**Data Limitations**

In designing the relocation program for Storslysia, we used the economic demographic, emissions and hazard event data. The limitations of these data and corresponding details are summarised below.

|  |  |
| --- | --- |
| **Limitation** | **Details** |
| Limited GDP data | We have only access to the 2019 and 2020 GDP data, making it is difficult to give an accurate estimation of GDP growth rate. |
| Lack of economic, industrial and labour conditions regionally | The model does not account for the economic and industrial conditions in each region, and whether the labour skillsets in a region is applicable to another region, which will result in inaccurate pricing and cost projection of the relocation scheme. |
| Misleading data | We observe -990% in 2003’s inflation rate data, which is likely due to a data error, hence this value is skipped in the model. |
| Limited population data | Census data for each region is only given for 2019, 2020 and 2021, making it difficult to understand and/or predict movement between the regions prior to the program’s commencement. |

**Assumptions**

**Economic Assumptions**

These economic assumptions have been generated to support the program’s success.

|  |  |
| --- | --- |
| **Assumption** | **Justification** |
| No person enters or exits the Storslysia regions during the relocation scheme. | Implies population behaviour remains quite constant, hence simplifying relocation rate calculation. |
| Relocation only occurs between the 6 regions and not to a location outside Storslysia. | Constant population behaviour does not need to create parameters for external region. |
| No person will relocate for reasons outside of ‘voluntary’, ‘proactive’ and ‘involuntary’. | There is limited census data and external reasons for relocation are therefore difficult to predict. Hence, this assumption improves accuracy for relocation rate projections. |
| GDP and cost of relocation grows at the same rate over time. | Suggests that the program’s success will continue in the future if its costs are below 10% of GDP in the considered timeframe. |
| Population behaviour between rich and poor people are the same across regions | Implies the same percentage of rich and poor people move between regions, which improve accuracy of pricing and cost projection. |

**Program Cost Assumptions**

The assumptions below have the most significant impact on program costs:

|  |  |
| --- | --- |
| **Assumption** | **Justification** |
| The model assumes that the property value is uniformly distributed in each band. | This facilitates the separation of property value groups in our calculations |
| The model assumes that each injury is associated with an economic cost of 100,000 and each death is associated with an economic cost of 300,000. | Injuries and deaths contribute to a reduction in economic activity as well as additional costs towards the budget. This estimation allows the program to take these costs into account. |

**Other Assumptions**

|  |  |
| --- | --- |
| **Assumption** | **Justification** |
| No transition between SSP scenarios between 2020 and 2150. | Being able to apply the frequency projection model provided. |
| Storslysia inflation and interest rates are assumed constant annually. | Makes it compatible with the pricing and cost calculation of the relocation scheme. |
| Current population of each region only increased by 30% | Ensures there is no overpopulation, resulting in resource depletion, unemployment, housing, and healthcare issues, etc. |
| The program prioritises claims from individuals in higher risk regions over those in lower risk regions | This is due to limited resources. Additionally, the program gives priority to individuals with lower socio-economic status, as they are at greater risk of suffering from the impact of the natural disaster. |