

Loss and Damage

December 12, 2017

```
In [3]: import matplotlib.pyplot as plt
        %matplotlib inline
        plt.style.use('ggplot')
        from datascience import *
        import numpy as np
        from scipy.spatial.distance import cosine
        import gensim
        import nltk
        from string import punctuation
```

Using TensorFlow backend.

```
In [4]: loss_damage_final="""1. Parties recognize the importance of averting, minimizing and a
and damage associated with the adverse effects of climate change, including\
extreme weather events and slow onset events, and the role of sustainable\
development in reducing the risk of loss and damage.\
2. The Warsaw International Mechanism for Loss and Damage associated with\
Climate Change Impacts shall be subject to the authority and guidance of the\
Conference of the Parties serving as the meeting of the Parties to this Agreement\
and may be enhanced and strengthened, as determined by the Conference of the\
Parties serving as the meeting of the Parties to this Agreement.\
3. Parties should enhance understanding, action and support, including through\
the Warsaw International Mechanism, as appropriate, on a cooperative and\
facilitative basis with respect to loss and damage associated with the adverse\
effects of climate change.\
4. Accordingly, areas of cooperation and facilitation to enhance understanding,\
action and support may include:\
(a) Early warning systems;\
(b) Emergency preparedness;\
(c) Slow onset events;\
(d) Events that may involve irreversible and permanent loss and damage;\
(e) Comprehensive risk assessment and management;\
(f) Risk insurance facilities, climate risk pooling and other insurance \
solutions;\
(g) Non-economic losses; and \
(h) Resilience of communities, livelihoods and ecosystems.\

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5. The Warsaw International Mechanism shall collaborate with existing bodies \ and expert groups under the Agreement, as well as relevant organizations and \ expert bodies outside the Agreement. """

loss_damage_final

Out[4]: '1. Parties recognize the importance of averting, minimizing and addressing loss and damage

```
In [5]: words = loss_damage_final.split()
lost_damage=Table().with_columns('Final Draft',words)
total_table_final=lost_damage.group('Final Draft').sort('count', descending=True)
total_table_final
```

```
Out[5]: Final Draft | count
and                | 18
the                | 14
of                 | 12
as                 | 6
to                 | 5
Parties            | 5
with               | 4
risk               | 3
may                | 3
loss               | 3
... (117 rows omitted)
```

```
In [6]: loss_damage_dec5="""Article 5 LOSS AND DAMAGE \
Option I: The following text to be included as Article 5 Loss and Damage \
Option II: The following text to be part of Article 4 alongside adaptation provision \
1. The Warsaw International Mechanism for Loss and Damage associated with Climate Change \
shall serve this Agreement \
2. Upon the completion of its review at the twenty-second session of the COP,13 the Warsaw \
International Mechanism shall be subject to the authority and guidance of the CMA and \
through the Financial Mechanism of the Convention \
3. A climate change displacement coordination facility shall be established under the \
International Mechanism] [CMA] \
to help coordinate efforts to address climate change induced displacement, migration and \
4. A process to develop \
approaches to address irreversible and permanent damage resulting from \
human-induced climate change will be initiated under the [Warsaw International Mechanism] \
with a view to completing this process within four years ]"""
```

```
In [7]: words_dec5 = loss_damage_dec5.split()
lost_damage_dec5=Table().with_columns('December 5 Draft',words_dec5)
total_table_dec5=lost_damage_dec5.group('December 5 Draft').sort('count', descending=True)
```

```
In [8]: loss_damage_dec9="""Article 58 (LOSS AND DAMAGE)\
Option I: The following text to be included as Article 5 (Loss and Damage)\
Option II: The following text to be part of Article 4 alongside adaptation provision\
1. [The Warsaw International Mechanism for Loss and Damage associated with Climate Change]
```

shall serve this Agreement.\

2. Upon the completion of its review at the twenty-second session of the COP,9 the Warsaw International Mechanism for Loss and Damage shall be established under the Convention through the Financial Mechanism of the Convention.\

3. A climate change displacement coordination facility shall be established under the Convention to assist Parties in addressing displacement, migration and planned relocation.\

4. A process to develop approaches to address irreversible and permanent damage resulting from climate change shall be established under the Convention with a view to completing this process within four years.]"

```
In [9]: words_dec9 = loss_damage_dec9.split()
lost_damage_dec9=Table().with_columns('December 9 Draft',words_dec5)

total_table_dec9=lost_damage_dec9.group('December 9 Draft').sort('count', descending=True)
```

```
In [10]: loss_damage_dec10 = """Article 5\
Option 1: 4 Parties recognize the importance of averting, minimizing and addressing loss and damage associated with the adverse effects of climate change, including extreme events and slow onset events, and the role of sustainable development in reducing the risk of loss and damage\
Option 2:\
1. Parties recognize the importance of averting, minimizing and addressing loss and damage associated with the adverse effects of climate change, including extreme events and slow onset events, and the role of sustainable development in reducing the risk of loss and damage.\
2. Accordingly, Parties, in the context of international cooperation and solidarity, taking into account with the principle and provisions of the Convention, including common but differentiated responsibilities and respective capabilities] shall, as appropriate, enhance and, where necessary, implement approaches to address loss and damage associated with the adverse effects of climate change, including as they relate to: (a) Early warning systems; (b) Slow onset events and disasters that may involve irreversible and permanent loss and damage; (c) Comprehensive risk management; (d) Risk insurance facilities, climate risk pooling and other insurance arrangements; (e) Non-economic losses; (f) Climate change induced displacement, migration and planned relocation.\
3. Parties shall enhance action and support, on a cooperative and facilitative basis, to assist Parties in addressing loss and damage associated with the adverse effects of climate change, and in a manner that does not involve or provide a basis for liability or compensation nor prejudice existing rights under international law.\
4. Option 1: An international mechanism to address loss and damage is hereby defined under the Agreement. It shall be bound by the principles and provisions of the Convention. The mechanism on loss and damage shall draw upon, further develop and elaborate on the work of the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts pursuant to relevant COP decisions, including the development of modalities and procedures for the mechanism's operation and support. It can involve, as appropriate, existing bodies and mechanisms under the Convention, as well as relevant organizations and expert bodies outside the Convention, to be informed by relevant precedents in international law.\
Option 2: The Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts, established in accordance with the Convention, shall serve this Agreement. It shall continue to implement the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts, in accordance with decisions 3/CP.18 and 2/CP. 20. It shall be authorized, as appropriate, in order to avert, minimize and address loss and damage associated with the adverse effects of climate change.\
5. The [Warsaw International Mechanism, as referred to in paragraph 4 above,][international mechanism]
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mechanism, as referred to in paragraph 4 above,] shall promote and support the development and implementation of approaches to address loss and damage associated with the adverse effects of climate change in particularly vulnerable developing countries."""

loss_damage_dec10

```
Out[10]: 'Article 50option 1: 4 Parties recognize the importance of averting, minimizing and ad
```

```
In [11]: words_dec10 = loss_damage_dec10.split()
         lost_damage_dec10=Table().with_columns('December 10 Draft',words_dec10)
         total_table_dec10=lost_damage_dec10.group('December 10 Draft').sort('count', descending=True)
         total_table_dec10
```

```
Out[11]: December 10 Draft | count
          and                | 41
          the                 | 23
          of                  | 18
          with                | 12
          in                  | 12
          loss                | 11
          to                  | 8
          damage              | 8
          associated          | 8
          climate             | 7
          ... (203 rows omitted)
```

```
In [12]: total_table_dec10.show(203)
```

```
<IPython.core.display.HTML object>
```

```
In [13]: important_words=" Change Climate Damage International Loss Mechanism Option address ap
associated change climate damage develop displacement established induced irreversibl
permanent planned serve shall "
important_words
```

```
Out[13]: 'Change Climate Damage International Loss Mechanism Option address approaches associat
```

```
In [14]: words_legal_terms = important_words.split()
         legal_terms_table=Table().with_column('Legal Words',words_legal_terms)
         legal_terms_table
```

```
Out[14]: Legal Words
Change
Climate
Damage
International
Loss
Mechanism
```

```

Option
address
approaches
associated
... (12 rows omitted)

```

```

In [15]: table=legal_terms_table.join('Legal Words',total_table_dec10,'December 10 Draft').rel
table2=legal_terms_table.join('Legal Words',total_table_dec9,'December 9 Draft')
table3=legal_terms_table.join('Legal Words',total_table_dec5,'December 5 Draft')
table2

```

```

Out[15]: Legal Words | count
Change | 1
Climate | 1
Damage | 2
International | 4
Loss | 2
Mechanism | 3
Option | 2
address | 2
approaches | 1
associated | 1
... (11 rows omitted)

```

```

In [16]: new_table=total_table_dec5.join('December 5 Draft',total_table_dec9,'December 9 Draft')
new_table

```

```

Out[16]: December 5 Draft | count | December 9 Word Count
1. | 1 | 1
2. | 1 | 1
3. | 1 | 1
4. | 1 | 1
4. | 1 | 1
5 | 2 | 2
A | 2 | 2
AND | 1 | 1
Agreement | 1 | 1
Article | 3 | 3
... (86 rows omitted)

```

```

In [17]: table_paris=new_table.join('December 5 Draft',total_table_dec10,'December 10 Draft').rel
Updated_table=table_paris.relabeled('count','December 5 Word Count')
loss_damage_table_updated=Updated_table.join('December 5 Draft',legal_terms_table,'Legal Words')

loss_damage_table_updated

```

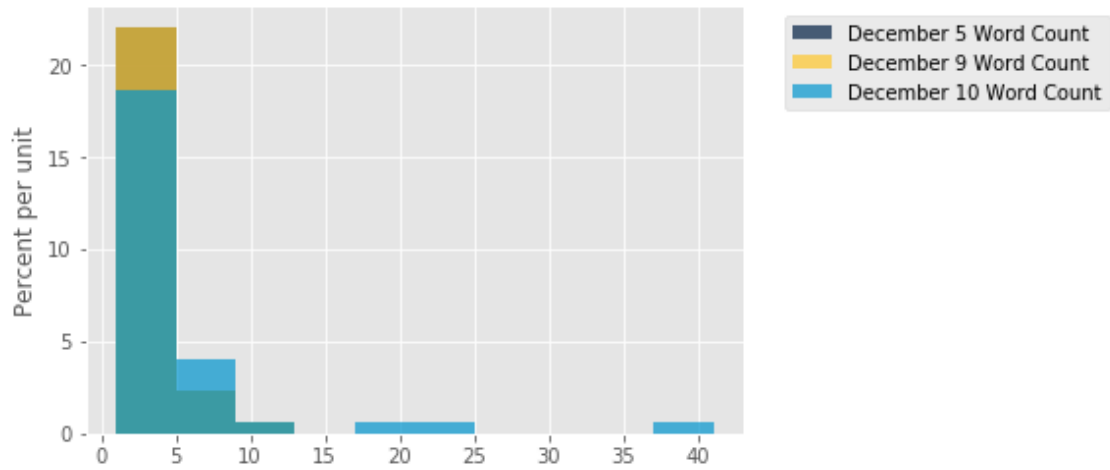
```

Out[17]: Important Words | December 5 Word Count | December 9 Word Count | December 10 Word Count
Change | 1 | 1 | 2
Climate | 1 | 1 | 4

```

Damage	2	2	3
International	4	4	4
Loss	2	2	3
Mechanism	3	3	3
Option	2	2	3
address	2	2	4
approaches	1	1	2
associated	1	1	8
... (10 rows omitted)			

In [18]: Updated_table.hist('December 5 Word Count','December 9 Word Count','December 10 Word Count')



In [19]: loss_damage_table_updated.barh('Important Words')

