

**Table S1.** List of social and ecological indicators.

| <b>Component</b> | <b>Indicator</b>  | <b>Unit</b>   | <b>Source</b>      |
|------------------|---|---|--------------------|
| Ecological       | Volumes of harvested production   | ton year <sup>-1</sup>  | Peng et al., 2023  |
|                  |   | ton year <sup>-1</sup> per capita                             |                    |
|                  | Harvested production of energy crops  | ton year <sup>-1</sup> per capita                             | Peng et al., 2023  |
|                  | Harvest energy content  | ton year <sup>-1</sup>  |                    |
|                  | Total groundwater recharge  | mm year <sup>-1</sup>   | Peng et al., 2023  |
|                  | Groundwater quality   | Index   | Peng et al., 2023  |
|                  | Proportion of renewable water withdrawn for public use                          | %   | Peng et al., 2023  |
|                  | Use of raw water  | m <sup>3</sup>  | Peng et al., 2023  |
|                  | Total water abstraction for public use  | m <sup>3</sup> or m <sup>3</sup> per capita                   | Peng et al., 2023  |
|                  | Total water abstraction for industrial use                                      | m <sup>3</sup>  | Peng et al., 2023  |
|                  | Total water abstraction for agriculture and industry use                        | m <sup>3</sup> per capita                                     | Peng et al., 2023  |
|                  | Proportion of renewable water withdrawn for industrial use                      | %   | Peng et al., 2023  |
|                  | Total water abstraction for agricultural use                                    | m <sup>3</sup>  | Peng et al., 2023  |
|                  | Proportion of renewable water withdrawn for agricultural use                    | %   | Peng et al., 2023  |
|                  | Quality of water on rangelands  | Likert scale (interview) or official microbiological analysis | Alary et al., 2022 |
|                  | Expenses for water access on rangelands   | Amount year <sup>-1</sup>                                     | Alary et al., 2022 |
|                  | Primary production  | -   | Peng et al., 2023  |
|                  | Surface area of crops   | ha  | Peng et al., 2023  |
|                  | Months of feedstock over the duration of the season                             | Ratio   | Alary et al., 2022 |
|                  | Counts of animal per species received from or given to...                       | Animal heads  | Alary et al., 2022 |
|                  | Milk production   | liter day <sup>-1</sup>                                       | Alary et al., 2022 |
|                  | Wool production   | kg  | Alary et al., 2022 |
|                  | Other animal services (animal traction, transportation, touristic riding, etc.) | hour  | Alary et al., 2022 |
|                  | Cash flow from animal products during the season                                | Amount  | Alary et al., 2022 |
|                  | Animal seasonal cash flow compared to family food and health expenses           | Ratio   | Alary et al., 2022 |
|                  | Genetic improvement   | Counts of animals per breed                                   | Alary et al., 2022 |

|   |  |                    |
|---|--|--------------------|
| Available selection pressure                          | % of the dominant breed                          | Alary et al., 2022 |
| Proportion of fodder crop area in the cultivated area | Ratio  | Alary et al., 2022 |
| Manure production                                     | Tons of Nitrogen                                 | Alary et al., 2022 |
| Proportion of cropping encroachment                   | ha   | Alary et al., 2022 |
| Animal products                                       | kg   | Peng et al., 2023  |
| Distance  | in km or hours                                   | Alary et al., 2022 |
| Seasonal fees to access pastureland                   | Amount<br>Eq. Kg grain day <sup>-1</sup>         | Alary et al., 2022 |
| Supplementation during the mobility                   | Animal <sup>1</sup>                              | Alary et al., 2022 |
| Access to water supply on rangelands                  | Yes/no   | Alary et al., 2022 |
| Biomass production                                    | per year   | Alary et al., 2022 |
| Pasture quality                                       | Likert scale (interview)                         | Alary et al., 2022 |
| Species richness and diversity                        | Count of plant species                           | Alary et al., 2022 |
| Soil nutrients  | Soil organic matter content, soil pH,<br>Olsen P | Alary et al., 2022 |
| Dry matter availability from pastoral and crop areas  | tons   | Alary et al., 2022 |
| Dry matter requirement of the community herd          | tons   | Alary et al., 2022 |
| Length of growing period per plant species            | In months  | Alary et al., 2022 |
| Soil and water quality and availability               | Likert scale/analysis                            | Alary et al., 2022 |
| Total timber removal                                  | m <sup>3</sup> year <sup>-1</sup>                | Peng et al., 2023  |
| Timber growing stock                                  | m <sup>3</sup>                                   | Peng et al., 2023  |
| Aggregated index of nutrient recycling potential      | Index  | Peng et al., 2023  |
| Nitrogen fixation rate                                | kg ha <sup>-1</sup> year <sup>-1</sup>           | Peng et al., 2023  |
| Soil retention  | ton ha <sup>-1</sup> year <sup>-1</sup>          | Peng et al., 2023  |
| Increased harvest                                     | ha   | Peng et al., 2023  |
| Gross nitrogen balance                                | ton year <sup>-1</sup>                           | Peng et al., 2023  |
| Improved water and soil quality                       | Qualitative scale                                | Peng et al., 2023  |
| Pollination potential                                 | Index  | Peng et al., 2023  |
| Increase in yield                                     | kg ha <sup>-1</sup>                              | Peng et al., 2023  |
| Biodiversity Intactness Index                         | Index  | Peng et al., 2023  |
| Percentage of protected area                          | %  | Peng et al., 2023  |
| Removal of NO <sub>2</sub> by urban vegetation        | ton ha <sup>-1</sup> year <sup>-1</sup>          | Peng et al., 2023  |

|   |   |                    |
|---|---|--------------------|
| Proportion of green areas in the high-density area of cities  | %   | Peng et al., 2023  |
| PM <sub>10</sub> annual mean concentration  | µg m <sup>-3</sup>                                    | Peng et al., 2023  |
| NO <sub>2</sub> annual mean concentration   | µg m <sup>-3</sup>                                    | Peng et al., 2023  |
| The highest O <sub>3</sub> value based on daily max 8 h averages                                    | µg m <sup>-3</sup>                                    | Peng et al., 2023  |
| Water quality   | Index   | Peng et al., 2023  |
| Water Retention Index   | Index   | Peng et al., 2023  |
| Water purification  | -   | Peng et al., 2023  |
| Groundwater production  | Recharge rate, mm ha <sup>-1</sup> year <sup>-1</sup> | Peng et al., 2023  |
| Rates of surface water drainage   | m <sup>3</sup> /s                                     | Peng et al., 2023  |
| Water Retention Index   | (dimensionless between 0 and 10)<br>Index             | Peng et al., 2023  |
| Capacity of ecosystems to avoid soil erosion  | (dimensionless between 0 and 10)                      | Peng et al., 2023  |
| Surface area of forest with a protective function   | ha  | Peng et al., 2023  |
| Crop production deficit   | %   | Peng et al., 2023  |
| Species richness  | Index   | Peng et al., 2023  |
| Habitat quality based on common birds   | (dimensionless ratio)                                 | Peng et al., 2023  |
| Interpolated biodiversity status  | Index   | Peng et al., 2023  |
| Net ecosystem productivity  | normalized index between 0 and 1                      | Peng et al., 2023  |
| Forest carbon potential   | Percent change, %                                     | Peng et al., 2023  |
| Annual CO <sub>2</sub> -eq emissions per ha   | t ha <sup>-1</sup> year <sup>-1</sup>                 | Peng et al., 2023  |
| Annual CO <sub>2</sub> -eq emissions per capita   | t capita <sup>-1</sup> year <sup>-1</sup>             | Peng et al., 2023  |
| Carbon-storing habitats   | ha or ha per capita                                   | Peng et al., 2023  |
| Overall coverage of forest  | %   | Peng et al., 2023  |
| Potential increase in agricultural production to compensate the reduction due to the climate change | %   | Peng et al., 2023  |
| Standard deviation of annual rainfall   | mm per year   | Alary et al., 2022 |
| Biodiversity of landscapes  | -   | Alary et al., 2022 |
| Magnitude of change of the natural biomass after a disturbance                                      | Variation of plant cover                              | Alary et al., 2022 |
| Percentage of windbreaks  | %   | Peng et al., 2023  |
| Aggregated index generated through recreation and tourism statistics                                | Index   | Peng et al., 2023  |
| Percentage of tourism to GDP  | %   | Peng et al., 2023  |

|  |   |                     |
|--|---|---------------------|
| Intensity of natural and cultural heritage protection based on the number of protected areas overlapping | km <sup>2</sup>   | Peng et al., 2023   |
| Ecosystem exposed to flooding  | %   | Peng et al., 2023   |
| Seasonal rainfall  | mm/month  | Alary et al., 2022  |
| Counts of animals per species  | Number  | Alary et al., 2022  |
| Area of fodder and grain crops for animals/total cultivated land   | Ratio   | Alary et al., 2022  |
| Animal protein intake in the daily ration  | gr/day  | Alary et al., 2022  |
| Species composition (intra-herd diversity)   | Counts of species in a herd   | Alary et al., 2022  |
| Species composition (intra-herd diversity)   | Counts of animal breed  | Alary et al., 2022  |
| Percentage of vegetation loss  | %   | Peng et al., 2023   |
| Percentage of deforested area  | %   | Peng et al., 2023 I |
| Percentage of area covered by "problem soils"  | %   | Peng et al., 2023   |
| Increased use of chemicals and fertilizers   | (qualitative/quantitative)  | Peng et al., 2023   |
| Water clarity  | Turbidity, Secchi depth   | Peng et al., 2023   |
| Normalized Difference Vegetation Index   | NDVI  | Peng et al., 2023   |
| Land reclamation rate  | km <sup>2</sup> /year   | Peng et al., 2023   |
| Degree of pollution in sediments   | (Heavy metals, etc.) (proxy – concentration of heavy metals in sediments) | Peng et al., 2023   |
| Forest connectivity  | Index   | Peng et al., 2023   |
| River connectivity   | Index   | Peng et al., 2023   |
| River net density (defined as river length divided by land area)   | Index   | Peng et al., 2023   |
| Ecosystem Functionality Index (EFI)  | Index   | Peng et al., 2023   |
| Mean species abundance   | MSA   | Peng et al., 2023   |
| Percentage of change in land use (agriculture, vegetation, fishery, settlement)                          | %   | Peng et al., 2023   |
| Number of aquatic environmental reservoirs   | n   | Peng et al., 2023   |
| Policies supporting biodiversity conservation  | Yes/no  | Peng et al., 2023   |
| Percentage of government expenditure on environmental protection   | %   | Peng et al., 2023   |
| Percentage of area covered by Wetlands of International Importance (Ramsar Sites)                        | %   | Peng et al., 2023   |
| Participation in treaties, such as Convention on Biological Diversity                                    | Yes/no  | Peng et al., 2023   |

|        |   |                       |                    |
|--------|---|-----------------------|--------------------|
|        | Percentage of nature reserves and wetlands  | %                     | Peng et al., 2023  |
|        | Percentage of forest area restored  | %                     | Peng et al., 2023  |
|        | Rate of afforestation area  | ha                    | Peng et al., 2023  |
|        | Proportion of drought tolerant crops  | % of crop production  | Peng et al., 2023  |
|        | Percent of area with intensive/extensive agriculture in floodplain                      | % of agriculture land | Peng et al., 2023  |
|        | Time needed for the natural vegetation to return to a certain percentage of plant cover | -                     | Alary et al., 2022 |
|        | Restoration period of the natural vegetation after a disturbance                        | Counts of months      | Alary et al., 2022 |
|        | Average of monthly precipitation  |                       | Peng et al., 2023  |
|        | Water level   | cm                    | Peng et al., 2023  |
|        | Hazard duration/days  | Days                  | Peng et al., 2023  |
|        | Probability of occurrence   |                       | Peng et al., 2023  |
|        | Ecosystem exposed to storm surge  | %                     | Peng et al., 2023  |
|        | Ecosystem exposed to drought  | %                     | Peng et al., 2023  |
| Social | Aggregated index generated through recreation and tourism statistics                    | Index                 | Peng et al., 2023  |
|        | Experience: participation in recreational activities                                    | n, %                  | Peng et al., 2023  |
|        | Share of high-provision, easily accessible land in the recreation opportunity spectrum  | %                     | Peng et al., 2023  |
|        | Surface area of special protection area   | ha                    | Peng et al., 2023  |
|        | Surface area of sites of community importance   | ha                    | Peng et al., 2023  |
|        | Employment (n); tourism revenue   | #                     | Peng et al., 2023  |
|        | Employment in tourism and other aesthetic activities                                    | %                     |                    |
|        | Characteristics of living systems that are resonant in terms of culture or heritage     | km <sup>2</sup>       | Peng et al., 2023  |
|        | Percentage of population exposed to flooding  | %                     | Peng et al., 2023  |
|        | Proportion of GDP in primary sector   | %                     | Peng et al., 2023  |
|        | Livestock net income  | Amount                | Alary et al., 2022 |
|        | Livestock annual net income/basic annual family expenses                                | Ratio                 | Alary et al., 2022 |
|        | List of livestock assets and income owned or/and managed by women                       | Counts of tasks       | Alary et al., 2022 |
|        | Crop income compared to total annual family income                                      | Ratio                 | Alary et al., 2022 |

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|---|--|--------------------|
| Out-of-farm income compared to total annual family income   | Ratio  | Alary et al., 2022 |
| Proportion of houses with poor facilities that are more fragile to climate change and hazards   | %  | Peng et al., 2023  |
| Number of conflicts on land   | Number   | Alary et al., 2022 |
| Carrying capacity on rangelands   | TLU*per km <sup>2</sup><br>Tons of dry matter per ha | Alary et al., 2022 |
| Proportion of critical transportation sector  | %  | Peng et al., 2023  |
| Proportion of critical transportation sector: main road, main tunnel, subway, port, airport; water sector; energy sector; information and communication sector; civil administration buildings sector |  |                    |
| Percentage of population exposed to drought   | %  | Peng et al., 2023  |
| Distance to market for animal transaction   | km   | Alary et al., 2022 |
| Pastoral institutions and organizations   | Count  | Alary et al., 2022 |
| Remittance from migrants  | Amount   | Alary et al., 2022 |
| Emigration rate   | Ratio  | Alary et al., 2022 |
| Percentage of population without access to electricity  | %  | Peng et al., 2023  |
| Percentage of households without access to irrigation   | %  | Peng et al., 2023  |
| Percentage of population without access to (improved) sanitation  | %  | Peng et al., 2023  |
| Percentage of population without access to clean water  | %  | Peng et al., 2023  |
| Percentage of population living in informal settlements   | %  | Peng et al., 2023  |
| Percentage of households that live in rented houses   | %  | Peng et al., 2023  |
| The household proportion with person aged 65 and older  | %  | Peng et al., 2023  |
| Percentage of reinforced/elevated houses  | %  | Peng et al., 2023  |
| Percentage of households without official land title  | %  | Peng et al., 2023  |
| Percentage of houses with more than one floor   | %  | Peng et al., 2023  |
| Credit access for livestock activity  | Yes/no   | Alary et al., 2022 |
| Fodder seed supply  | Yes/no   | Alary et al., 2022 |
| Proportion of vaccinated animals  | % of the herds                                       | Alary et al., 2022 |
| Animal value stock (animal asset valued at selling price) per family member (compared to the poverty line)  | Ratio  | Alary et al., 2022 |
| Percentage of population living in poorly constructed houses  | %  | Peng et al., 2023  |
| Percentage of illiterate population   | %  | Peng et al., 2023  |

|  |                                |                    |
|--|--------------------------------|--------------------|
| Percentage of primary industry to GDP  | %                              | Peng et al., 2023  |
| Population density   | Population per km <sup>2</sup> | Peng et al., 2023  |
| Percentage of female-headed households                                       | %                              | Peng et al., 2023  |
| Travel time to closest city  | mins                           | Peng et al., 2023  |
| Percentage of the population with disabilities                               | %                              | Peng et al., 2023  |
| Percentage malnourished population   | %                              | Peng et al., 2023  |
| Percentage of population with chronic illnesses                              | %                              | Peng et al., 2023  |
| Proportion of families below poverty line in total households                |                                | Peng et al., 2023  |
| Dependency ratio   | %                              | Peng et al., 2023  |
| GINI index   | 0-100                          | Peng et al., 2023  |
| Dependency on agriculture /forestry /fisheries for livelihood                | %                              | Peng et al., 2023  |
| Ratio of afforestation coverage areas in the city                            |                                | Peng et al., 2023  |
| Prevalence of population who experience violence                             | %                              | Peng et al., 2023  |
| Prevalence of population affected by armed conflict                          | %                              | Peng et al., 2023  |
| Number of fatalities caused by terrorists per 10,000 per year                |                                | Peng et al., 2023  |
| Per capita income  |                                | Peng et al., 2023  |
| Per capita GDP per unit area   |                                | Peng et al., 2023  |
| Average years of education   | year                           | Peng et al., 2023  |
| Ratio of the population with college/university degree or higher             | %                              | Peng et al., 2023  |
| Percentage of households without individual means of transportation          | %                              | Peng et al., 2023  |
| Percentage of households without gross savings                               | %                              | Peng et al., 2023  |
| Percentage of households without access to bank loans/(micro-)credits        | %                              | Peng et al., 2023  |
| Percentage of households without any insurance—excl. health insurance        | %                              | Peng et al., 2023  |
| Animal stock per veterinarian in the community                               | Number of animals /vet         | Alary et al., 2022 |
| Distance of veterinary services from family house                            | km                             | Alary et al., 2022 |
| Distance of veterinary service from rangeland in the territory of attachment | km                             | Alary et al., 2022 |
| Distance of veterinary pharmacy from family house                            | km                             | Alary et al., 2022 |
| The average cost of veterinary medicine                                      | amount animal <sup>-1</sup>    | Alary et al., 2022 |
| Percentage of population without a health insurance                          | %                              | Peng et al., 2023  |
| Net income per person in working age (compared to the minimum wage)          | Ratio                          | Alary et al., 2022 |

|   |                                       |                    |
|---|---------------------------------------|--------------------|
| Density of strong ties within the local social network  | Contacts par category of stakeholders | Alary et al., 2022 |
| Density of links within the extended networks (administration, traders, etc.)   | Contacts par category of stakeholders | Alary et al., 2022 |
| Equipment: telephone, internet, road, electricity, etc.   | Counts of equipment                   | Alary et al., 2022 |
| Proximity   | km                                    | Alary et al., 2022 |
| Number of visits/year   | Number                                | Alary et al., 2022 |
| Elasticity of animal product demand   | Ratio                                 | Alary et al., 2022 |
| Animal supply dynamic   | % variation                           | Alary et al., 2022 |
| Household size  | Number                                | Alary et al., 2022 |
| Working-age persons in the household  | Number                                | Alary et al., 2022 |
| Household dependency ratio  | Ratio                                 | Alary et al., 2022 |
| Number of people with higher education  | Number                                | Alary et al., 2022 |
| Value of animal stock (valued at the selling price) per children (transmissibility)   |                                       | Alary et al., 2022 |
| Existence of early warning systems  | Yes/no                                | Peng et al., 2023  |
| Volume of water storage in a safe reservoir/container   | m <sup>3</sup>                        | Peng et al., 2023  |
| Number of hospital beds per 1000 inhabitants  | #                                     | Peng et al., 2023  |
| Access to shelter places (density of schools)   | Index                                 | Peng et al., 2023  |
| Percentage of households without access to waste/water treatment  | %                                     | Peng et al., 2023  |
| Drainage system: average length of drainage network   | %                                     | Peng et al., 2023  |
| Access to emergency places (density of hospitals, fire bridges, police stations)  |                                       | Peng et al., 2023  |
| Density of transportation network: combined measure of distance to nearest station, density of road and rail networks, density of bus stations and ports for transportation service | Index                                 | Peng et al., 2023  |
| Public health expenditure   | % of GDP                              | Peng et al., 2023  |
| Private health expenditure  | % of GDP                              | Peng et al., 2023  |
| Density of aid projects   | Index                                 | Peng et al., 2023  |
| Percentage of population who has experienced hazard(s) in the past 10 years   | %                                     | Peng et al., 2023  |
| Foreign direct investment   | % of GDP                              | Peng et al., 2023  |
| Percentage of farmers who use different crop varieties  | %                                     | Peng et al., 2023  |
| Number of income-generating activities per household  | Number                                | Peng et al., 2023  |

|  |                            |                    |
|--|----------------------------|--------------------|
| Existence of hazard/vulnerability/risk map   | Yes/no                     | Peng et al., 2023  |
| Existence of integrated development plans: conservation, protection, land use planning | Yes/no                     | Peng et al., 2023  |
| Existence of adaptation policies/strategies  | Yes/no                     | Peng et al., 2023  |
| Percentage of GDP spent on innovation and research                                     | %                          | Peng et al., 2023  |
| Amount of subsidies par animal at the territorial level                                | amount animal <sup>1</sup> | Alary et al., 2022 |
| Percentage of reproductive females in the herd per animal species                      | Ratio                      | Alary et al., 2022 |

**Table S2.** Selection of indicators by selection criteria.

| Component  | General indicators   | Geographical contexts  |                              |                   |                       | Alignment with vulnerability dimensions |     |    |    |    |    |                  |
|------------|--|------------------------|------------------------------|-------------------|-----------------------|---|-----|----|----|----|----|------------------|
|            |  | Paso del Norte (urban) | Nuevas Delicias (peri-urban) | La Regina (rural) | Basaseachi (forestry) | CC                                      | Rop | LB | GA | UH | SM | Total dimensions |
| Ecological | Volumes of harvested production                            | 0                      | 1                            | 1                 | 1                     | 1                                       | 1   | 1  | 0  | 0  | 0  | 3                |
|            | Harvested production of energy crops                       | 0                      | 1                            | 1                 | 1                     | 1                                       | 1   | 1  | 0  | 0  | 0  | 3                |
|            | Total groundwater recharge                                 | 1                      | 1                            | 1                 | 1                     | 1                                       | 1   | 0  | 0  | 0  | 0  | 2                |
|            | Groundwater quality  | 1                      | 1                            | 1                 | 1                     | 1                                       | 1   | 0  | 0  | 0  | 0  | 2                |
|            | Proportion of renewable water withdrawn for public use     | 1                      | 1                            | 1                 | 1                     | 1                                       | 1   | 0  | 0  | 0  | 0  | 2                |
|            | Use of raw water   | 1                      | 1                            | 1                 | 1                     | 1                                       | 1   | 0  | 0  | 0  | 0  | 2                |
|            | Total water abstraction for public use                     | 1                      | 1                            | 1                 | 1                     | 1                                       | 1   | 0  | 0  | 0  | 0  | 2                |
|            | Total water abstraction for industrial use                 | 1                      | 1                            | 1                 | 1                     | 1                                       | 1   | 0  | 0  | 0  | 0  | 2                |
|            | Proportion of renewable water withdrawn for industrial use | 0                      | 1                            | 1                 | 1                     | 1                                       | 1   | 0  | 0  | 0  | 0  | 2                |
|            | Total water abstraction for agricultural use               | 0                      | 1                            | 1                 | 1                     | 1                                       | 1   | 0  | 0  | 0  | 0  | 2                |

|   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Proportion of renewable water withdrawn for agricultural use                    | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Quality of water on rangelands  | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Expenses for water access on rangelands   | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Primary production  | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Surface area of crops   | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Months of feedstock over the duration of the season                             | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Counts of animal per species received from or given to or                       | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Counts of animals per species   |   |   |   |   |   |   |   |   |   |   |   |
| Milk production   | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Wool production   | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Other animal services (animal traction, transportation, touristic riding, etc.) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Cash flow from animal products during the season                                | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Animal seasonal cash flow compared to family food and health expenses.          | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Genetic improvement   | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Available selection pressure  | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Proportion of fodder crop area in the cultivated area                           | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Manure production   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Proportion of cropping encroachment   | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Animal products   | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Distance  | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Seasonal fees to access pastureland   | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Supplementation during the mobility   | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Access to water supply on rangelands  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Biomass production  | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Pasture quality   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |

|  |   |   |   |   |   |   |   |   |   |   |   |
|--|---|---|---|---|---|---|---|---|---|---|---|
| Species richness and diversity   | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Soil nutrients   | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Dry matter availability from pastoral and crop areas                           | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Dry matter requirement of the community herd                                   | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Length of growing period per plant species                                     | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Improved water and soil quality  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Total timber removal   | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Timber growing stock   | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Aggregated index of nutrient recycling potential as function of substrate type | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Nitrogen fixation rate   | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Soil retention   | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Increased harvest  | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Gross nitrogen balance   | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Pollination potential  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Increase in yield  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Biodiversity Intactness Index  | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Percentage of protected area   | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Removal of NO <sub>2</sub> by urban vegetation                                 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 3 |
| Proportion of green areas in the high-density area of cities                   | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 3 |
| PM <sub>10</sub> annual mean concentration                                     | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 3 |
| NO <sub>2</sub> annual mean concentration                                      | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 3 |
| The highest O <sub>3</sub> value based on daily max 8 h averages               | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 3 |
| Water quality  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Water Retention Index  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 4 |
| Water purification   | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 4 |
| Groundwater production   | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |

|  |   |   |   |   |   |   |   |   |   |   |   |
|--|---|---|---|---|---|---|---|---|---|---|---|
| Rates of surface water drainage  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 4 |
| Capacity of ecosystems to avoid soil erosion   | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Surface area of forest with a protective function  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Crop production deficit  | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Habitat quality based on common birds  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Interpolated biodiversity status   | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Net ecosystem productivity   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Forest carbon potential  | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Annual CO <sub>2</sub> -eq emissions per ha  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Annual CO <sub>2</sub> -eq emissions per capita  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Carbon-storing habitats  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Overall coverage of forest   | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Potential increase in agricultural production to compensate the reduction due to the climate change      | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Standard deviation of annual rainfall  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Biodiversity of landscapes   | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Magnitude of change of the natural biomass after a disturbance   | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Percentage of windbreaks   | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Percentage of tourism to GDP   | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Intensity of natural and cultural heritage protection based on the number of protected areas overlapping | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Ecosystem exposed to flooding  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 4 |
| Seasonal rainfall  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Area of fodder and grain crops for animals/total cultivated land   | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Animal protein intake in the daily ration  | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 2 |

|   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Species composition (intra-herd diversity)  | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Percentage of vegetation loss   | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Percentage of deforested area   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Percentage of area covered by "problem soils"                                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Increased use of chemicals and fertilizers  | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Water clarity   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Normalized Difference Vegetation Index  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Land reclamation rate   | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 4 |
| Degree of pollution in sediments  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 4 |
| Forest connectivity   | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| River connectivity  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| River net density (defined as river length divided by land area)                  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Ecosystem Functionality Index (EFI)   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Mean species abundance  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Percentage of change in land use (agriculture, vegetation, settlement)            | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Number of aquatic environmental reservoirs  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Policies supporting biodiversity conservation                                     | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Percentage of government expenditure on environmental protection                  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Percentage of area covered by Wetlands of International Importance (Ramsar Sites) | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Participation in treaties, such as Convention on Biological Diversity             | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Percentage of nature reserves and wetlands  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |

|        |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|
|        | Percentage of forest area restored  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
|        | Rate of afforestation area  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
|        | Proportion of drought tolerant crops  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
|        | Percent of area with intensive/extensive agriculture                                    | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
|        | Time needed for the natural vegetation to return to a certain percentage of plant cover | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
|        | Restoration period of the natural vegetation after a disturbance                        | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
|        | Average of monthly precipitation  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
|        | Water level   | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
|        | Hazard duration   | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
|        | Probability of occurrence   | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
|        | Ecosystem exposed to storm  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
|        | Ecosystem exposed to drought  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
|        | Aggregated index generated through recreation and tourism statistics                    | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 3 |
|        | Experience: participation in recreational activities                                    | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 3 |
|        | Share of high-provision, easily accessible land in the recreation opportunity spectrum  | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 3 |
| Social | Surface area of special protection area   | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 4 |
|        | Surface area of sites of community importance   | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 4 |
|        | Employment (n); tourism revenue   | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 3 |
|        | Employment in tourism and other aesthetic activities                                    | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 3 |
|        | Characteristics of living systems that are resonant in terms of culture or heritage     | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 3 |

|   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Percentage of population exposed to flooding  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Proportion of GDP in primary sector   | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 3 |
| Livestock net income  | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 4 |
| Livestock annual net income/basic annual family expenses  | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 4 |
| List of livestock assets and income owned or/and managed by women   | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 4 |
| Crop income compared to total annual family income  | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 4 |
| Out-of-farm income compared to total annual family income   | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 3 |
| Proportion of houses with poor facilities that are more fragile to climate change and hazards   | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 4 |
| Number of conflicts on land   | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 |
| Carrying capacity on rangelands   | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 4 |
| Proportion of critical transportation sector  |   |   |   |   |   |   |   |   |   |   |   |   |
| Proportion of critical transportation sector: main road, main tunnel, subway, port, airport; water sector; energy sector; information and communication sector; civil administration buildings sector | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 3 |
| Percentage of population exposed to drought   | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 4 |
| Distance to market for animal transaction   | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 3 |
| Pastoral institutions and organizations   | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 |
| Remittance from migrants  | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 3 |
| Emigration rate   | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 3 |
| Percentage of population without access to electricity  | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 4 |

|  |   |   |   |   |   |   |   |   |   |   |   |
|--|---|---|---|---|---|---|---|---|---|---|---|
| Percentage of households without access to irrigation  | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 3 |
| Percentage of population without access to (improved) sanitation   | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 3 |
| Percentage of population without access to clean water   | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 3 |
| Percentage of population living in informal settlements  | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 5 |
| Percentage of households that live in rented houses  | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 4 |
| The household proportion with person aged 65 and older   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 6 |
| Percentage of reinforced/elevated houses   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Percentage of households without official land title   | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 4 |
| Percentage of houses with more than one floor  | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 4 |
| Credit access for livestock activity   | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 4 |
| Fodder seed supply   | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Proportion of vaccinated animals   | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 3 |
| Animal value stock (animal asset valued at selling price) per family member (compared to the poverty line) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Percentage of population living in poorly constructed houses   | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 4 |
| Percentage of illiterate population  | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 3 |
| Percentage of primary industry to GDP  | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 5 |
| Population density   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 6 |
| Percentage of female-headed households   | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 5 |
| Travel time to closest city  | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 5 |
| Percentage of the population with disabilities   | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 5 |

|   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Percentage malnourished population                                    | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 4 |
| Percentage of population with chronic illnesses                       | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 4 |
| Proportion of families below poverty line in total households         | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 4 |
| Dependency ratio  | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 4 |
| GINI index  | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 4 |
| Dependency on agriculture /forestry for livelihood                    | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 4 |
| Ratio of afforestation coverage areas in the city                     | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 3 |
| Prevalence of population who experience violence                      | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 2 |
| Prevalence of population affected by armed conflict                   | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 2 |
| Number of fatalities caused by terrorists per 10,000 per year         | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 2 |
| Per capita income   | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 4 |
| Per capita GDP per unit area  | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 4 |
| Average years of education  | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 5 |
| Ratio of the population with college/university degree or higher      | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 5 |
| Percentage of households without individual means of transportation   | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 4 |
| Percentage of households without gross savings                        | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 3 |
| Percentage of households without access to bank loans/(micro-)credits | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 3 |
| Percentage of households without any insurance—excl. health insurance | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 3 |
| Animal stock per veterinarian in the community                        | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 3 |

|   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Distance of veterinary services from family house                                   | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 4 |
| Distance of veterinary service from rangeland in the territory of attachment        | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 4 |
| Distance of veterinary pharmacy from family house                                   | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 4 |
| The average cost of veterinary medicine   | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 4 |
| Percentage of population without a health insurance                                 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 3 |
| Net income per person in working age (compared to the minimum wage)                 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 3 |
| Density of strong ties within the local social network                              | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 3 |
| Density of links within the extended networks (administration, traders, etc.)       | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 3 |
| Equipment: telephone, internet, road, electricity, etc.                             | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 4 |
| Proximity   | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| Number of visits/year   | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 2 |
| Elasticity of animal product demand   | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Animal supply dynamic   | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Household size  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 5 |
| Working-age persons in the household  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 5 |
| Household dependency ratio  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 5 |
| Number of people with higher education  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 5 |
| Value of animal stock (valued at the selling price) per children (transmissibility) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 4 |
| Existence of early warning systems  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 4 |
| Volume of water storage in a safe reservoir/container                               | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 3 |

|   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of hospital beds per 1000 inhabitants  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 5 |
| Access to shelter places (density of schools)   | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 5 |
| Percentage of households without access to waste/water treatment  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 5 |
| Drainage system: average length of drainage network   | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 5 |
| Access to emergency places (density of hospitals, fire bridges, police stations)  | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 5 |
| Density of transportation network: combined measure of distance to nearest station, density of road and rail networks, density of bus stations and ports for transportation service | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 5 |
| Public health expenditure   | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| Private health expenditure  | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| Density of aid projects   | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 4 |
| Percentage of population who has experienced hazard(s) in the past 10 years   | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 4 |
| Foreign direct investment   | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 4 |
| Percentage of farmers who use different crop varieties  | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 4 |
| Number of income-generating activities per household  | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 4 |
| Existence of hazard/vulnerability/risk map  | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 4 |
| Existence of integrated development plans: conservation, protection, land use planning  | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 4 |
| Existence of adaptation policies/strategies   | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 4 |

|   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Percentage of GDP spent on innovation and research                | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 4 |
| Amount of subsidies par animal at the territorial level           | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 3 |
| Percentage of reproductive females in the herd per animal species | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 3 |

Climate change (CC); resources optimization (Rop); local businesses (LB); gender approach (GA); urban health (UH); sustainable mobility (SM).

**Table S3.** Expert weighting of indicators.

| Component  | General indicators   | Average weight of experts | Category    | Yes (1)/No (0) |
|------------|--|---------------------------|-------------|----------------|
| Ecological | Volumes of harvested production                              | 3                         | N.A         | N.A            |
|            | Harvested production of energy                               | 1                         | N.A         | N.A            |
|            | Total groundwater recharge                                   | 4                         | Environment | 0              |
|            | Groundwater quality  | 4                         | Environment | 1              |
|            | Proportion of renewable water withdrawn for public use       | 1                         | N.A         | N.A            |
|            | Use of raw water   | 3                         | N.A         | N.A            |
|            | Total water abstraction for public use                       | 3                         | N.A         | N.A            |
|            | Total water abstraction for industrial use                   | 3                         | N.A         | N.A            |
|            | Proportion of renewable water withdrawn for industrial use   | 0                         | N.A         | N.A            |
|            | Total water abstraction for agricultural use                 | 3                         | N.A         | N.A            |
|            | Proportion of renewable water withdrawn for agricultural use | 0                         | N.A         | N.A            |
|            | Quality of water on rangelands                               | 4                         | Environment | 0              |
|            | Expenses for water access on rangelands                      | 1                         | N.A         | N.A            |
|            | Primary production   | 2                         | N.A         | N.A            |
|            | Surface area of crops  | 3                         | N.A         | N.A            |
|            | Months of feedstock over the duration of the season          | 0                         | N.A         | N.A            |
|            | Counts of animal per species received from or given to       | 3                         | N.A         | N.A            |
|            | Milk production  | 3                         | N.A         | N.A            |

|   |   |             |     |
|---|---|-------------|-----|
| Wood production   | 3 | N.A         | N.A |
| Other animal services (animal traction, transportation, touristic riding, etc.) | 3 | N.A         | N.A |
| Cash flow from animal products during the season                                | 3 | N.A         | N.A |
| Animal seasonal cash flow compared to family food and health expenses.          | 4 | Social      | 1   |
| Genetic improvement   | 1 | N.A         | N.A |
| Available selection pressure  | 1 | N.A         | N.A |
| Proportion of fodder crop area in the cultivated area                           | 3 | N.A         | N.A |
| Manure production   | 2 | N.A         | N.A |
| Proportion of cropping encroachment   | 1 | N.A         | N.A |
| Animal products   | 2 | N.A         | N.A |
| Distance  | 4 | Territory   | 1   |
| Seasonal fees to access pastureland   | 1 | N.A         | N.A |
| Supplementation during the mobility   | 1 | N.A         | N.A |
| Access to water supply on rangelands  | 2 | N.A         | N.A |
| Biomass production  | 2 | N.A         | N.A |
| Pasture quality   | 3 | N.A         | N.A |
| Species richness and diversity  | 4 | Environment | 1   |
| Soil nutrients  | 3 | N.A         | N.A |
| Dry matter availability from pastoral and crop areas                            | 2 | N.A         | N.A |
| Dry matter requirement of the community herd                                    | 1 | N.A         | N.A |
| Length of growing period per plant species                                      | 0 | N.A         | N.A |
| Soil and water quality and availability   | 4 | Environment | 1   |
| Improved water and soil quality   | 2 | N.A         | N.A |
| Total timber removal  | 3 | N.A         | N.A |
| Timber growing stock  | 4 | Social      | 0   |
| Aggregated index of nutrient recycling potential as function of substrate type  | 0 | N.A         | N.A |
| Nitrogen fixation rate  | 0 | N.A         | N.A |
| Soil retention  | 3 | N.A         | N.A |
| Increased harvest   | 1 | N.A         | N.A |
| Gross nitrogen balance  | 1 | N.A         | N.A |

|   |   |             |     |
|---|---|-------------|-----|
| Pollination potential   | 2 | N.A         | N.A |
| Increase in yield   | 0 | N.A         | N.A |
| Biodiversity Intactness Index   | 4 | Environment | 0   |
| Percentage of protected area  | 4 | Territory   | 1   |
| Removal of NO <sub>2</sub> by urban vegetation  | 3 | N.A         | N.A |
| Proportion of green areas in the high-density area of cities  | 2 | N.A         | N.A |
| PM <sub>10</sub> annual mean concentration  | 2 | N.A         | N.A |
| NO <sub>2</sub> annual mean concentration   | 2 | N.A         | N.A |
| The highest O <sub>3</sub> value based on daily max 8 h averages                                    | 2 | N.A         | N.A |
| Water quality   | 2 | N.A         | N.A |
| Water Retention Index   | 2 | N.A         | N.A |
| Water purification  | 2 | N.A         | N.A |
| Groundwater production  | 2 | N.A         | N.A |
| Rates of surface water drainage   | 3 | N.A         | N.A |
| Capacity of ecosystems to avoid soil erosion  | 3 | N.A         | N.A |
| Surface area of forest with a protective function   | 3 | N.A         | N.A |
| Crop production deficit   | 1 | N.A         | N.A |
| Habitat quality based on common birds   | 1 | N.A         | N.A |
| Interpolated biodiversity status  | 3 | N.A         | N.A |
| Net ecosystem productivity  | 1 | N.A         | N.A |
| Forest carbon potential   | 3 | N.A         | N.A |
| Annual CO <sub>2</sub> -eq emissions per ha   | 2 | N.A         | N.A |
| Annual CO <sub>2</sub> -eq emissions per capita   | 2 | N.A         | N.A |
| Carbon-storing habitats   | 2 | N.A         | N.A |
| Overall coverage of forest  | 3 | N.A         | N.A |
| Potential increase in agricultural production to compensate the reduction due to the climate change | 2 | N.A         | N.A |
| Standard deviation of annual rainfall   | 4 | Environment | 1   |
| Biodiversity of landscapes  | 4 | Environment | 1   |
| Magnitude of change of the natural biomass after a disturbance                                      | 1 | N.A         | N.A |
| Percentage of windbreaks  | 0 | N.A         | N.A |
| Aggregated index generated through recreation and tourism statistics                                | 3 | N.A         | N.A |

|  |   |                          |     |
|--|---|--------------------------|-----|
| Percentage of tourism to GDP   | 4 | Social                   | 0   |
| Intensity of natural and cultural heritage protection based on the number of protected areas overlapping | 3 | N.A                      | N.A |
| Ecosystem exposed to flooding  | 4 | Territory                | 1   |
| Seasonal rainfall  | 3 | N.A                      | N.A |
| Counts of animals per species  | 2 | N.A                      | N.A |
| Area of fodder and grain crops for animals/total cultivated land   | 2 | N.A                      | N.A |
| Animal protein intake in the daily ration  | 2 | N.A                      | N.A |
| Species composition (intra-herd diversity)   | 1 | N.A                      | N.A |
| Percentage of vegetation loss  | 4 | Territory                | 1   |
| Percentage of deforested area  | 4 | Territory                | 1   |
| Percentage of area covered by "problem soils"  | 4 | Territory<br>Social      | 1   |
| Increased use of chemicals and fertilizers   | 4 | Environment<br>Social    | 1   |
| Water clarity  | 1 | N.A                      | N.A |
| Normalized Difference Vegetation Index   | 3 | N.A                      | N.A |
| Land reclamation rate  | 2 | N.A                      | N.A |
| Degree of pollution in sediments   | 2 | N.A                      | N.A |
| Forest connectivity  | 4 | Territory                | 1   |
| River connectivity   | 4 | Territory                | 1   |
| River net density (defined as river length divided by land area)   | 2 | N.A                      | N.A |
| Ecosystem Functionality Index (EFI)  | 1 | N.A                      | N.A |
| Mean species abundance   | 3 | N.A                      | N.A |
| Percentage of change in land use (agriculture, vegetation, settlement)                                   | 4 | Territory                | 1   |
| Number of aquatic environmental reservoirs   | 3 | N.A                      | N.A |
| Policies supporting biodiversity conservation  | 4 | Territory<br>Environment | 0   |
| Percentage of government expenditure on environmental protection   | 3 | N.A                      | N.A |
| Percentage of area covered by Wetlands of International Importance (Ramsar Sites)                        | 3 | N.A                      | N.A |
| Participation in treaties, such as Convention on Biological Diversity                                    | 2 | N.A                      | N.A |
| Percentage of nature reserves and wetlands   | 3 | N.A                      | N.A |

|        |   |   |           |     |
|--------|---|---|-----------|-----|
|        | Percentage of forest area restored  | 4 | Territory | 1   |
|        | Rate of afforestation area  | 4 | Territory | 1   |
|        | Proportion of drought tolerant crops  | 3 | N.A       | N.A |
|        | Percent of area with intensive/extensive agriculture                                    | 3 | N.A       | N.A |
|        | Time needed for the natural vegetation to return to a certain percentage of plant cover | 3 | N.A       | N.A |
|        | Restoration period of the natural vegetation after a disturbance                        | 2 | N.A       | N.A |
|        | Average of monthly precipitation  | 3 | N.A       | N.A |
|        | Water level   | 3 | N.A       | N.A |
|        | Hazard duration   | 3 | N.A       | N.A |
|        | Probability of occurrence   | 2 | N.A       | N.A |
|        | Ecosystem exposed to storm  | 4 | Social    | 0   |
|        | Ecosystem exposed to drought  | 4 | Territory | 1   |
|        | Aggregated index generated through recreation and tourism statistics                    | 3 | N.A       | N.A |
|        | Experience: participation in recreational activities                                    | 3 | N.A       | N.A |
|        | Share of high-provision, easily accessible land in the recreation opportunity spectrum  | 0 | N.A       | N.A |
|        | Surface area of special protection area   | 2 | N.A       | N.A |
|        | Surface area of sites of community importance   | 4 | Social    | 1   |
|        | Employment (n); tourism revenue   | 4 | Territory | 1   |
|        | Employment in tourism and other aesthetic activities                                    | 4 | Territory | 1   |
| Social | Characteristics of living systems that are resonant in terms of culture or heritage     | 3 | N.A       | N.A |
|        | Percentage of population exposed to flooding  | 2 | N.A       | N.A |
|        | Proportion of GDP in primary sector   | 2 | N.A       | N.A |
|        | Livestock net income  | 2 | N.A       | N.A |
|        | Livestock annual net income/basic annual family expenses                                | 2 | N.A       | N.A |
|        | List of livestock assets and income owned or/and managed by women                       | 2 | N.A       | N.A |
|        | Crop income compared to total annual family income                                      | 2 | N.A       | N.A |
|        | Out-of-farm income compared to total annual family income                               | 2 | N.A       | N.A |

|   |   |                          |     |
|---|---|--------------------------|-----|
| Proportion of houses with poor facilities that are more fragile to climate change and hazards   | 4 | Territory<br>Environment | 0   |
| Number of conflicts on land   | 3 | N.A                      | N.A |
| Carrying capacity on rangelands   | 3 | N.A                      | N.A |
| Proportion of critical transportation sector  |   |                          |     |
| Proportion of critical transportation sector: main road, main tunnel, subway, port, airport; water sector; energy sector; information and communication sector; civil administration buildings sector | 2 | N.A                      | N.A |
| Proportion of houses with poor facilities that are more fragile to climate change and hazards   | 4 | Territory                | 1   |
| Percentage of population exposed to drought or flooding   | 4 | Territory                | 1   |
| Distance to market for animal transaction   | 1 | N.A                      | N.A |
| Pastoral institutions and organizations   | 3 | N.A                      | N.A |
| Remittance from migrants  | 2 | N.A                      | N.A |
| Emigration rate   | 4 | Social                   | 1   |
| Percentage of population without access to electricity  | 4 | Territory                | 1   |
| Percentage of households without access to irrigation   | 4 | Territory                | 1   |
| Percentage of population without access to (improved) sanitation  | 4 | Territory                | 0   |
| Percentage of population without access to clean water  | 4 | Territory<br>Social      | 1   |
| Percentage of population living in informal settlements   | 4 | Territory                | 1   |
| Percentage of households that live in rented houses   | 2 | N.A                      | N.A |
| The household proportion with person aged 65 and older  | 4 | Social                   | 1   |
| Percentage of reinforced/elevated houses  | 2 | N.A                      | N.A |
| Percentage of households without official land title  | 4 | Social                   | 1   |
| Percentage of houses with more than one floor   | 1 | N.A                      | N.A |
| Credit access for livestock activity  | 2 | N.A                      | N.A |
| Fodder seed supply  | 1 | N.A                      | N.A |
| Proportion of vaccinated animals  | 1 | N.A                      | N.A |
| Animal value stock (animal asset valued at selling price) per family member (compared to the poverty line)  | 1 | N.A                      | N.A |
| Percentage of population living in poorly constructed houses  | 4 | Territory                | 1   |

|  |   |           |     |
|--|---|-----------|-----|
| Percentage of illiterate population  | 4 | Territory | 1   |
| Percentage of primary industry to GDP  | 4 | Social    | 1   |
| Population density   | 4 | Social    | 0   |
| Percentage of female-headed households                                       | 4 | Social    | 1   |
| Travel time to closest city  | 4 | Territory | 0   |
| Percentage of the population with disabilities                               | 4 | Social    | 1   |
| Percentage malnourished population   | 4 | Social    | 1   |
| Percentage of population with chronic illnesses                              | 4 | Social    | 0   |
| Proportion of families below poverty line in total households                | 4 | Social    | 1   |
| Dependency ratio   | 3 | N.A       | N.A |
| GINI index   | 2 | N.A       | N.A |
| Dependency on agriculture/forestry for livelihood                            | 2 | N.A       | N.A |
| Ratio of afforestation coverage areas in the city                            | 1 | N.A       | N.A |
| Prevalence of population who experience violence                             | 3 | N.A       | N.A |
| Prevalence of population affected by armed conflict                          | 3 | N.A       | N.A |
| Number of fatalities caused by terrorists per 10,000 per year                | 1 | N.A       | N.A |
| Per capita income  | 4 | Social    | 0   |
| Per capita GDP per unit area   | 2 | N.A       | N.A |
| Average years of education   | 4 | Social    | 0   |
| Ratio of the population with college/university degree or higher             | 4 | Social    | 0   |
| Percentage of households without individual means of transportation          | 4 | Territory | 1   |
| Percentage of households without gross savings                               | 4 | Social    | 1   |
| Percentage of households without access to bank loans/(micro-) credits       | 4 | Social    | 1   |
| Percentage of households without any insurance—excl. health insurance        | 4 | Social    | 1   |
| Animal stock per veterinarian in the community                               | 1 | N.A       | N.A |
| Distance of veterinary services from family house                            | 1 | N.A       | N.A |
| Distance of veterinary service from rangeland in the territory of attachment | 1 | N.A       | N.A |
| Distance of veterinary pharmacy from family house                            | 1 | N.A       | N.A |
| The average cost of veterinary medicine                                      | 1 | N.A       | N.A |

|   |   |                     |     |
|---|---|---------------------|-----|
| Percentage of population without a health insurance   | 2 | N.A                 | N.A |
| Net income per person in working age (compared to the minimum wage)   | 2 | N.A                 | N.A |
| Density of strong ties within the local social network  | 4 | Social              | 0   |
| Density of links within the extended networks (administration, traders, etc.)   | 4 | Social              | 0   |
| Equipment: telephone, internet, road, electricity, etc.   | 4 | Territory           | 1   |
| Proximity   | 3 | N.A                 | N.A |
| Number of visits/year   | 3 | N.A                 | N.A |
| Elasticity of animal product demand   | 1 | N.A                 | N.A |
| Animal supply dynamic   | 1 | N.A                 | N.A |
| Household size  | 2 | N.A                 | N.A |
| Working-age persons in the household  | 4 | Social              | 0   |
| Household dependency ratio  | 4 | Social              | 0   |
| Number of people with higher education  | 4 | Social              | 1   |
| Value of animal stock (valued at the selling price) per children (transmissibility)   | 0 | N.A                 | N.A |
| Existence of early warning systems  | 3 | N.A                 | N.A |
| Volume of water storage in a safe reservoir/container   | 4 | Territory           | 1   |
| Number of hospital beds per 1000 inhabitants  | 2 | N.A                 | N.A |
| Access to shelter places (density of schools)   | 3 | N.A                 | N.A |
| Percentage of households without access to waste/water treatment  | 4 | Territory           | 1   |
| Drainage system: average length of drainage network   | 4 | Territory           | 0   |
| Access to emergency places (density of hospitals, fire bridges, police stations)  | 4 | Territory<br>Social | 1   |
| Density of transportation network: combined measure of distance to nearest station, density of road and rail networks, density of bus stations and ports for transportation service | 4 | Territory<br>Social | 1   |
| Public health expenditure   | 3 | N.A                 | N.A |
| Private health expenditure  | 3 | N.A                 | N.A |
| Density of aid projects   | 3 | N.A                 | N.A |
| Percentage of population who has experienced hazard(s) in the past 10 years   | 4 | Social              | 1   |

|  |   |           |     |
|--|---|-----------|-----|
| Foreign direct investment  | 2 | N.A       | N.A |
| Percentage of farmers who use different crop varieties                                 | 2 | N.A       | N.A |
| Number of income-generating activities per household                                   | 4 | Social    | 1   |
| Existence of hazard/vulnerability/risk map   | 4 | Territory | 0   |
| Existence of integrated development plans: conservation, protection, land use planning | 4 | Territory | 0   |
| Existence of adaptation policies/strategies  | 4 | Territory | 1   |
| Percentage of GDP spent on innovation and research                                     | 3 | N.A       | N.A |
| Amount of subsidies par animal at the territorial level                                | 0 | N.A       | N.A |
| Percentage of reproductive females in the herd per animal species                      | 0 | N.A       | N.A |