HOW DO CLIMATE IMAGES CIRCULATE ONLINE

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SCHOOL OF DESIGN

FINAL SYNTHESIS DESIGN STUDIO
LM in Communication Design
Sez. C3 — 2022/2023

GROUP 01

An analysis based on the dynamic use of images under *the Climate Visuals Platform.*

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INTRODUCTION

Climate change refers to increased global temperature and weather patterns since the 1980s. Nowadays, it's rapidly accelerating worldwide and emerges visually through natural disasters and different climate issues that occurred recently.

For this research, we will use the climate image library "*Climate Visuals*" as an authorised source of evidence to sustain our research goals. "*Climate Visuals*" is an influential platform based on reliable compasses. Such as showing real people, telling the truth and new stories. Nevertheless, its emotionally powerful images can guide the audience to be aware of climate change.

The study has **three purposes**:

1. The usage and frequency of images
2. The climate issues and considerations behind each country
3. To use keywords to investigate the evident and more detailed connection between images and different locations.

Footnote: "Climate Visuals" based on 7 core principles for climate change communication - 1. Show real people, 2. Tell new stories, 3. Show climate change causes at scale, 4. Show emotionally powerful impacts, 5. Understand your audience, 6. Show local (by serious) impacts, 7. Be careful with protest imagery. https://climatevisuals.org/evidence/

TABLE OF CONTENTS

* If its location and depicted topic are the same as the article they are used for.

STARTING POINT - DATA PROCEDURE

Dataset | Step | Tools

STEP 1: FIND RESOURCES

Climate Visuals
Climate Image Library
Searching keyword: **Climate Change**
Collected **549** images, from **17** countries intotal.

Dataset 1
549 images | **17** countries

# num	Shooting Location / Country

Google Sheets
Google Sheets: A online spreadsheet program. Used to build our images dataset for each image.

TinEye
Reverse image search engine. You can use them to search for sites that use a particular image search results include the total number of times that an image has been used, and the specific URL of each using time.

Use image reverse search to collect information on how many times images are used

Dataset 1-1
549 images | **17** countries
Dataset Detail

# num	Shooting Location / Country	Use amount (Tineye)

Sort the images by the number of times they have been used (Use amount (Tineye)), and remove images that have been used less than **9 times**

Dataset 2
46 images | **10** countries

# num	Shooting Location / Country	Use Time (Tineye)

STEP 2: DATA COLLECTION

TinEye Google Lens
Both are reverse image search engine.You can use them to search for sites that use a particular image search results include the total number of times that an image has been used, and the specific URL of each using time.

Image reverse search to collect information on how images are used,the results including the use in websites, URL, post time,Web-location,Platform type, e.t.c.

Dataset 2-1
46 images | **10** countries
Dataset Detail

*The column of "Use amount " in dataset 2 is determined by how many pages using the image are found by us.

...	URL	Post Time	Platform Type	Web Name	Web Location	Right / Wrong	Use amount *
Website Location		Location(image for description)		Publisher		Types of Publisher	...

STARTING POINT - DATASET

DATA SOURCE

Platform	Climate Visuals
Searching Keyword	Climate Change

1 DATASET 1

Image: **549** pictures
Country: **18** countries

01 Australia	02 Bangladesh	03 Bolivia	04 Brazil	05 Canada	06 China	07 Greenland
08 India	09 Indonesia	10 Italy	11 Kenya	12 Mexico	13 Portugal	14 Solomon Island
15 Sri Lanka	16 Svalbard	17 UK	18 USA			

2 FILTER PROCESS

Tools	Google Lens	TinEye
Function 1	Collect used times for each image	
Function 2	Collect used platform for each image	

Condition of Image:
used more than **9** times / per image

549 Images → **46 Images**
18 Countries → **10 Images**

3 FINAL DATASET 2

Image: **46** pictures
Country: **10** countries
Platform:
Use amount (all): **422** times

No. Country | Num of Images

01 Australia 4	02 Bangladesh 3	03 China 4	04 Greenland 1	05 India 2
06 Indonesia 2	07 Kenya 2	08 Sri Lanka 4	09 UK 10	10 USA 13

No. Country | Num of Images

01 Research 14	02 Environmental Organization 64	03 Blog 67	04 News 129	
05 National Information 30	06 Academic 18	07 Social Media 17	08 University 19	
09 Image 10	10 Video 3	11 Music 1	12 Others 35	

1975
2019

Q1

What type of image from “Climate Visuals” get more used through the online platforms?

Findings from the first protocol, are to find how the online platforms used the selected 46 climate images on the web by using Google Lens and Tineye to do reverse image searches. The results including the use amounts in the website, the year for using and how many times they’ve been used in total, e.t.c.

DATASET Q1

PROTOCOL 01

Dataset | Step | Tools

Searching keyword: Climate Change in the library of “Climate Visuals” platform

Dataset 1
549 images
17 countries

Reverse searching images to collect the frequency and data in use and removing those that have been used less than 9 times

TinEye Google Lens
Both are reverse image search engine.You can use them to search for sites that use a particular image search results include the total number of times that an image has been used, and the specific URL of each using time.

Dataset 2
46 images | 10 countries

Image	# Image num	Shooting Location(Country)	Post Time	... ...	Use amount *

* To find more details for dataset in starting point.

*The column of "Use amount " in dataset 2 is determined by how many pages using the image are found by us.

Grouping, sorting, e.t.c. of images in dataset 2 in Google sheet

Google Sheets
Google Sheets: A online spreadsheet program. Used to build our images dataset for each image.

Image	# Image num	Shooting Location(Country)

Image	# Image num	Post time

finding 1+2
Grouping images according to the country in which they were taken

finding 3+4
Sort the use amounts of 46 images in the order of year and repeat with the publishing quantities each year.

Arrange the images located country in the order of total using amounts

Observe them and divide the 46 images into two categories: **"content based on landscape"** and **"content based on people and life scenes"**

Arrange and repeat all images per year published

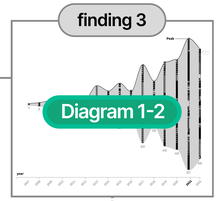
finding 1

Google Sheets

Landscape	People and life scenes

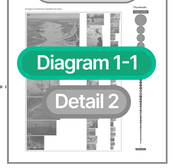
Arrange and repeat single images per year published

finding 3

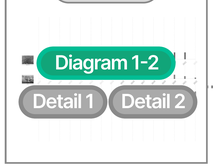


Sorting the 46 images by amount of uses and counting the total number of the two types of images that the platforms used

finding 2



finding 4



Adobe Illustrator
Adobe Illustrator is a vector graphics editor and design program

Adobe Illustrator
Adobe Illustrator is a vector graphics editor and design program

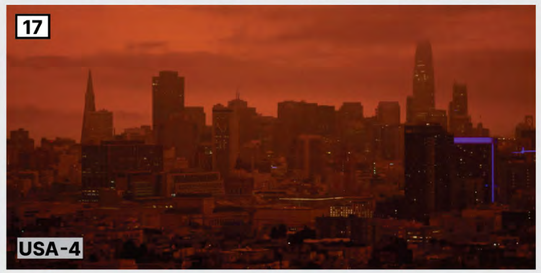
Prepare Dataset

Data Analysis and Collation

Visualise Diagrams

Q1 Diagram 1-1

THE AMOUNT OF USE IN IMAGES FROM DIFFERENT COUNTRIES



USA

CHINA

UK

INDONESIA

AUSTRALIA

BANGLADESH

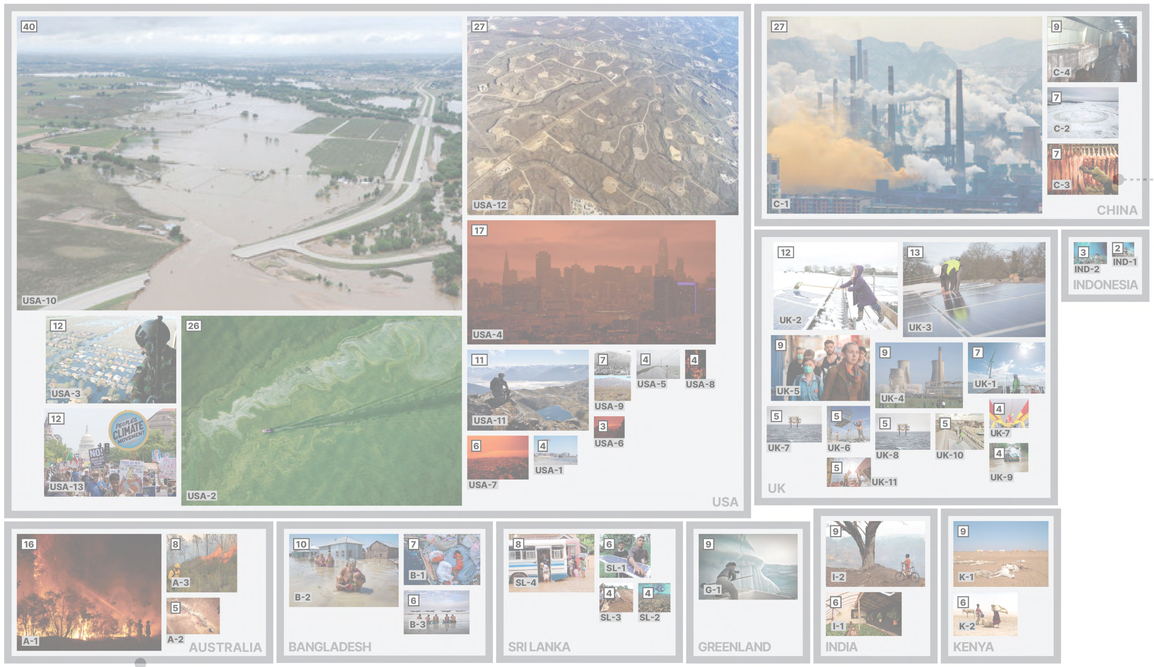
SRI LANKA

GREENLAND

INDIA

KENYA

How to read



Finding 1

Finding 2

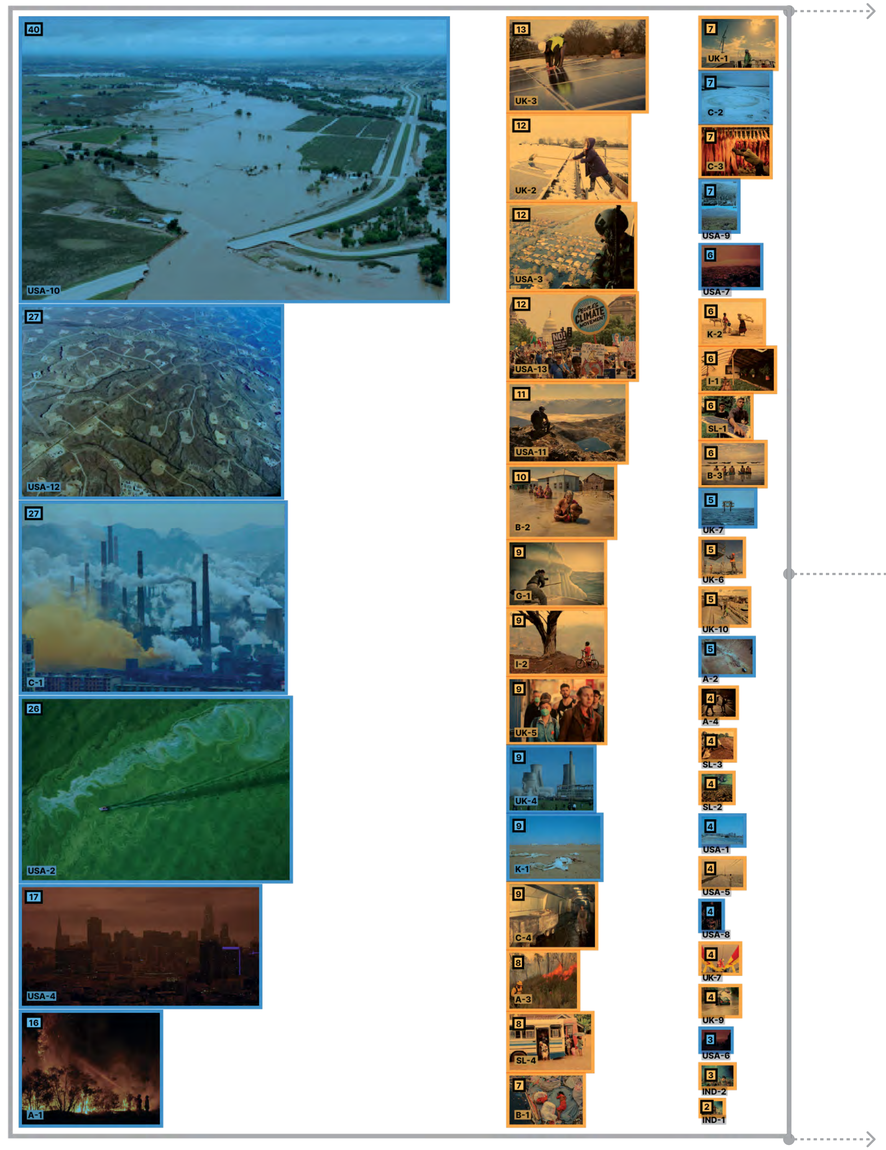
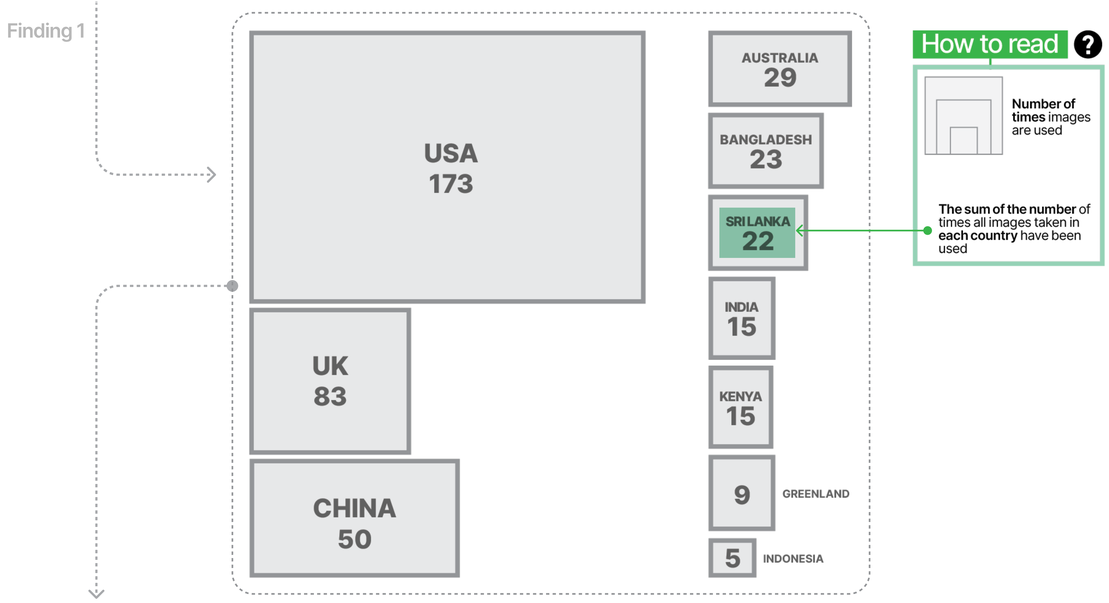


Diagram 1-1 | Detail 1



How to read

Number of **times** images are used

The sum of the number of times all images taken in **each country** have been used

How to read

The content of the pictures is mainly **landscape**

The content of the pictures is mainly **people and life scenese**

Number of times each image is used

Diagram 1-1

Detail 2

NUMBER OF IMAGE
16:30
USED TIME
212:228

Arrange the home country's images in the order of using amounts / Finding 1

We separated the climate images from different countries into groups, to show the total amount of various countries' photos. According to this process, **photos from the USA have the most extensive quantity in use**, then gradually decrease to **the UK, China, Australia and other countries.**

The visual context can split the 46 pieces of the image into two types. / Finding 2

The **top 6** climate visual images commonly used online are based on **landscape**. (*These images are mainly shooted at a wide angle to present a broad scenery*). The images in the mid-ranking are nearly all about **people or human-living scenes** (*These images are more frequently taken closer*). For the low-ranking, the view of images is more balanced in landscape and human-living scenes. **Although the number of images about landscape is half of the life scenes images, they have nearly the same amount of use on the images.**

Q1 Diagram 1-2

DEFINE THE USE OF 46 IMAGES IN DIFFERENT YEARS.

To arrange the use amounts of images in order of time. / Finding 3

The use amount of 46 images from “Climate Visuals”, will be shown off when we order the images according to the employing time. In 2021, these images were used 67 times on different platforms, reaching a peak from 2007 to 2022.

peak

How to read

The number of times the image has been used in different **periods**

Images that were used during the time period of **1 year**, repeatedly listed by the number of **times they were used**

*Because some pictures’ released time can’t be found out, diagram 1-2 in the number of views are slightly detracted

1 2 4 4 3 5 19 14 21 14 40 25 44 48 67 56

In 2013, 2015, 2017, 2019, 2020 and 2022, the images have also been frequently used during these times.

year

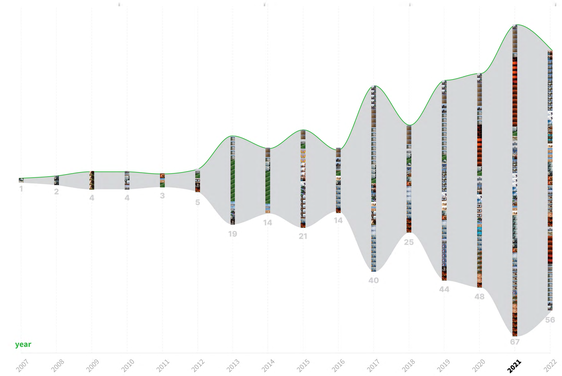
2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022

Q1 | Diagram 1-2 | Detail 1

DEFINE THE USE OF 46 IMAGES IN DIFFERENT YEARS.

Define the use of each image at different times. / Finding 4

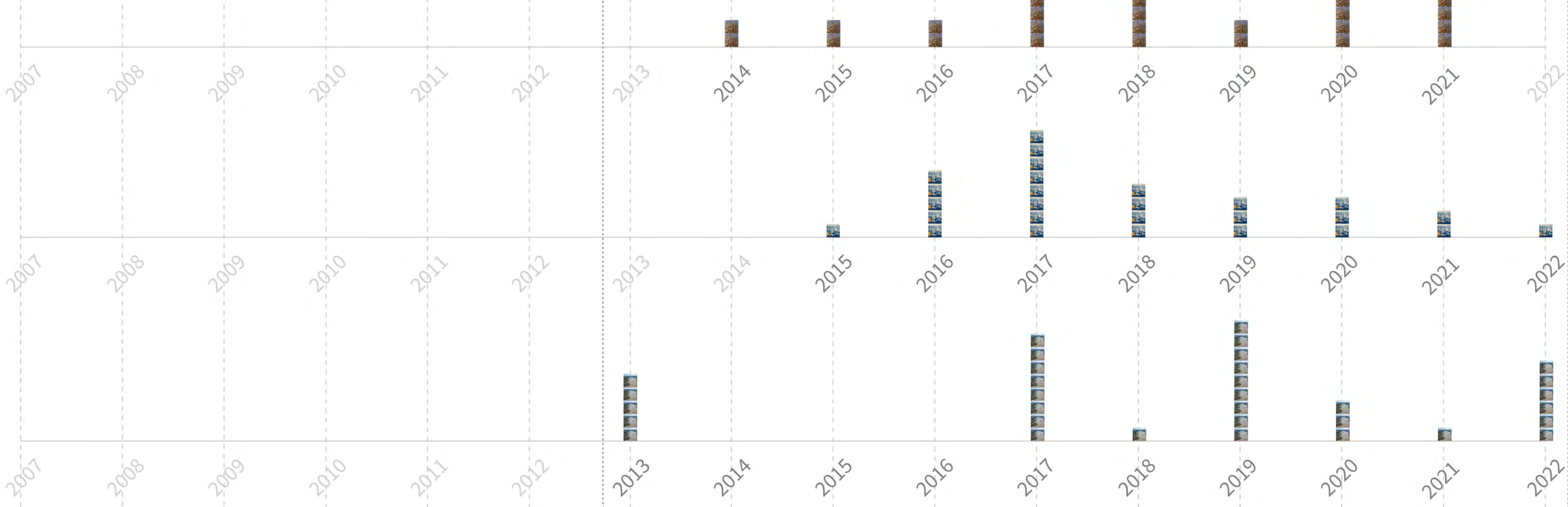
When we zoom in on the images of finding 03, lots of funny details will appear.
We used two series of images as a sample in finding 04 to visualise the situations of the image used at different times.




USA-12


C-1


USA-10

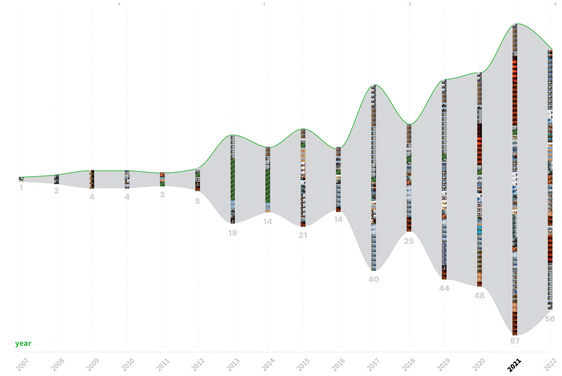


According to the total use amount of images “USA-12”, “C-1”, and “USA-10“, although they are the top 3 images, when we start to place them in the time order, the differences appears during the same length of time. For example, the image “USQ-12” has been used annually and kept with the balance on the using amounts from 2014-2021. Image “USA-10” was shooted in 2013 and reused in 2017, but it has been used extensively every few years.

*Because some pictures’ released time can’t be found out, diagram 1-2 in the number of views are slightly detracted

Q1 Diagram 1-2 Detail 2

DEFINE THE USE OF 46 IMAGES IN DIFFERENT YEARS.



UK-9 was first used in all images in 2007, and has been reused decades apart until 2018.


UK-9


C-4

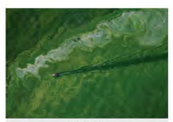

USA-2

Image C-4 has been used for the most extended period; publishers first used it in 2008, and the last is in 2022. There was 16 years total from 2018 to 2022, and it has only been applied for three years, in 2013, 2016 and 2021.

Image USA-2 has been used constantly for 11 years, from 2011 to 2021. During this period, it was used intensively from 2013 to 2014 and then used once per year.

*Because some pictures' released time can't be found out, diagram 1-2 in the number of views are slightly detracted

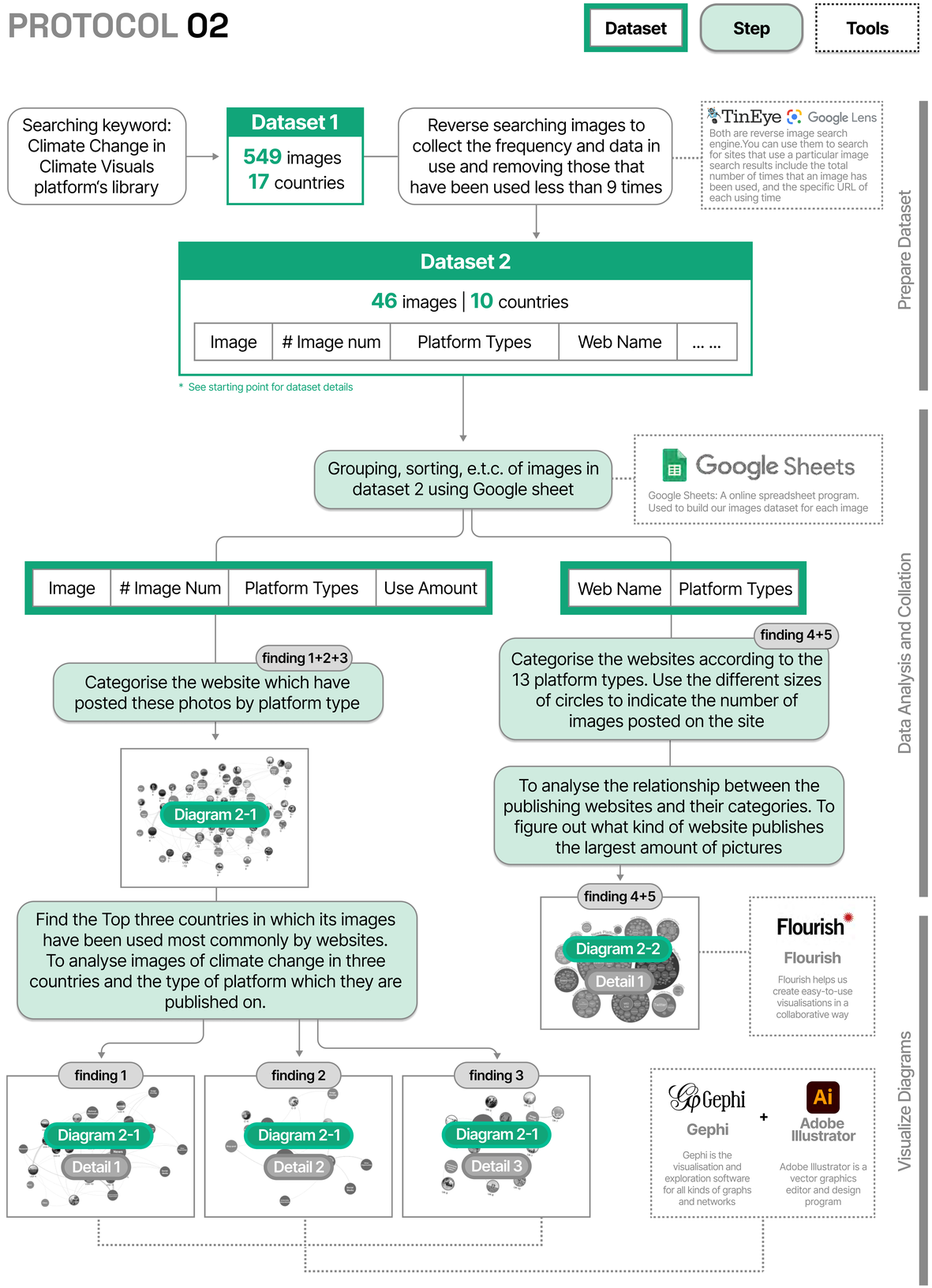
Q2

What kind of websites have used images from “Climate Visuals” Platform?

Findings from the second protocol determine the attention given to climate visual images in different platforms and countries. We will take 46 images attributed to 10 countries, analyse, group, sort them and so on. And go through dataset 2 and the visualisation through Gephi software.

DATASET Q2

PROTOCOL 02

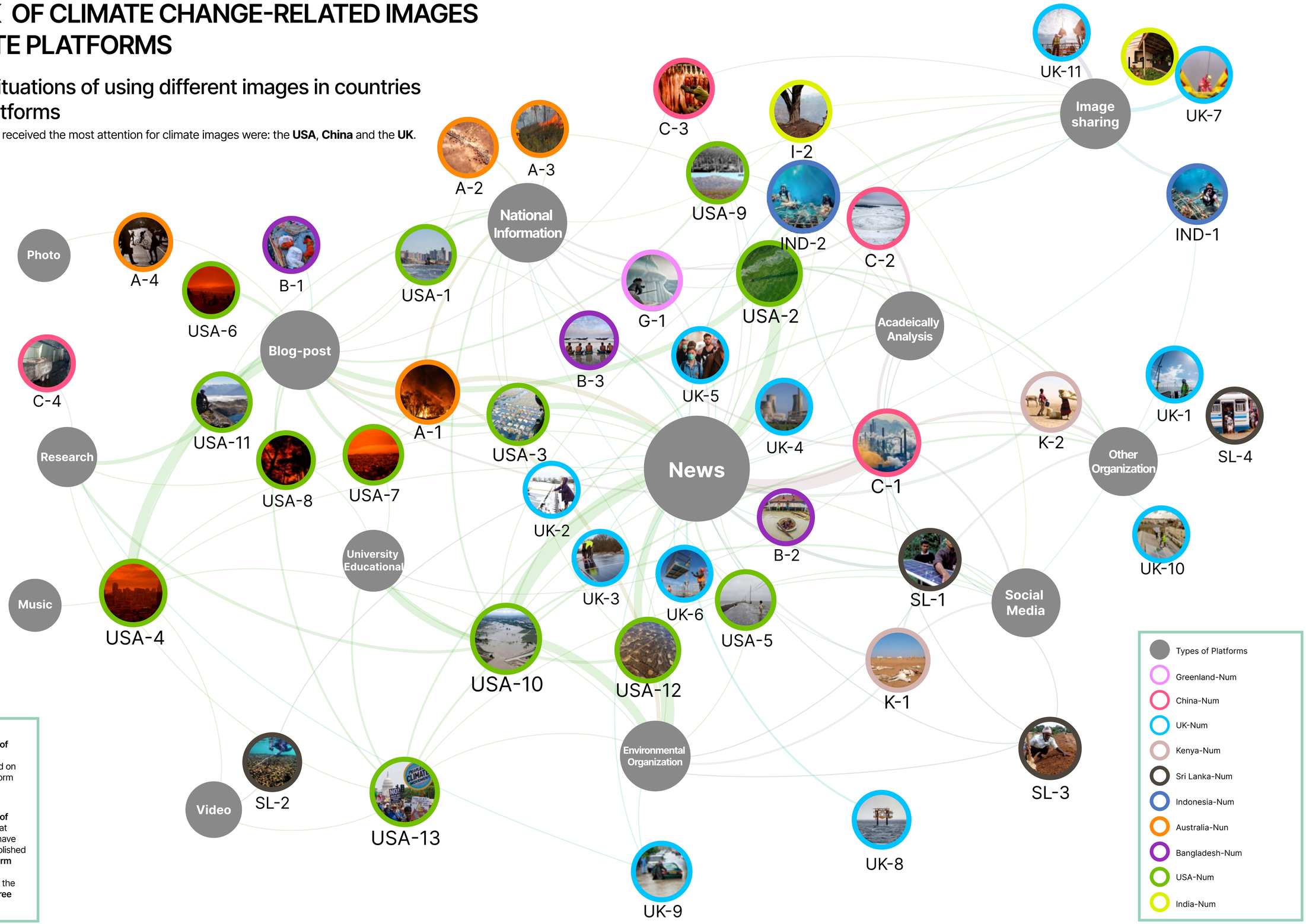


Q2 Diagram 2-1

A NETWORK OF CLIMATE CHANGE-RELATED IMAGES AND WEBSITE PLATFORMS

Analysing the situations of using different images in countries with various platforms

The top three countries that received the most attention for climate images were: the **USA**, **China** and the **UK**.



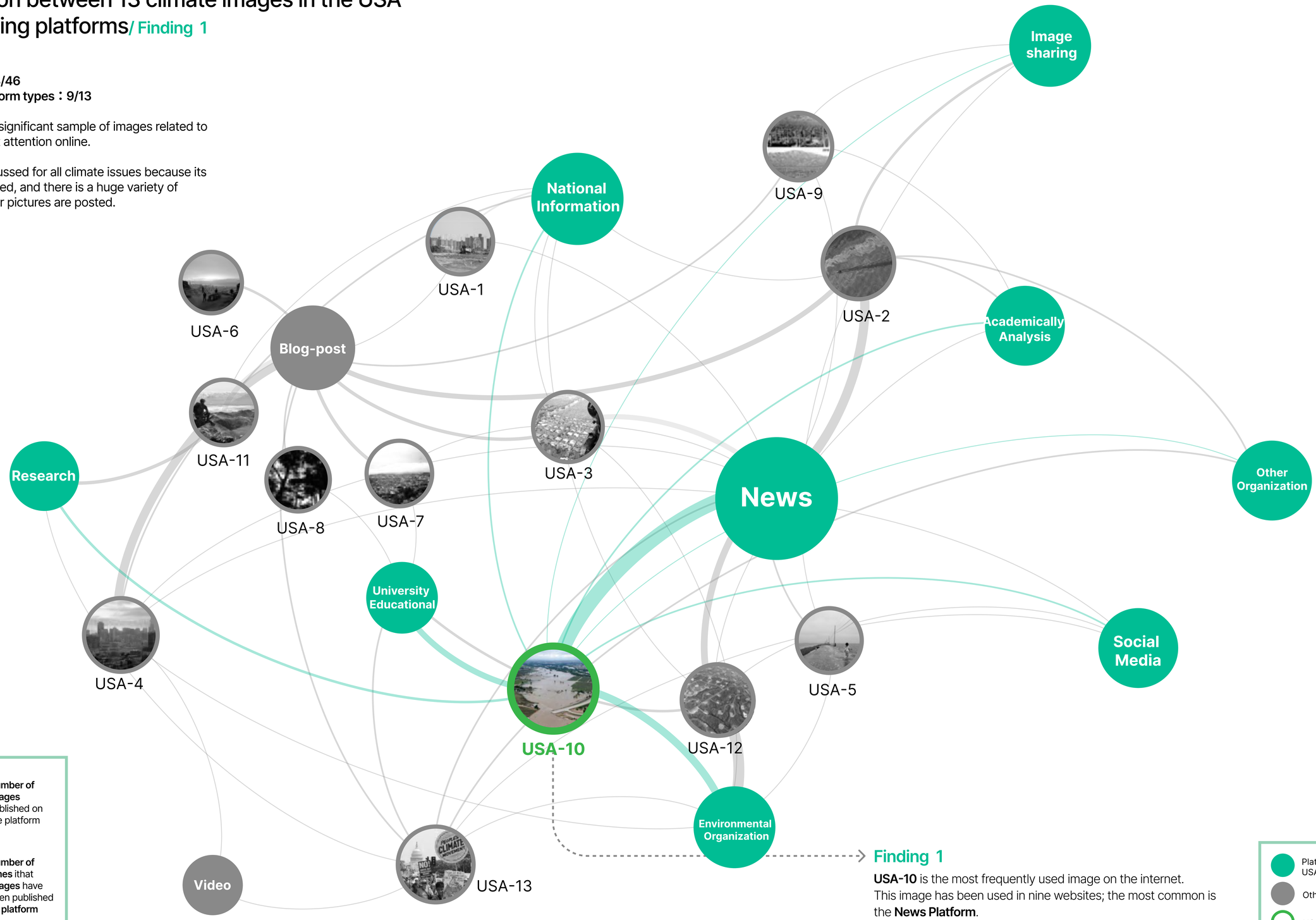
Q2 | Diagram 2-1 | Detail 1

The correlation between 13 climate images in the USA & the publishing platforms/ Finding 1

Number of Images：13/46
The proportion of platform types：9/13

The USA has the most significant sample of images related to climate change and got attention online.

The USA is widely discussed for all climate issues because its pictures are highly utilised, and there is a huge variety of platforms on which their pictures are posted.



How to read

Number of images published on the platform

Number of times ithat **images** have been published by **platform**

The distance of the image from the platform type indicates the d**egree of association**

Finding 1

USA-10 is the most frequently used image on the internet.
This image has been used in nine websites; the most common is the **News Platform**.
USA-10 highly connects with the University Educational Platform and the Environmental Organization platform.

- Platform which published USA-10
- Other Platforms
- USA-10
- Other USA images

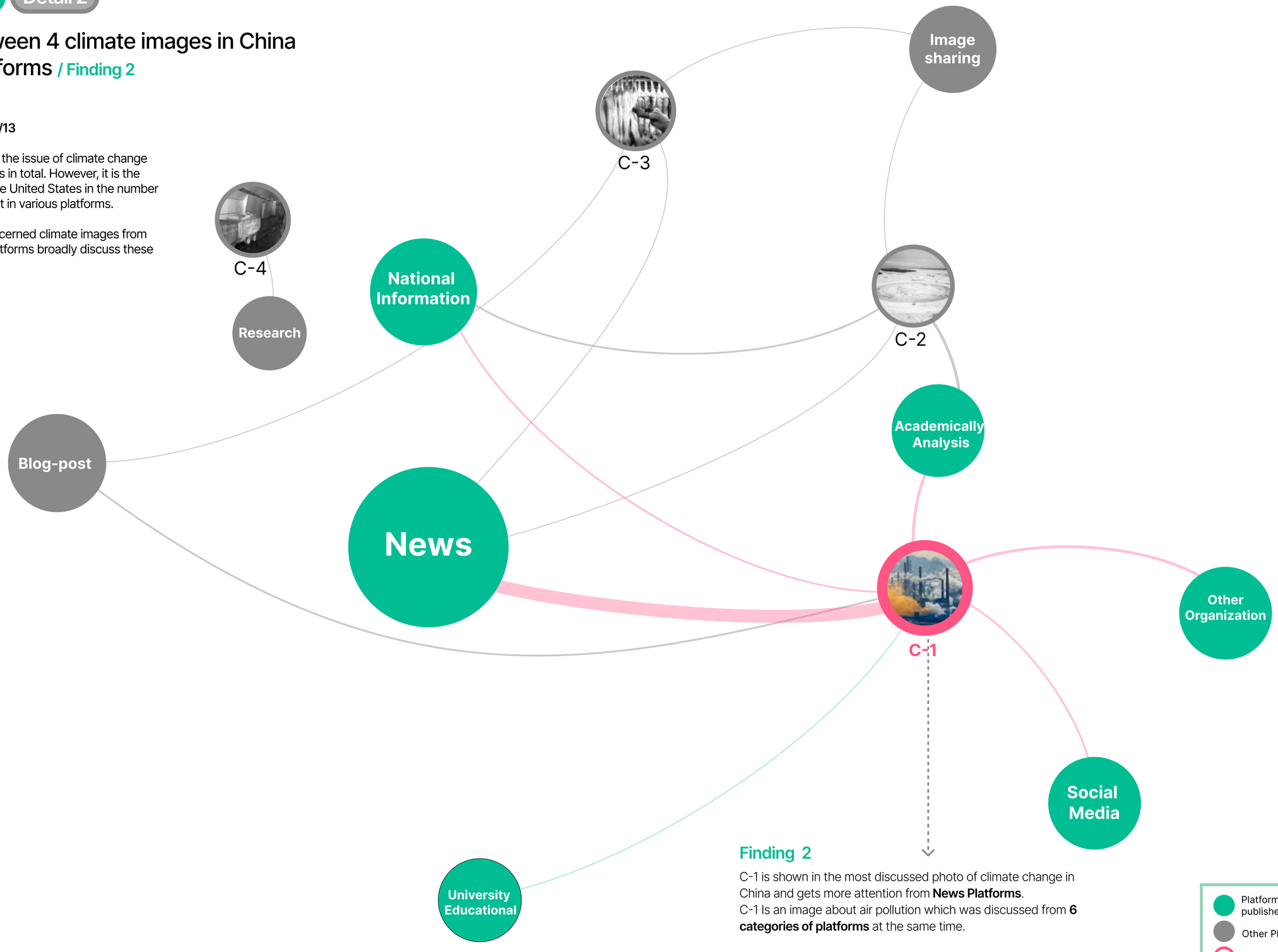
Q2 | Diagram 2-1 | Detail 2

The correlation between 4 climate images in China & the published platforms / Finding 2

Number of Images：14/46
The proportion of platform types：9/13

The amount of images that related to the issue of climate change in China is small, with only four images in total. However, it is the second most popular country after the United States in the number of images that are posted and interest in various platforms.

The online platforms have widely concerned climate images from China, and there are nine types of platforms broadly discuss these issues.



How to read

Number of images published on the platform

Number of times ithat **images** have been published by **platform**

The distance of the image from the platform type indicates the d**egree of association**

Finding 2

C-1 is shown in the most discussed photo of climate change in China and gets more attention from **News Platforms**.
C-1 Is an image about air pollution which was discussed from **6 categories of platforms** at the same time.

This image has nearly the same use on **News Platforms**, Academically Analysis Platform, Other Organization, And Social Media Platform.

- Platform which published C-1
- Other Platforms
- Image C-1
- Other images about China

Q2 | Diagram 2-1 | Detail 3

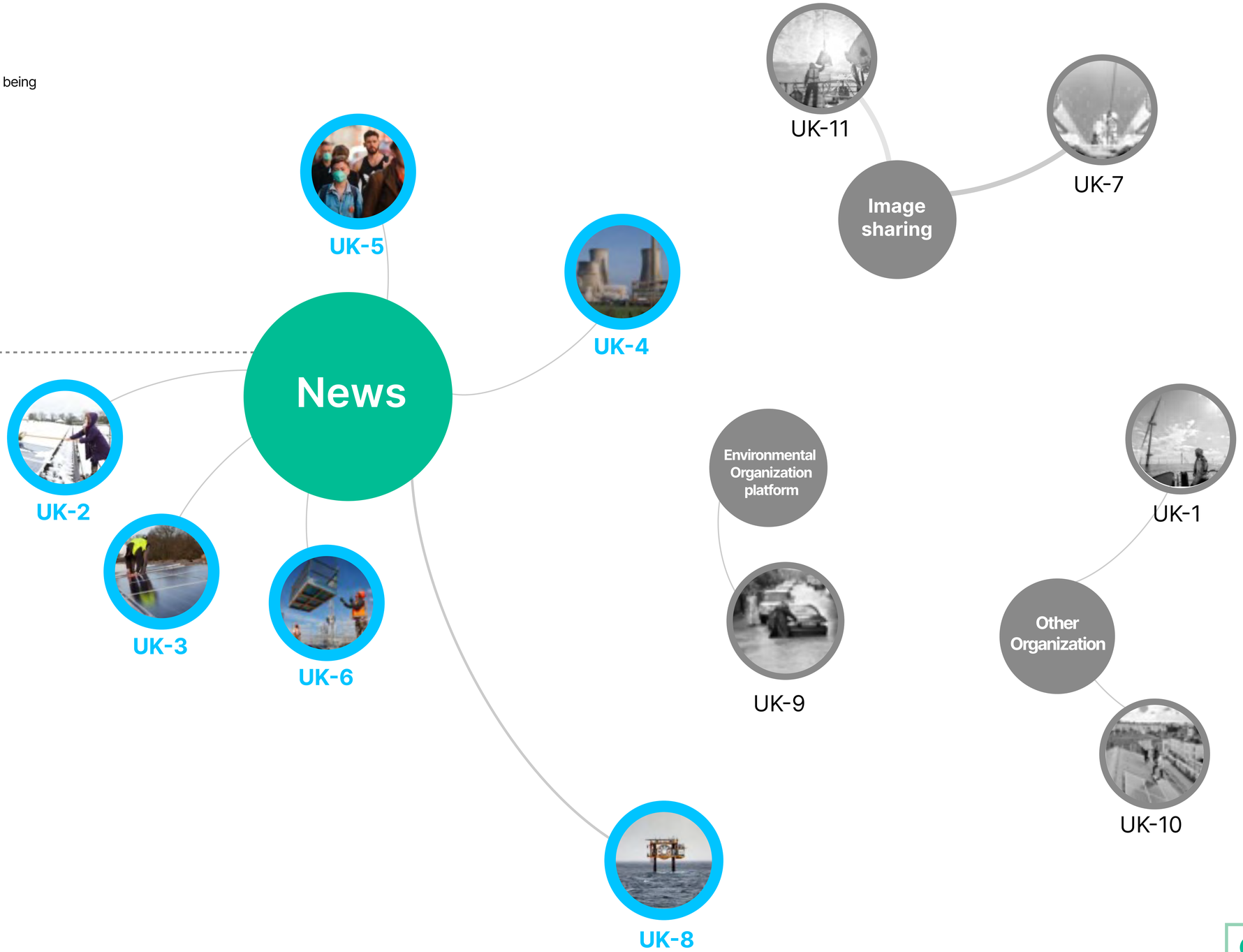
The correlation between 11 climate images in the UK & the published platforms/ Finding 3

Number of Images：11/46
The proportion of platform types：4/13

The UK images, as the third most debated country, are being discussed by four main types of platforms.

Finding 3

Images of climate change in the UK are mainly published on **News Platforms**. Nearly half of the images (UK 2 - UK 6) had the strongest correlation with the news platforms.



How to read

Number of images published on the platform

Number of times ithat **images** have been published by **platform**

The distance of the image from the platform type indicates the d**egree of association**

NEWS Platform
Other Platforms
UK-Num

Q2 Diagram 2-2

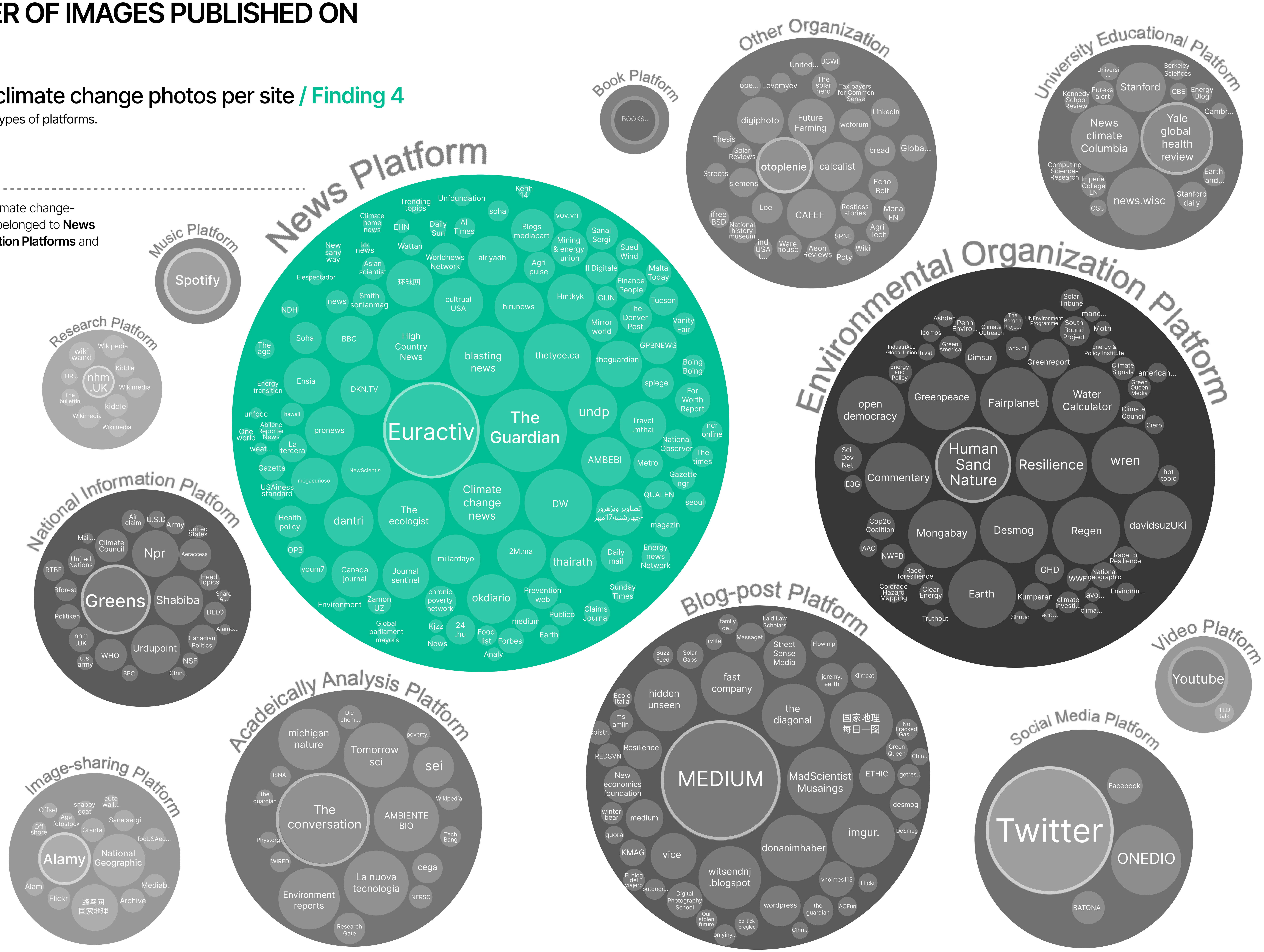
A CHART OF THE RELATIONSHIP BETWEEN PLATFORM TYPES & THE NUMBER OF IMAGES PUBLISHED ON RELATED WEBSITES

The publishing number of climate change photos per site / Finding 4

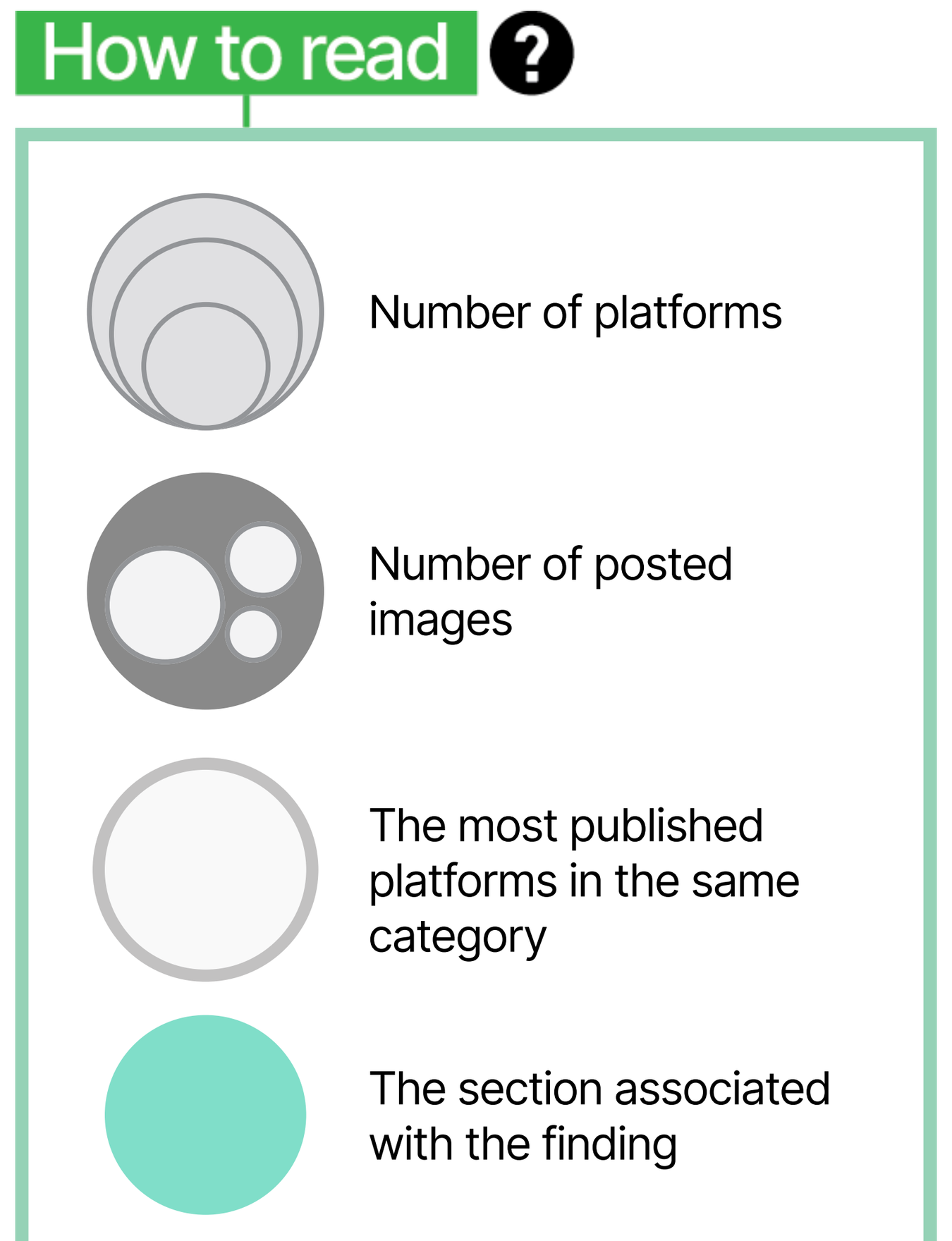
We categorised 303 different websites into 13 types of platforms.

Finding 4

Among the type of platforms which published climate change-related images, the largest number of websites belonged to **News Platforms**, followed by **Environmental Organization Platforms** and **Blog Platforms**.

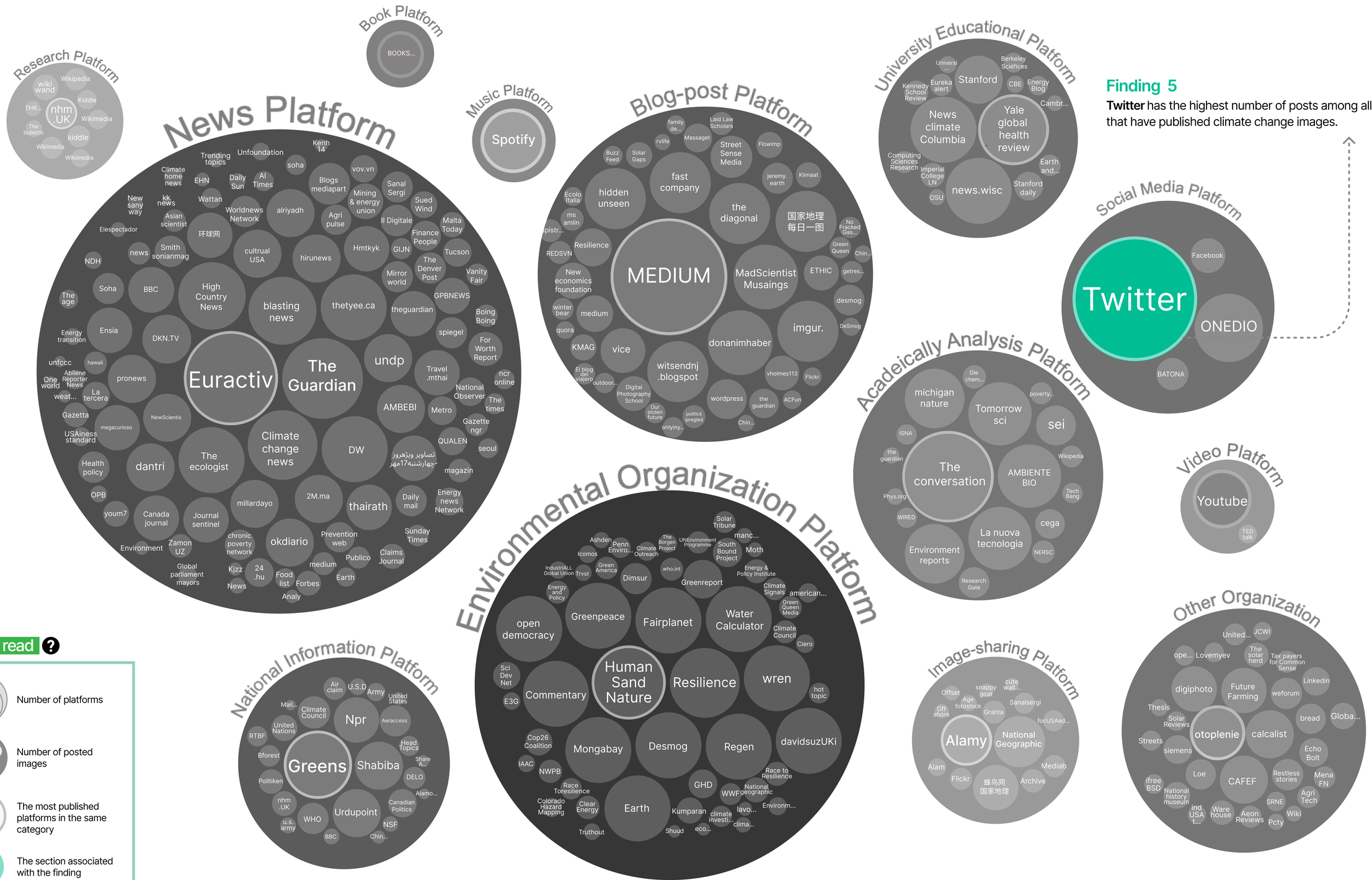


How to read



Q2 Diagram 2-2 Detail 1

The number of climate change photos published per site / Finding 5



How to read

- Number of platforms
- Number of posted images
- The most published platforms in the same category
- The section associated with the finding

Finding 5

Twitter has the highest number of posts among all the platforms that have published climate change images.

Q3

Have these images from the “Climate Visuals” platform been correctly* used online?

** If its location and depicted topic are the same as the article they are used for.*

The findings from the third protocol will go through the selected 46 climate images by using Gephi as an analysing tool to clarify the correlation between the image and the described location. The results should include the accuracy of the image based on geographical descriptions, keywords from the image of the article, etc.

DATASET Q3

PROTOCOL 03

Dataset | Step | Tools

Dataset 2

46 images | 10 countries

Image	# Image num	Shooting Location(Country)	... ...

* See starting point for dataset details

Image reverse searching is to collect information on how images are used, the results including the use in websites, the countries images are used to describe, the right/wrong use of the image, etc.

Dataset 2-1

46 images | 10 countries

...	URL	Location （Usage web）	Location(image for description)	Right / Wrong	Keywords	Use amount *

* The colum of " use amount " in dataset 2 are determined by how many pages using the image are actually found by us.

Grouping, sorting, e.t.c. of images in dataset 2 in Google sheet

Google Sheets
Google Sheets: A online spreadsheet program. Used to build our images dataset for each image.

Prepare Dataset

Shooting Location(Country)	Location(image for description)

finding 1+2

Grouping of images according to their original locations and the countries in which they were used to described by online platform

Observe the websites that use these images and to categorise them according to their description: right/ wrong content/wrong location

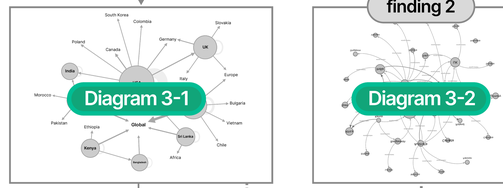
Use of network diagram to show the use of images between countries

Use of network diagram to show how images are used by countries when they are used incorrectly

Wrong content	Wrong location

Data Analysis and Collation

finding 2



finding 3

Diagram 3-2
Detail 1 | Detail 2

Filtering out the two countries with the most descriptive mistakes to analyse each separately

Continent

finding 1

Diagram 3-1
Detail 1

Gephi + Adobe Illustrator

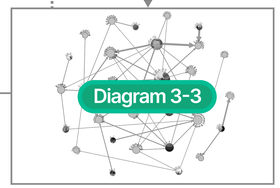
Gephi
Gephi is the visualization and exploration software for all kinds of graphs and networks

Adobe Illustrator
Adobe Illustrator is a vector graphics editor and design program

Wrong content	Keywords

finding 4

Diagram3-3
Detail 1 | Detail 2
Detail 3 | Detail 4



Visualize Diagrams

Q3 Diagram 3-1

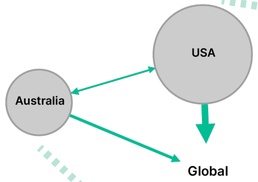
CROSS-COUNTRY ANALYSIS ABOUT GLOBAL CLIMATE CHANGE

How to read

Example-01

Images from Australia have been used by other platforms to explain:

1. Global warming issues
2. Cases happened in the USA. The images from the USA have been used to interpret climate issues more globally.



Example-02

USA

Describe

Germany

This image depicts the USA. It shows that fracking wells on the land have disfigured the landscape.

Photo number: USA-12

This picture was used by a platform to describe Germany's liquefied natural gas programme advances, the article is called: "Does Germany need liquefied natural gas?"

Arrows

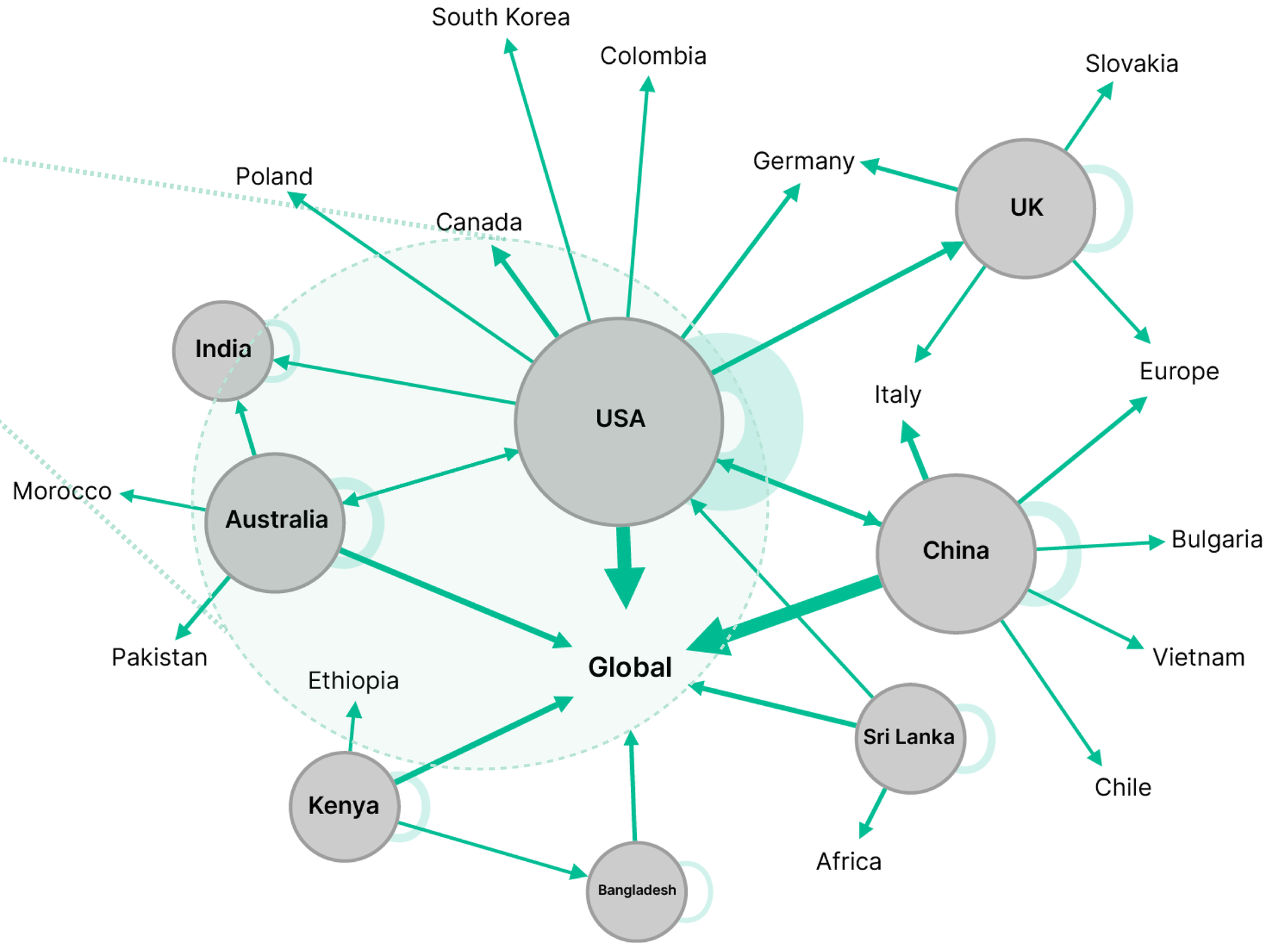
- Describe
- Describe (by themselves)

Weight

- High photo usage
- Low photo usage

Size of circle

- Higher amount of image
- Lower amount of image

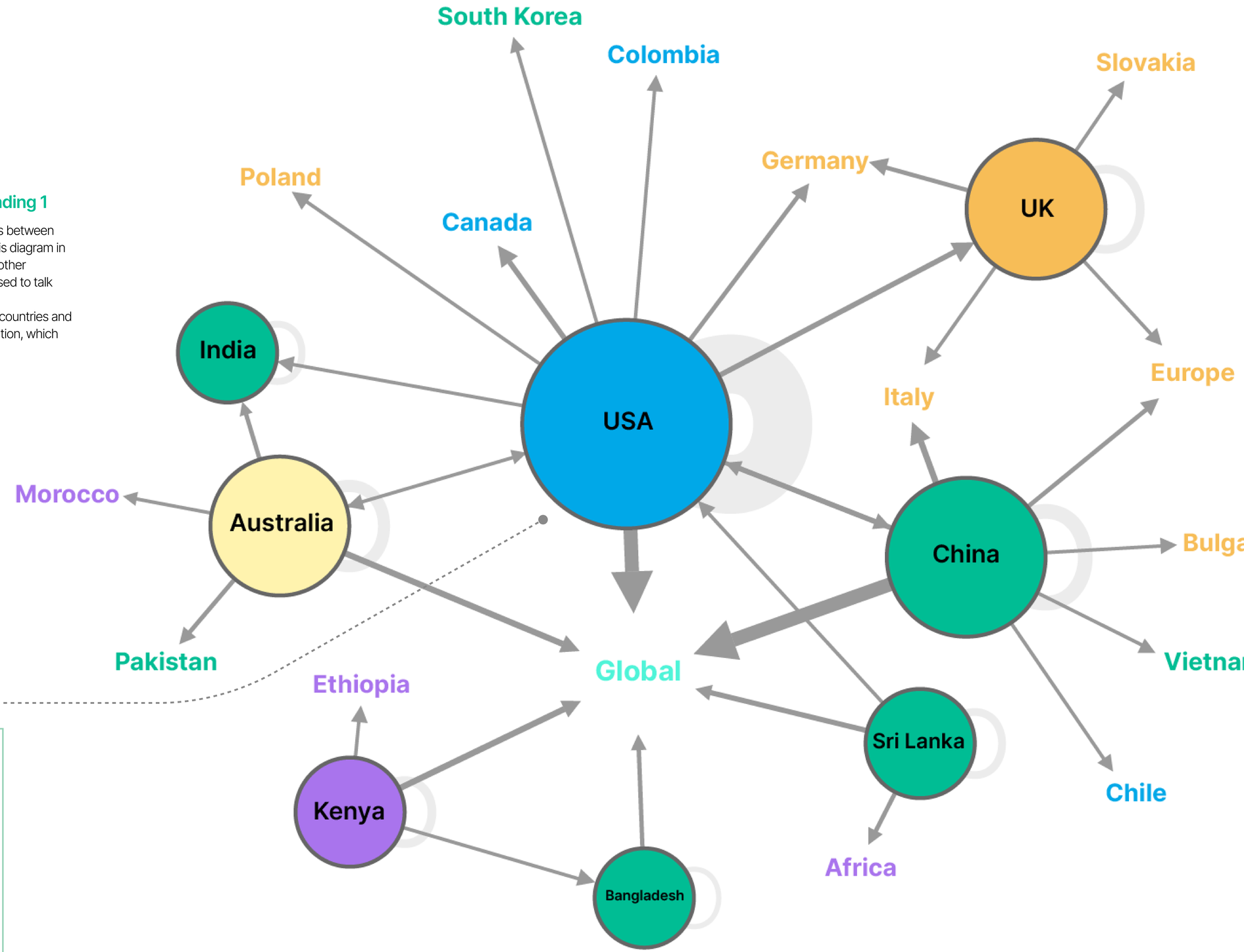


Q3 | Diagram 3-1 | Detail 1

CROSS-COUNTRY ANALYSIS ABOUT GLOBAL CLIMATE CHANGE

Correspondence in the use of climate change images / Finding 1

The clustered circles in the graph represent the relations between each country. The USA occupies a central position in this diagram in the middle of the chart. Meanwhile, images from many other countries, including the USA, Australia and Kenya, are used to talk about global climate issues.
The publishers often use pictures from many European countries and USA to describe the climate problems but in wrong location, which also happens in the countries of Asia and Africa.



How to read

Color
- Asia
- America
- Africa
- Europe
- Oceania
- Global

Arrows
- Describe
- Describe (by themselves)

Weight
- High photo usage
- Low photo usage

Size of circle
- Higher amount of image
- Lower amount of image

Q3 Diagram 3-2

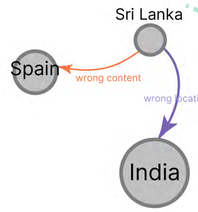
THE PRINCIPAL INCORRECT* USE OF THE CLIMATE VISUALS' IMAGES IS ABOUT LOCATION

** its location and depicted topic are not the same as the article they are used for.*

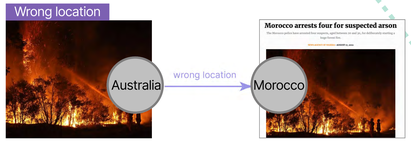
How to read

Example-01

The online publishers used images of Sri Lanka to illustrate Spain's climate issues incorrectly, either irrelevant content; or wrongly used by other platforms to describe a specific situation in India.



Example-02



An **Australian** image used to depict a forest fire was used in an Abuja-based Nigerian online newspaper and was incorrectly used to depict the arrest of four people in **Morocco** on suspicion of arson.

Photo number: A-1

A **China** image used to describe air pollution was used in **USA**-based blogging platform and was incorrectly used to illustrate commercial spaces.

Photo number: c-1

Color

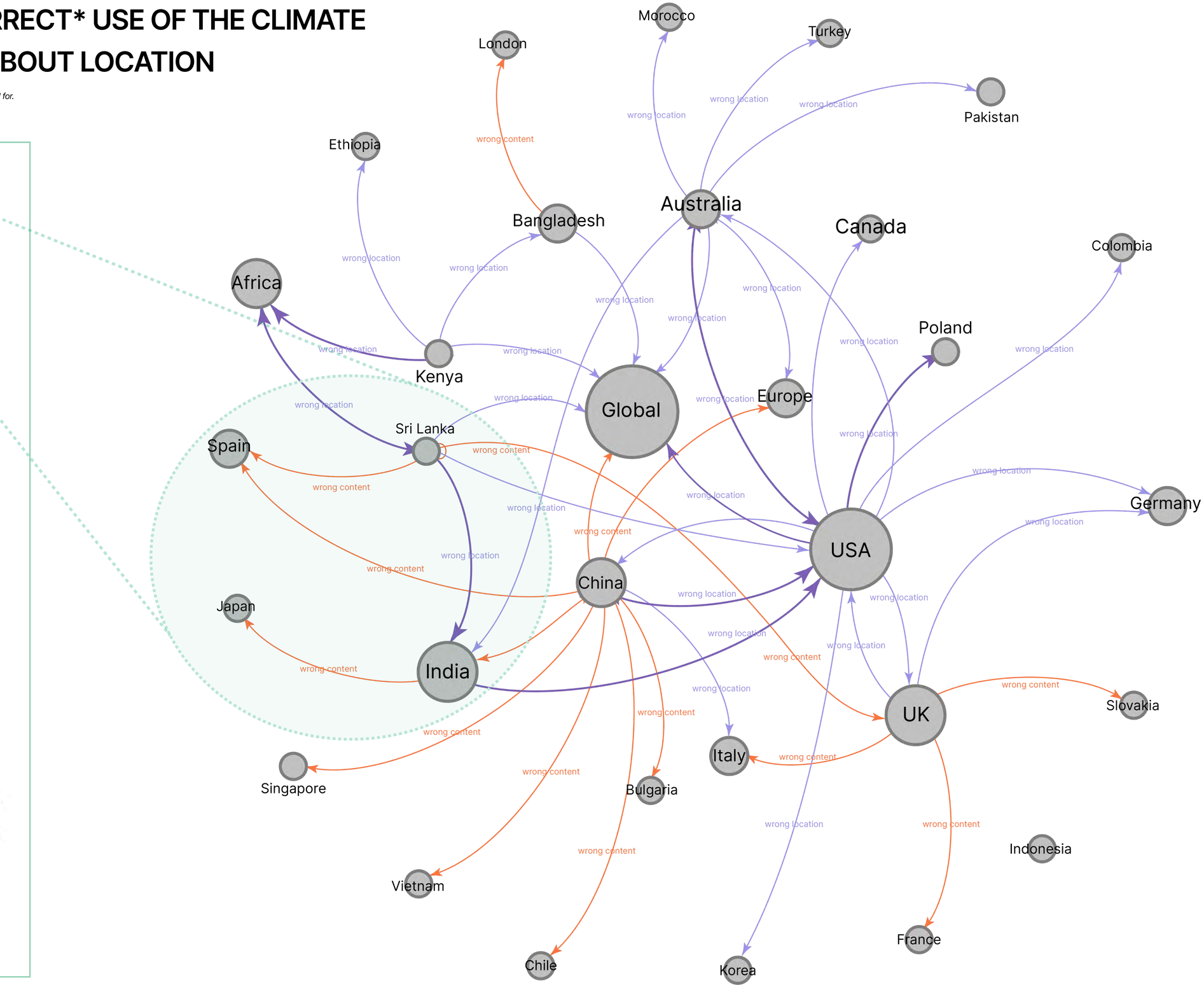
- Wrong location
- Wrong content

Weight

- High usage
- Low usage

Size of circle

- High number of times described
- Low number of times described



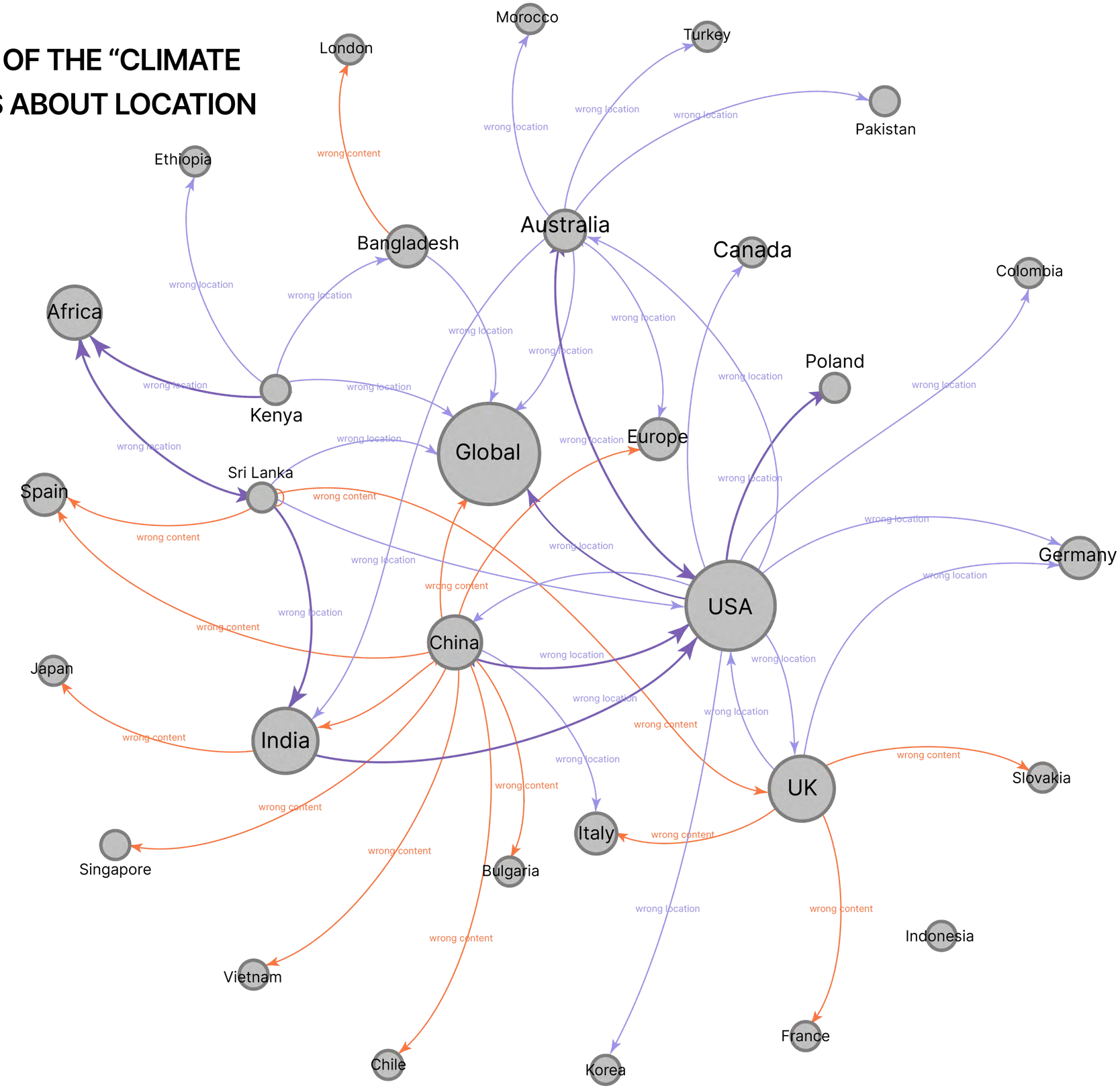
Q3 Diagram 3-2

THE PRINCIPAL INCORRECT* USE OF THE “CLIMATE VISUALS” PLATFORM’S IMAGES IS ABOUT LOCATION

Incorrect use of images / Finding 2

When we compare the incorrect use of various countries' images, the graph shows that **the wrong location** option is more frequent than an inaccurate description of contexts.

** its location and depicted topic are not the same as the article they are used for.*



How to read

Color
- Wrong location
- Wrong content

Weight
- High usage
- Low usage

Size of circle
- High number of times described
- Low number of times described

Q3 Diagram 3-2

THE CONTRARY OCCURS BETWEEN COUNTRIES WHEN THE “CLIMATE VISUALS” PLATFORMS’ IMAGES ARE USED

The highest incorrect* use of images concerns their depicted location / Finding 3

This diagram clearly shows two aspects:

- The relationship between countries;
- Countries misapplication of images from USA and China with their different ways of use. They have extremely different situations about inaccurate contents.

The USA has often been wrongly described for it’s location of images, but Chinese images has often been used for other contexts, which resulted being irrelevant or wrong.

** its location and depicted topic are not the same as the article they are used for.*

How to read

Color

- Wrong location
- Wrong content

Weight

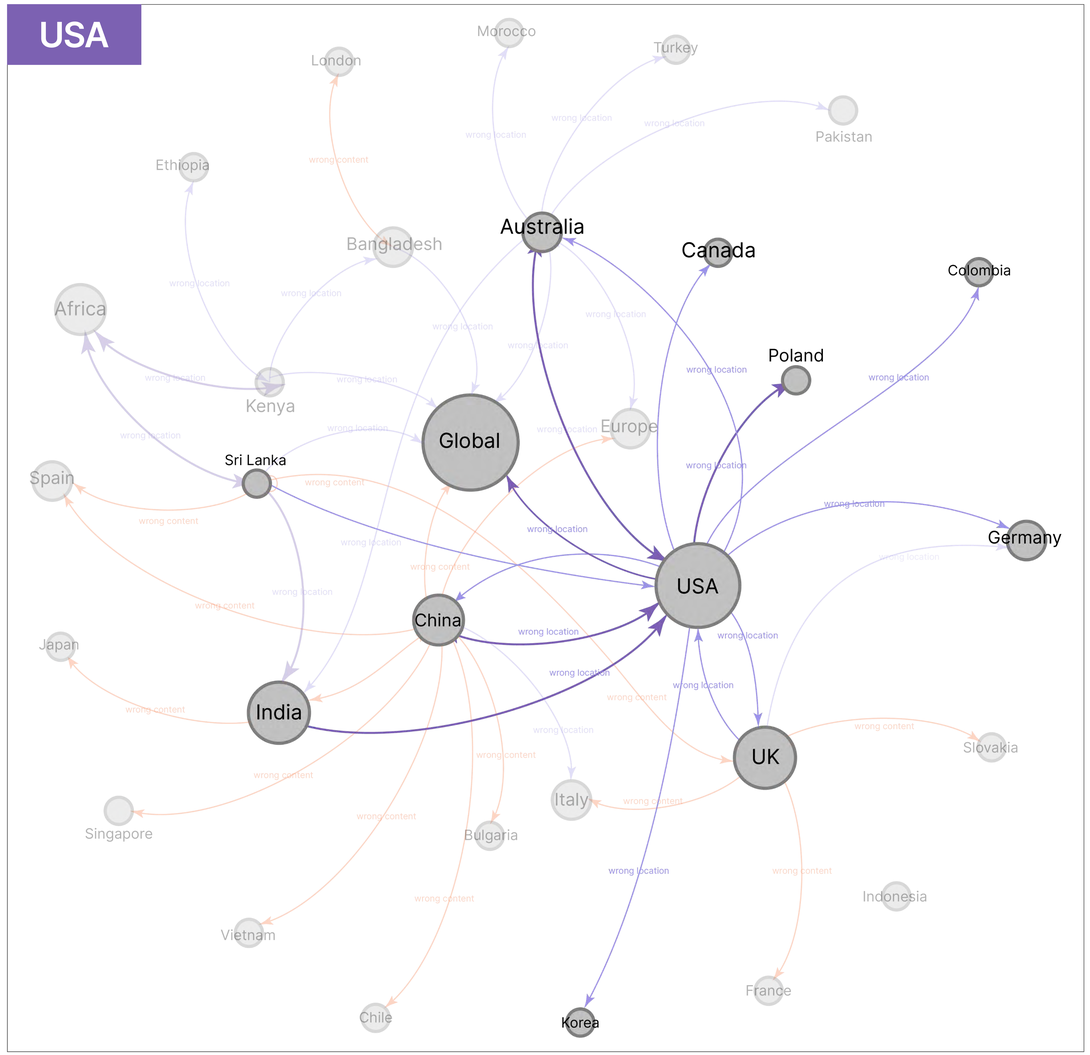
- High usage
- Low usage

Size of circle

- High number of times described
- Low number of times described

Detail 1

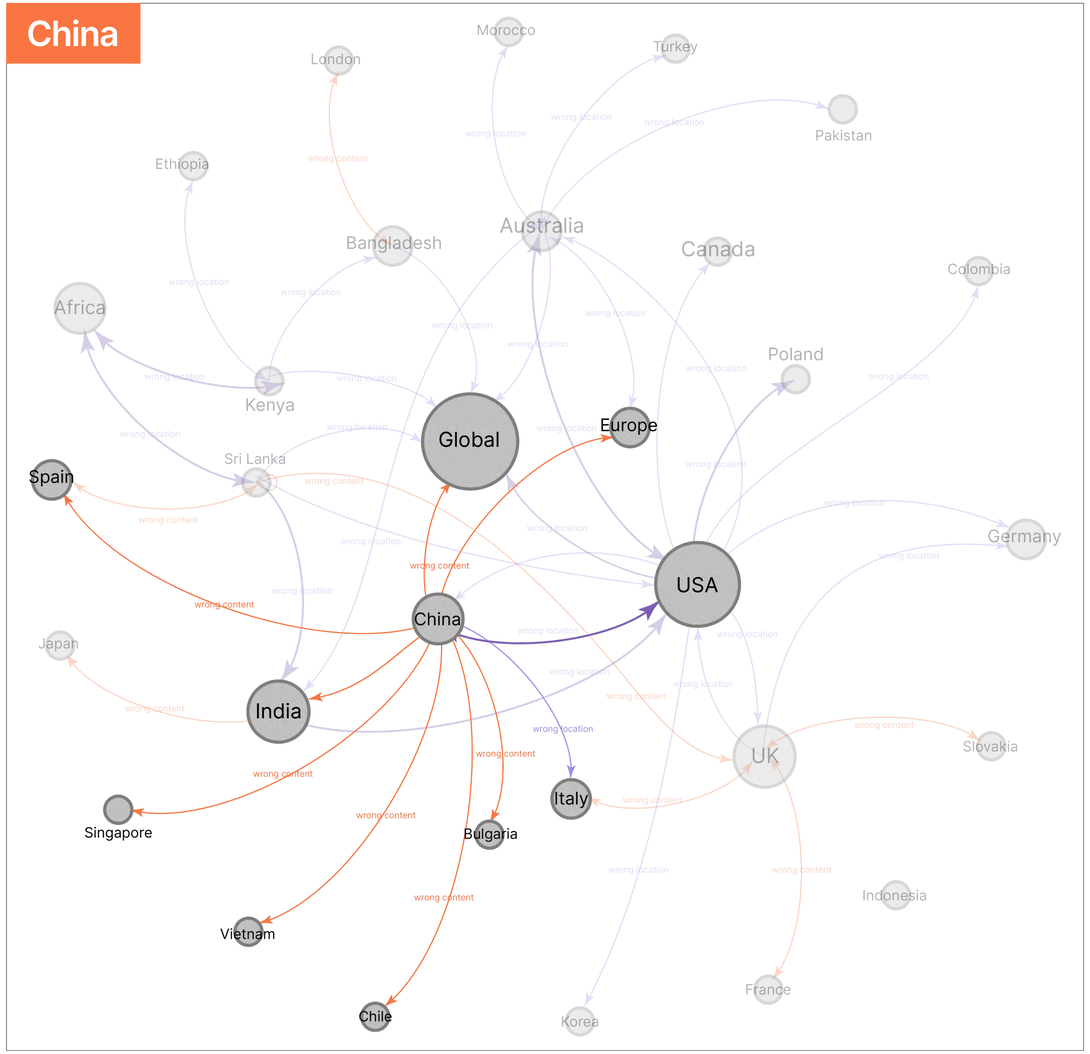
USA



Chinese climate visuals are commonly used to illustrate specific issues in the USA.

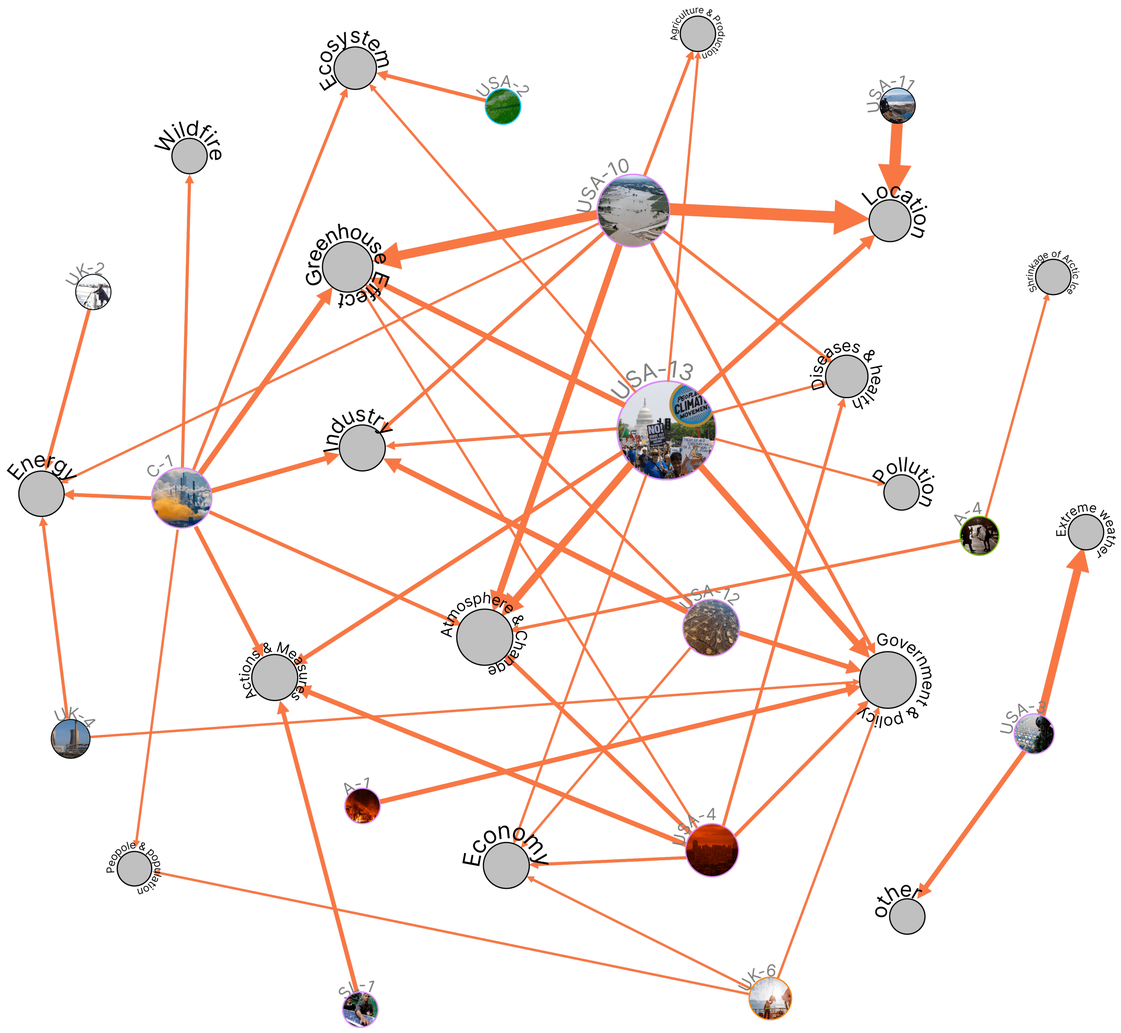
Detail 2

China



Q3 Diagram 3-3

NETWORK ANALYSIS OF ARTICLE KEYWORDS WHEN IMAGES ARE USED IN WRONG CONTENTS



How to read

Weight
- High usage
- Low usage

Circle
- Photo from Climate Visuals
- Keyword

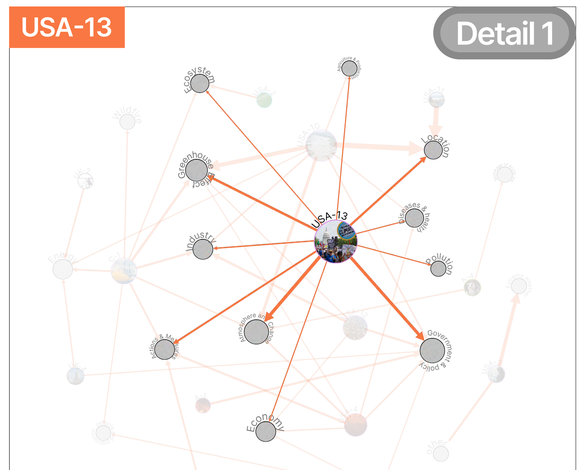
Size of circle
- High amount of times described
- Low amount of times described

The breadth of image uses & areas of greatest concern / Finding 4

An image from the USA which shows a protest focused on the danger of climate change (image: USA-13) was described using 11 different keywords, this appears to be the most used one, and then followed by image C-1.

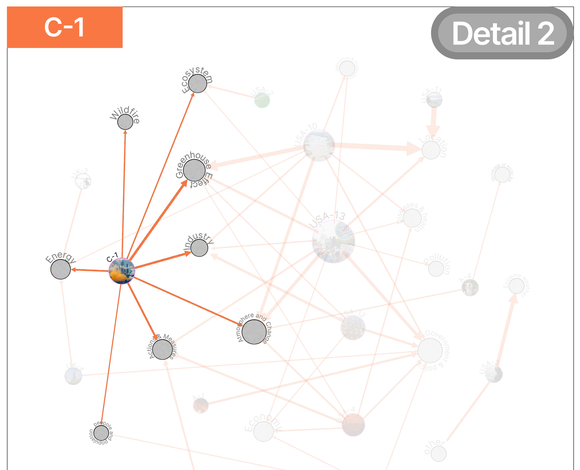
With a total of 7 pictures from different countries "Government & Policy" received the highest attention, describing different climate issues and also used for articles in this field, followed by "Greenhouse effect".

USA-13 Detail 1



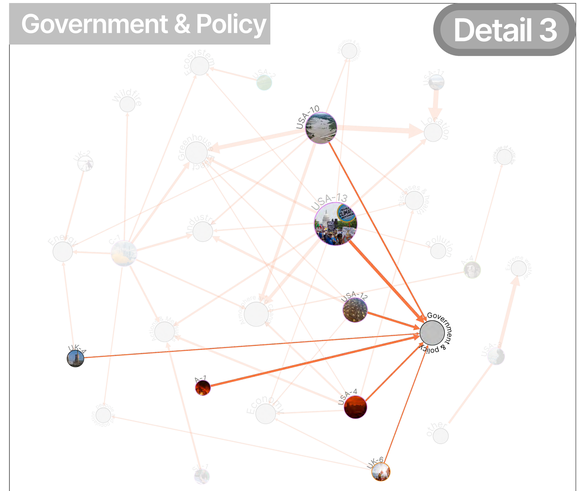
USA-13→*Ecosystem/Greenhouse effect/Agriculture&Production/ Location/Diseases&Health/Pollution/Industry/Actions&Measures/ Government&Policy/Atmosphere&Change/Economy*

C-1 Detail 2



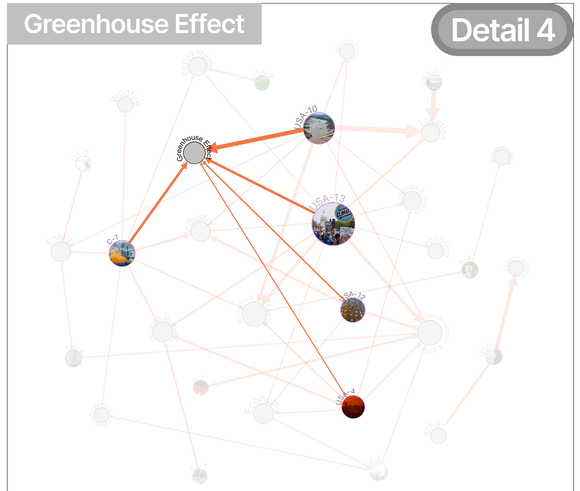
USA-13→*Wildfire/Ecosystem/Greenhouse effect/Industry/Energy/ Atmosphere&Change/People&Population/Action&Measures*

Government & Policy Detail 3



USA-10/USA-13/UK-4/A-1/USA-4/UK-6 → ***Government&Policy***

Greenhouse Effect Detail 4

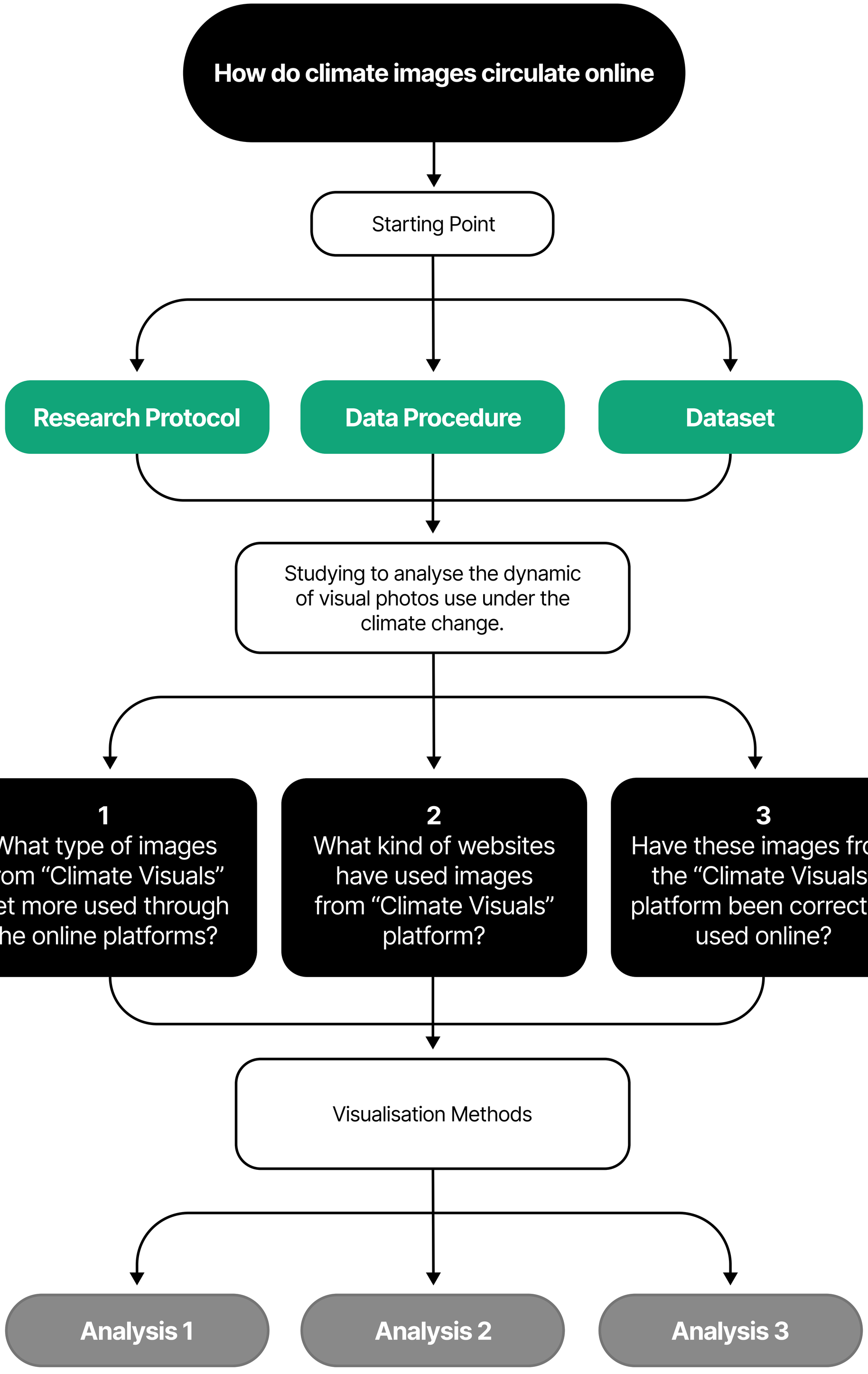


USA-10/USA-13/USA-12/USA-4/C-1 → ***Greenhouse effect***

RESEARCH PROTOCOL

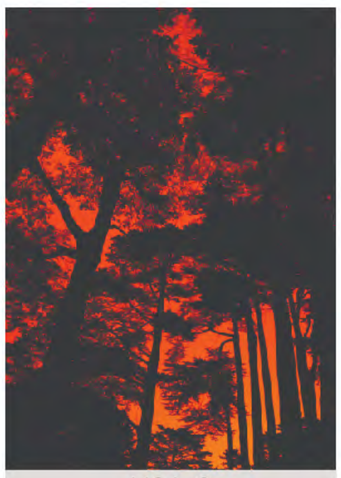
Intro & Dataset Creation

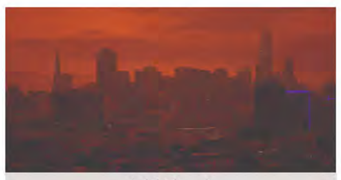
Data Analysis & Visualisation



* If its location and depicted topic are the same as the article they are used for.

46 CLIMATE VISUAL IMAGES


USA-8


USA-4


IND-1


IND-2


USA-10


UK-1


I-2

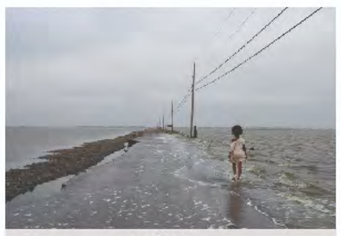

I-1


UK-3

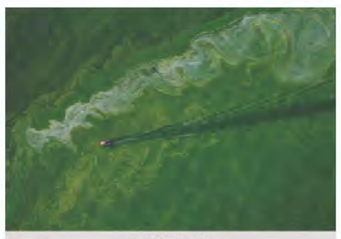

B-1


B-2


USA-1


USA-5


USA-3


USA-2


SL-4


USA-7


C-1


C-2


C-3


USA-12


B-3


UK-7


UK-4

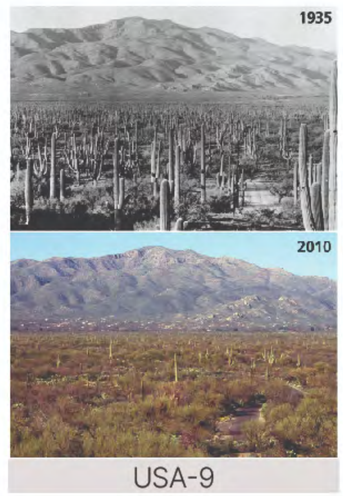

A-3


UK-6


SL-1

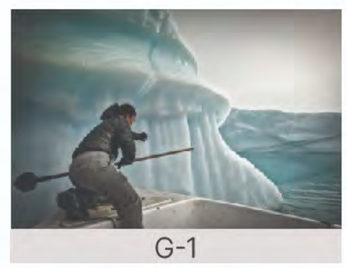

SL-3


SL-2



USA-9


USA-11


K-1

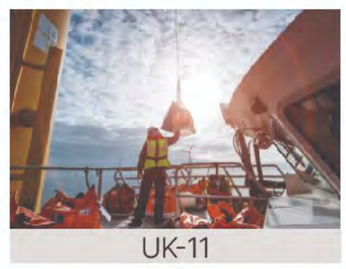

UK-2


UK-10


A-1


USA-6


K-2


A-2


UK-9


C-4

A-4

USA-13

View image dataset

Based on the number of images used in the reverse image search by **TinEye**, we selected **46** climate visuals with several uses more than **ten** times for the next step in the analysis. Also, we showed all **46** images in number, so audiences can clearly understand which image we are referring to and talking about in further visualizations.