
- Cordyceps sinensis*, 283, 284
- Cropping-forage rotation, 324–325
- Culture-cognitive elements, 100
- D**
- Daily milk yield, 155
- Data envelopment analysis model, 15
- Decomposition, 137
- Deenbandhu, 72
- Deforestations, 10, 27, 35, 37, 67, 71
- Degraded grassland reclaim
 artificial-grassland, 321
 ecological function, 321
 land degradation, 321
- Detached Mountain Pastoralism, 111
- Digital elevation model (DEM), 52
- Dry matter (DM), 116
- Dung, 154
 production, 158
- E**
- Earth observation (EO), 307
- Ecological compensation, 12, 14, 16, 18, 323, 327
 carbon benefits, 323
 effective practice, 316
 marketing standard, 327
 periodic joint scientific surveys, 329
- Ecological, livelihood, and social benefits (ELSBs), 328
- Ecological Resettlement, Turning Pastureland into Grassland, and Nomadic Settlement*, 119
- Ecological services function, 165, 167–170, 179
- Ecological settlement, 290
- Ecological supermarkets, 126
- Economic prosperity
 water and poverty, 249–250
 water exploitation and use, 250–251
- Ecosystem services, 29, 30
 challenges, 309
 cost-benefit analyses, 309
 optimization, 309
 regions sub-sampling, 309
- F**
- Farms carrying capacity, 174
- Feed biomass, 113
- Forest and Nature Conservation Rules (FNCR), 81
- Forest deforestation, China Himalayas, 8
- Forest Reference Emission Levels (FRELs), 232
- Functional subarea model, 178
- Function of ecology, production and livelihood (FEPL)
 alpine grassland, 168
 alpine grassland ecosystem, 177
 animal husbandry population, 175
 calculation method, 172
 carrying capacity, 172
 Chinese government, 171
 climate change, 175, 176, 180
 ecological and production functions, 170
 ecological function, 168
 ecological service function, 167
 ecological services value, 178
 grassland area, 172
 grassland ecosystem, 164
 human and ecological environments, 167
 interaction mechanism, 170, 171
 livestock carrying capacity, 174
 production function, 167
 proportional relationship, 173, 174
 proportional structure model, 171
 proportions, 170
 structure variation, 169
 sustainable development, 176, 178–179
 theoretical carrying capacity, 173
 theory, 177
 types, 171

G

Glaciations, 302

Glaciers

- catchment, 301, 302
- climate warming, 301
- glaciation, 302
- global climate models, 301
- hydrological impact, 302
- retreating, 302
- third pole, 301

Global livestock production systems, 110

Global Modelling and Assimilation Office (GMAO), 51

Global warming, 138, 164

Global warming potential (GWP), 71

God grass, 283

Goths of Kharkas, 270

GPP variation

- Afghanistan, 55
- Bangladesh, 56
- Bhutan, 56
- India, 56
- Myanmar, 56
- Nepal, 56
- Pakistan, 56
- QTP in China, 52, 55
- spatio-temporal variation, 52, 55, 59

Grassland contract system, 92

Grassland degradation, 188

- climatic changes and overgrazing, 201–202
- herdsmen's work incentives and increased productivity, 201
- HRS, 201

Grassland ecosystem, 30, 176

Grassland ecosystem management, 10

Grassland management patterns, 91, 92, 94, 98

Grassland resources, 178

Grasslands, 186

Grazing exclusion

- simple and effective, 202
- soil carbon pools and carbon fluxes, 202
- temperature and moisture, 202

Greenhouse gas (GHG) emissions, 66, 137

Gross primary productivity (GPP), 47

H

Harmonizing conservation and development along the Silk Road, 329

Herder livelihood, 220–221

Herder perception implications

- adaptive strategies, 293
- AGB, 292
- dwindling inventories, 294

land fragmentation, 294

livestock, 293

pastoralism, 295

resettlement and re-location, 294

yak husbandry, 295

Himalaya Hindu Kush (HKH) region

- AGB storage, 307–308
- carbon sequestration, 305
- carbon storage, 306–307
- glaciers, 301–302
- LULCCs, 302–305
- water towers, 300

Himalayan Climate Change Adaptation Program (HICAP)

Afghanistan

CCAP, 253

CCSAP

Bangladesh, 254

China

CCICED, 256

CNCCP, 255

NCCCC, 256

NDRC, 255

India

the National Water Mission, 257

NEP, 257

PMCCC, 256

NAPA

Afghanistan, 253

Bangladesh, 254

Bhutan, 255

Myanmar, 257

NCCP

Nepal, 258

Pakistan, 259

Nepal

LAPA, 258

NAP, 258

NAPA, 258

Himalayan region

- alpine forest landscape, Nepal, 6
- river basins, 28, 50

Himalayan wetlands, 132

Hindu Kush-Himalayan (HKH), 4, 5, 127, 146

above-ground and under-ground biomass, 212

advantage and disadvantage, 40, 41

anti-poverty, 39

area and population, countries of, 49

artificial grassland, 213 (*see also* Artificial grassland)

degradation, 222–223

development direction, 223–225

development status, 214–216

- Hindu Kush-Himalayan (HKH) (*cont.*)
 herdsman's ideas and land management patterns, 221–222
 people's livelihood, 220–221
 biodiversity, 29, 41
 carbon compensation, 40 (*see also* Carbon compensation)
 carbon emission, 7, 8
 carbon fixation effect (*see* Carbon fixation effect)
 carbon management, 4 (*see also* Carbon management)
 carbon pool and economy, 32 (*see also* Carbon pool)
 carbon sequestration (*see* Carbon sequestration)
 carbon sinks (*see* Carbon sinks)
 carbon stock (*see* Carbon stock changes)
 carbon trade, 39, 40
 China's grassland ecosystem, 212
 climate change, 41
 climate change problem, 9
 cultural diversity, 41
 driving force for change
 agriculture, 35
 industry, 34
 land usage, 33
 ecosystem services, 29, 30
 elevations, range of, 48
 emission indicators, 34
 global carbon cycle, 212
 global climate governance, 19
 global industrialization process, 4
 grassland husbandry and structural schema, 214
 land use types, 49
 livelihood and ecological problem, 9, 10
 livelihoods, 27
 natural environment, 212
 natural resources, 27, 28
 people and resources, 31
 people's livelihood, 212
 poverty reduction, 262
 regional thinking, 262
 social economy and resource, 30, 31
 socio-economy, 247
 territorial emissions in Mt CO₂, 33
 trans-boundary issues, 252
 water-energy-food sectors, 251
 water resources, 247–249
 HKH mountain system, 29
 Household Responsibility System (HRS), 201
 Human appropriation of net primary production (HANPP), 116
- Human-grass-animal-ecology, 166
 Hydropower, 30
- I**
 Important plant areas (IPAs), 29
 Improved cooking stoves (ICS), 78
 Indian Himalayan region (IHR), 65
 Indian Himalayas
 fuel use pattern
 biogas, 71, 72
 biomass, 70, 71
 land use pattern and carbon management
 agricultural activities, 66
 CBFs, 69, 70
 grassland, rangeland, pasture and pastoralism, 68, 69
 IHR, 66
 shifting cultivation, 66, 67
 physiography and indigenous people, 65
 Indigenous knowledge system, 268
 description, 267
 Himalayan ecosystem, 268
 rangeland management, 273
 rotational grazing, 272
 Indigenous people
 age-old livelihood styles, 64
 Bhutan, 79
 Indian Himalayas, 65
 Nepal, 72
 Indus River System (IRS), 259
 Industrial feedlot yak production, 120
 Industrialization, 119
 Intended Nationally Determined Contribution (INDC), 35
 Intergovernment Panel on Climate Change (IPCC), 112
 International Centre for Integrated Mountain Development (ICIMOD), 18
 International Vegetation Classification (IVC), 115
 Irrigation, 301
- J**
 Janata, 72
Jhum cultivation, 66, 67
 Joint Forest Management (JFM), 70
- K**
 Khadi Village Industries Commission (KVIC), 72
Kharka, 74, 75
 Kyoto Protocol, 4

L

- Lactation period, 157
- Land degradation, 35, 302, 303
- Land use/land cover (LULC), 47
- Land use/land cover changes (LULCCs)
 - carbon sequestration, 304
 - CBM, 304
 - common-pool theory, 304
 - interlocking systems, 302, 303
 - knowledge and evidence gaps, 304
 - land degradation, 303
 - land tenure systems, 304
 - SLM, 303
- Late-Holocene period, 112
- Leaf area index (LAI), 47
- Length of growing period (LGP), 110–111
- Light use efficiency (LUE), 50
- Liquefied petroleum gas (LPG), 71, 276, 277
- Livelihood benefits
 - community forestry, 325–326
 - community pastures, 326–329
 - degraded grassland reclaim, 321–323
 - livestock-chicken grazing system, 319–321
 - Tibetan plateau, 323–325
 - transboundary protection, 329–330
- Livelihood development
 - carbon sinking benefits, 316
 - C management program, 318
 - gender equality, 317
 - grassland-livestock systems, 328
 - multi-system approach, 324
 - traditional customs, 318
 - transboundary protection, 329
- Livelihoods
 - activities and survival strategies, 285
 - cash-based, 286
 - coping strategies, 283
 - C. sinensis*, 283
 - production, 292
 - structural adjustments, 285
 - Tibetan herder communities, 283
 - yak husbandry, 285, 288
- Livelihood security, 64
- Livestock carbon management
 - archaeological and genetic evidence, 112
 - biogeochemical processes, 110
 - carbon cycle, 120
 - carbon emissions, 117
 - CH₄ emission, 117, 118
 - environmental and social outcomes, 121
 - FAO sub-national livestock databases, 113
 - feed biomass, 113
 - grasslands, 116
 - HANPP, 116

- highland Asia, 110
 - HKH region, 111
 - IVC, 115
 - LG system, 111
 - material flow, 110
 - NPP, 116
 - pastoralism, 112
 - production ratios, 112
 - programs, 111
 - species, 113
 - terrestrial surface, 110
 - Livestock-chicken grazing system
 - carbon balance, 319
 - ecological theory, 319
 - pastures, 319
 - Qilian mountain, 319
 - Local Adaptation Plans for Action (LAPA), 258
 - Local ecological knowledge (LEK), 282–283, 292
 - LUEmax, 58
- M**
- Mauri model, 93
 - Methane, 138
 - Millennium Ecosystem Assessment (MEA), 131
 - Mixed rainfed systems (MR), 119
 - MOD17 algorithm, 58
 - Moderate resolution imaging
 - spectroradiometer (MODIS), 307
 - MODIS GPP, 48, 50, 51, 57–59
 - Monitoring, Reporting and Verification (MRV), 231–232
 - Monteith's theory, 48
 - Multi-household grazing management pattern (MMP), 92, 98
- N**
- NASA Earth Observing System (EOS), 48
 - National Adaptation Plan (NAP), 258
 - National Adaptation Program of Action (NAPA), 253
 - National Climate Change Policy (NCCP), 258
 - National Coordination Committee on Climate Change (NCCCC), 256
 - National Development and Reform Commission (NDRC), 255
 - The National Environment Policy (NEP), 257
 - National Geomatics Center of China, 52
 - National Sanjianyuan Nature Reserve Project, 148
 - National Water Plan (NWP), 260
 - Natural resources, 27, 28

- Nepalese Himalayas
 fuel use pattern
 biogas, 79
 biomass, 77, 78
 land use pattern and carbon management
 CBFs, 76, 77
 rangeland, grassland, pasture and
 pastoralism, 74, 75
 shifting cultivation, 73, 74
 physiography and indigenous people, 72
 Net primary productivity (NPP), 47
- O**
- Optimized grazing management
 experiment, 204, 207
 intensity and livestock weight gain, 204
 livestock production, 204
 liveweight gain and grazing intensity, 203
 productivity and plant growth ratio, 205
 stability and resilience, 205
 turnover and supplementary feeding, 205
 warm-season pasture and cold-season
 pasture, 205, 207
 Overgrazing, 188
- P**
- Paris Agreement, 4, 9, 27, 35, 36
 Paris Agreement's formwork, 330
Parma, 274
 Pastoralism, 64, 68
 Pastoral transhumance system, 80
Patans, 74
 Periodic joint scientific surveys, 329
 Photosynthetically active radiation (PAR), 48
 Policies, carbon management
 anti-poverty programs, 318
 carbon trade system, 317
 livelihood development, 317
 local governments, 317
 traditional and alternative knowledge, 318
 Poverty
 alleviation mechanism, 309
 ecosystem services, 309
 land management practice, 305
 land use, 304
 resource degradation, 300
 Poverty reduction
 economic prosperity, 249–251
 socio-economy, 247
 Prime Minister's Council on Climate Change
 (PMCCC), 256
- Private sector
 hurdles, 237
 opportunities of employment, 236
 Plantec Coffee Estate Pvt. Ltd, 236
 profit maximization, 236
 Production function, 167
 Pro-poor carbon storage, 310
- Q**
- Qinghai-Tibetan Plateau (QTP), 32, 51, 52,
 55, 91, 146, 152, 186
 adaptation and mitigation, 291–292
 China's grassland regions, 286, 287
 climate change, 282
 plant diversity, 286
 warming, 286
 daily sustenance, 198
 definition, 282
 grassland contract policy, 92
 grassland property rights and ownership,
 200–201
 grazing systems, 200
 herder perception implications, 292–295
 husbandry development and ecological
 protection, 208
 Kunlun Mountain and Himalayas, 197
 livelihoods, 282
 livestock grazing, 201
 livestock species, 199–200
 Ningxia Hui Autonomous Region, 94
 precipitation change, 287
 sustainable development, 103, 104
 TAR, 283
 Three-River-Source region, 205–208
 yak husbandry, 285–286
 Qinghai-Tibet Plateau grassland ecosystem, 177
- R**
- Ramsar classification system, 133
 Rangelands
 carbon sequestration, 268
 fuelwood, 275, 276
 Gatlang village, 271
 Nepal Himalaya, 268
 pastoralists, 273
 Reducing Emissions from Deforestation and
 Degradation (REDD+), 77
 biodiversity considerations and livelihood
 goals, 239
 boost livelihood, 239
 carbon sinking, 316

- cases and problem solutions, 316
- climate change effects, 325
- communities and government, 237
- community forestry (*see* Community forestry management (CFM))
- conflicts, 238
- mitigation strategy, 239
- negative side, 238
- pathways, 326
- payments, 238
- planning and implementation, 238
- policy framework, 237
- positive and negative effects, 237
- positive side, 238
- results-based payment, 231, 232
- Remote sensing (RS), 47
- Resettlement Project in High Pastures, 111
- Results-based payment
 - conditions, 231
 - emission reduction, 231
 - identifying and measuring, 232
 - integrating and safeguarding, 232
 - Nepal, 232–233
 - Paris Agreement, 231
 - three-phased approach, 231
 - timing and sequencing, 232
 - win-win approach, 231
- Rural rapid appraisals (PRA), 283

- S**
- Sanjiangyuan Nature Reserve, 40
- Sedentarization, 147, 148, 285, 290
- Single-household grazing management pattern (SMP), 92, 98
- Social-carbon-metrology system, 316
- Social-carbon model, 17
- Social-ecological system
 - MMP and SMP
 - grazing reasons, 101, 102
 - institutional reasons, 100, 101
 - social-economic system, 93, 94
 - soil system (*see* Soil system)
 - vegetation system, 94, 95
- Soft gold, 287
- Soil organic carbon (SOC), 67, 95, 98, 188, 300
- Soil organic matter (SOM), 190, 306
- Soil pH, 95
- Soil quality improvement, 120
- Soil respiration, 67
- Soil system
 - animal husbandry, 96
 - environmental factors, 96
 - grassland contract policy, 96
 - grazing management pattern, 95
 - Nagchu County, 96
 - QTP, 95
 - sampling strategy, 96
 - seasonal grasslands, 96
 - soil carbon loss, SMP, 98–100
 - soil properties, MMP and SMP, 97
- Soil total nitrogen (STN), 95, 98
- Soil total phosphorus (STP), 95, 98
- Solar-induced chlorophyll fluorescence (SIF), 58
- Southern Himalayas
 - apathy and counter-productive government policies, 64
 - Bhutanese context (*see* Bhutanese Himalayas)
 - categories
 - fossil fuel usage, 64
 - land use and management, 63–64
 - climate change, 63
 - climatic characteristics, 64
 - Indian context (*see* Indian Himalayas)
 - Indo-Gangetic Plain, 63
 - and livelihood, 65
 - Nepalese context (*see* Nepalese Himalayas)
 - shifting cultivation, 64
- Stone Age, 149
- Stratification-model, 12, 13
- Subsistence-level crop, 80
- Sundarbans mangroves, 139
- Sustainable development, 9
 - cold-season grazing, 103
 - ecological compensation, 104
 - livelihood adaption strategies, 103
 - livestock, 104
 - non-market method, 104
 - overgrazing, 103
 - privatization, 103
 - regional and global biogeochemical cycles, 104
 - social-economic framework, 104
 - warm-season grazing, 103
- Sustainable land management (SLM), 300, 303

- T**
- Tamang ethnic group, 270
- Third pole, 286, 301
- Three-River Headwaters region (TRHR), 57
- Three zones coupled system, 324
- Thriving community forest, eastern Nepal, 76

- Tibetan Autonomous Region (TAR), 283
 Tibetan ecosystems, 193
 Tibetan grasslands, 188
 Tibetan pastures, 187
 Tibetan plateau, 64
 alpine grassland ecosystem, 164, 165, 170
 animal husbandry, 163, 166
 cropping-forage rotation, 325
 ecological compensation, 324
 ecological deterioration—economic
 poverty, 164
 environmental stresses, 175
 FEPL, 170, 178–179
 integrated model, 324
 Lhasa valley and northern Tibet,
 324, 325
 livestocks, 323
 marketing and commerce mechanism, 323
 multiple system coupling, 323
 Timber products, 11
 Training and demonstration, 327
 Transboundary protection
 conservation islands, 330
 harmonizing conservation and
 development along the Silk
 Road, 329
 HKH region, 329–331
 networks, 330
 periodic joint scientific surveys, 329
 transboundary-protecting-alliance, 329
 Transhumance pastoralism
 chauri and sheep, 271, 272
 definition, 268
 Gatlang village settlement, 271
 goth, 270
 indigenous knowledge system, 272
 livestock production, 273
 Tamang ethnic groups, 270
 Transhumant pastoralism, 75
- U**
 Understandings
 AGB, 307
 carbon storage, 304, 306
 cost-benefit analyses, 309
 institutional multiplexity, 304
 land use and management systems, 305
 The United Nations convention on climate
 change, 4
 USGS Earth Resources Observation and
 Science (EROS), 52
- V**
 Village Development Committee
 (VDC), 269
 Volatile organic compounds (VOCs), 193
- W**
 Water institution and policy, 261, 262
 Water Resources Strategy (WRS), 260
 Water security
 basin/sub-basin policies, 260
 flood risk management, 259
 ICIMOD, 262
 isolated projects, 260
 IWRM, 261, 262
 legal and institutional
 arrangements, 262
 The National Water Policy, 260
 policies and programs, 261
 Water Law, 260
 Water tower of plateau, 96
 Wetlands
 abrasive and threatening, 126
 aerobic processes, 138
 biogeochemical processes, 137
 and carbon, 137
 characteristics, 128
 CH₄ emission, 139
 CH₄ fluctuations, 138
 CO₂ gas, 136
 convention, 126
 decomposition and movement, 137
 energy flow, 135
 energy-rich organic matter, 136
 estuarine/coastal, 128
 factors, 135
 fast flowing streams, 136
 freshwater and saltwater, 128
 function, 131, 138
 GHGs, 138
 glacial lakes, 131
 Hindu Kush-Himalaya, 128–131, 138
 human activities and climate
 change, 134
 integrated ecosystem, 126
 methane emission, 140–141
 photosynthesis, 137
 population, 135
 prolific habitats, 126
 seas and lakes, 126
 types, 132, 136
 value and services, 134

Y

- Yak dung, 189
- Yak husbandry
 - Cordyceps*, 287–289
 - ecological settlement, 290
 - gender roles, 289, 290
 - livelihoods, 285
 - livestock species, 285
 - pastoralism, 285
 - sedentarization, 285, 290
- Yaks
 - adaptation, 149
 - bacteria with probiotic activity, 154
 - biomass carbon stock, 146
 - cattle, 151
 - Chinese government, 147
 - CO₂ concentration, 146
 - communal grazing lands, 147
 - curds are dried, 155
 - entrance, Tibetan house, 150
 - factors, 146
 - family members, 148
 - fatty acids, 156
 - government, 148
 - importance, 149
 - land carbon, 146
 - livelihoods, 149
 - livestock, 147
 - local herds, 148
 - milk, 151
 - milk products, 154
 - mobility, 147
 - national natural preservation zones, 148
 - peak biomass, 152
 - population, 148
 - skimmed milk, 155
 - stacking dry yak dung, 153
 - statue, 150
 - summer and autumn, 152
 - woman milking, 153