ILRI Report

Considerations for Creating the UNFCCC Online Portal for Climate Action in Agriculture & Food Security

A Report by Cynthia Mugo, Laura Cramer, and Nendo Advisory

Compiled by Nendo Advisory on behalf of ILRI and AGNES

March 2023

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Executive Summary

Executive Summary

- A survey was conducted among 52 representatives of the African Group of Negotiators Experts Support. From this survey, the members voted that the UNFCCC online portal on climate action in food security and agriculture should have the following objectives (in the order of the highest number of respondents saying it is an objective) - information sharing, raising awareness of climate action in agriculture, and aiding fundraising.
- From the survey, the most eligible publishers for the online portal were national focal points, followed by research organizations and UNFCCC observer organizations.
- It appears the gap is that there is no generally accepted definition of an online portal. Some websites (which, upon inspection, are online portals) classify themselves as dashboards or databases. There's room to create a shared definition and publicise this for other United Nations bodies and other organisations.
- Upon evaluation, the African Group of Negotiators Experts Support ought to proceed with the following recommendation areas:
    - Mobile-First: this refers to an expectation to build the online portal to have some features (for example, viewing and manipulating data) compatible with basic Android smartphones. The desired metric is that the online portal scores at least 90/100 in Google's PageSpeed Insights test.
    - Accessibility: this will be a critical component of the online portal, focusing on ensuring it is compliant for voice-to-text accessibility for website visitors with literacy or usability challenges.
    - Training and Visual Assets: this refers to the capacity building module – giving access to various forms of training and professional development available on the online portal. Visual assets aim for infographics, motion graphics, and data visualisation to market and raise awareness of the online portal and its contents.

Background

Background: How the UNFCCC Online Portal Was Agreed-Upon

- The 27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP27) was held in Sharm El-Sheikh, Egypt, in November 2022. Various decisions were made and captured in the Sharm El-Sheikh joint work for implementing climate action in agriculture and food security documents. Among these was the goal to enhance action, support, and information sharing among various agriculture and food security stakeholders. It was decided that an online portal would be developed with reference to the Koronivia joint work on agriculture.

- The objective of this report is to conduct research and a stocktake of existing online portals to help inform the development of a position statement by the African Group of Negotiators. AGN is working on responding to how the UNFCCC should best develop an online portal for sharing information on projects, initiatives, and policies for increasing opportunities for implementing climate action to address issues related to agriculture and food security.

- The assessment aims to provide insights into the operationalisation of such a portal by taking into account best practices and lessons learned from similar initiatives.

Stakeholders: AGNES, ILRI, and Nendo

The African Group of Negotiators Experts Support (AGNES) brings together scientists, policymakers, academics and each year they hold meetings to prepare topics that will be negotiated at the United Nations Framework Convention on Climate Change (UNFCCC) Conference of Parties (COP). This group represents the African continent, one of the world's most-affected continents when it comes to climate change.

ILRI, through two projects it hosts, GLAD and AICCRA, issued a request for a proposal for research on existing online portals to support AGNES to develop a position statement on how the UNFCCC should best develop an online portal for sharing information on projects, initiatives, and policies to increase opportunities for implementing climate action to address issues related to agriculture and food security.

Nendo is an award-winning research and communications firm based in Nairobi. Nendo has made a name for itself thanks to its predictions and trends around the digital (mobile, internet, and social media) sector. Nendo delivers insights, evidence, and campaigns that drive impact for its assortment of global clients and is has delivered projects across over 20 African countries in 3 languages.

By considering best practises and lessons discovered from comparable initiatives, the assessment's objective is to offer insights into the operationalisation of such a site.

Nendo’s Approach for Insights on Online Portals

1. **Desk Research that aimed to:**

- Map, rank, and evaluate climate action online portals
- Assess their features, functions, and strengths/weaknesses
- Provide insights into creating a new outlet and understanding of best practices of existing or similar initiatives

Key outputs of the Desk Research

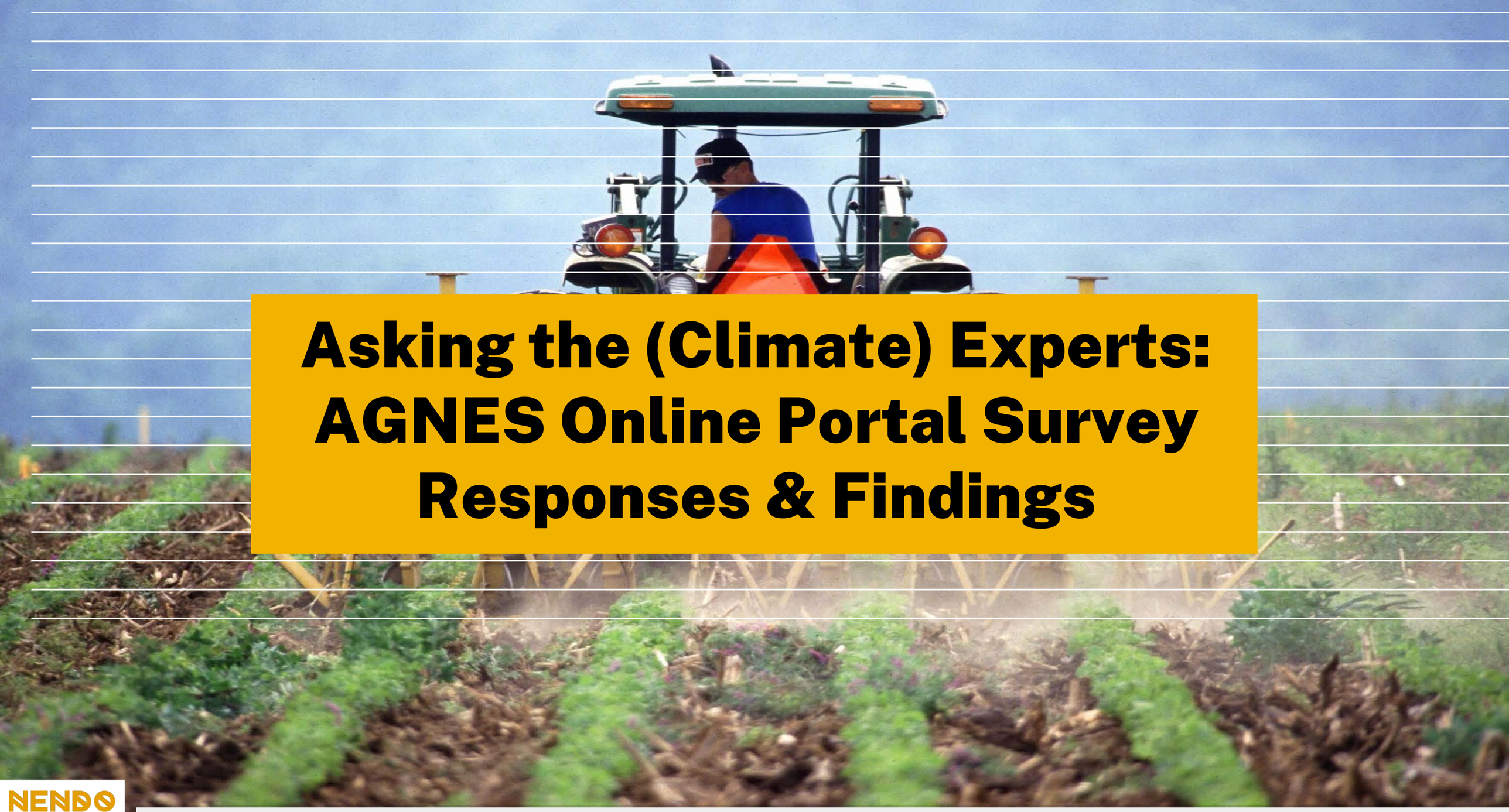
- Online portal criteria for rankings and shortlisting
- Online portal evaluation critical success factors checklist (Nendo submitting its preferred tools and platforms to rank and evaluate the websites)
- The complete list of ten websites found and a summary of their features
- Deep-dive analysis into three portals for further technical evaluation
- Final recommendations report from desk research

2. **A Short Survey (disseminated to experts) that aimed to:**

- Provide AGN’s experts to share their views and:
  - List existing online portals that they have encountered
  - Contribute ideas of possible features, functionalities, and audiences for the UNFCCC online portal
  - Share considerations of a future UNFCCC online portal

Key outputs of the survey:

- Agreed-upon questionnaire questions (drafted by Nendo, approved by ILRI/AGNES)
- Creation of a list of experts (by/with ILRI/AGNES)
- Distribution of the questionnaire to the list (by ILRI/AGNES/Nendo)
- Analysis of the questionnaire responses
- Generation of a report summing up the learnings from the questionnaire



Asking the (Climate) Experts: AGNES Online Portal Survey Responses & Findings

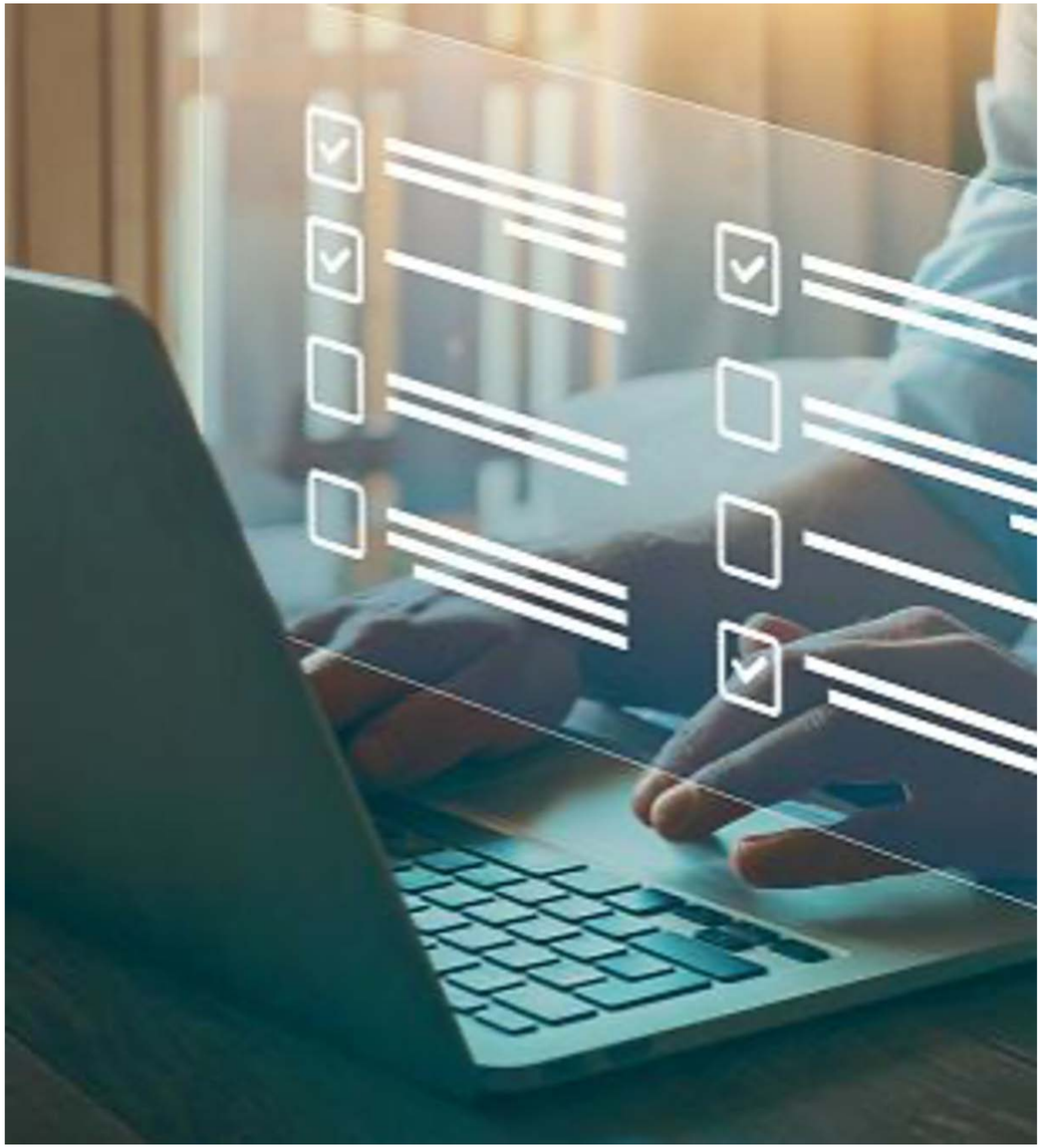
Findings Observed from the Post-COP 27 Online Portal for Agriculture & Food Security Questionnaire

Introduction

A survey was created by Nendo, hired by ILRI, to assist the African Group of Negotiators Expert Support (AGNES) with research on existing online portals.

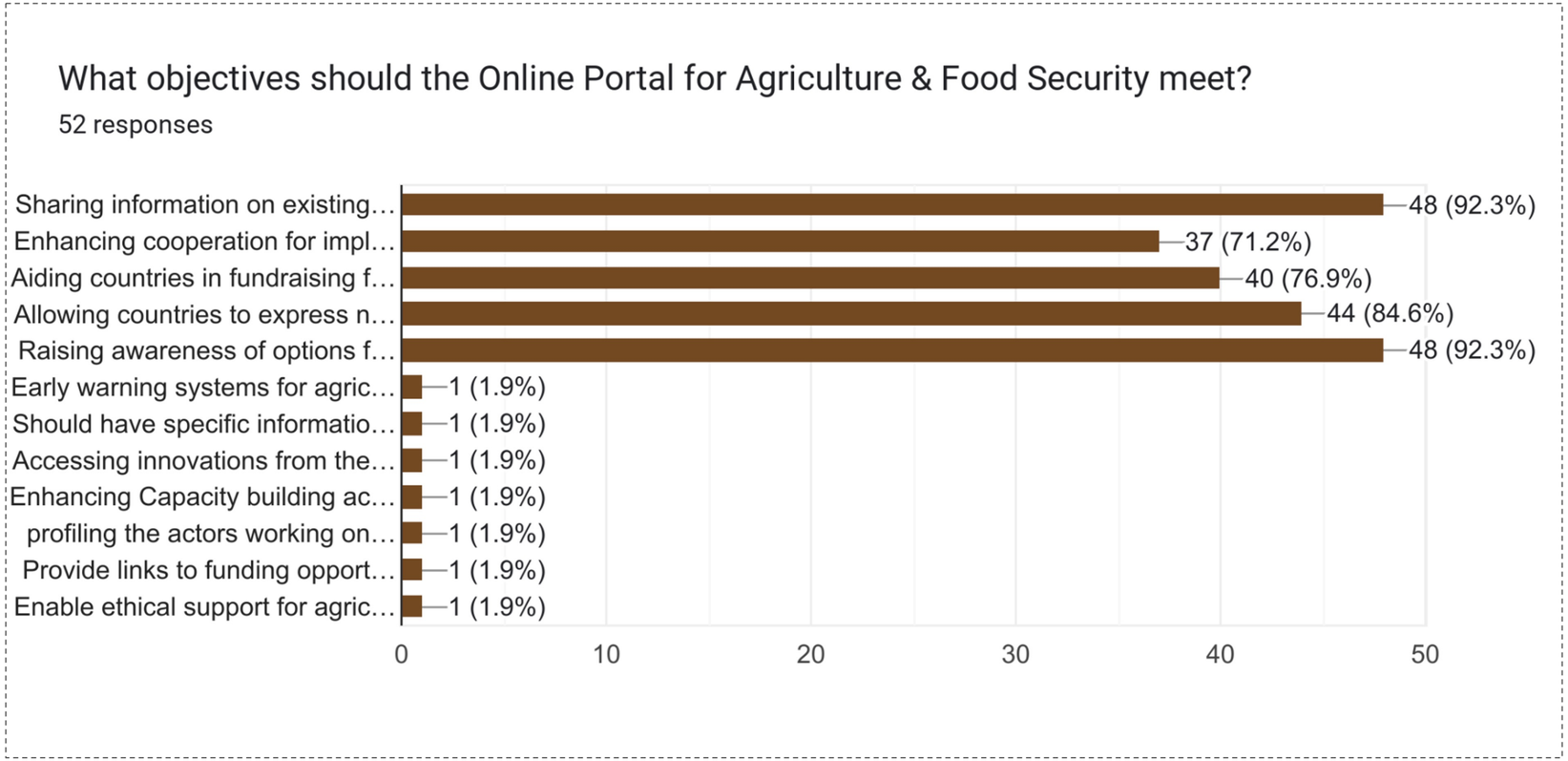
This research will support the development of a position statement on how the UNFCCC should develop an online portal for sharing information on projects, initiatives, and policies to increase opportunities for implementing climate action to address issues related to agriculture and food security. The 52 responses received will be used to help Nendo support the technical working group in drafting a submission for discussion in March.

This section contains quantitative findings in slide **14, 15** and **16**. This will be followed by qualitative findings given in slide **17, 18, 19, 20, 21** and **22**.



Survey Findings

Objectives: Information Sharing & Raising Awareness



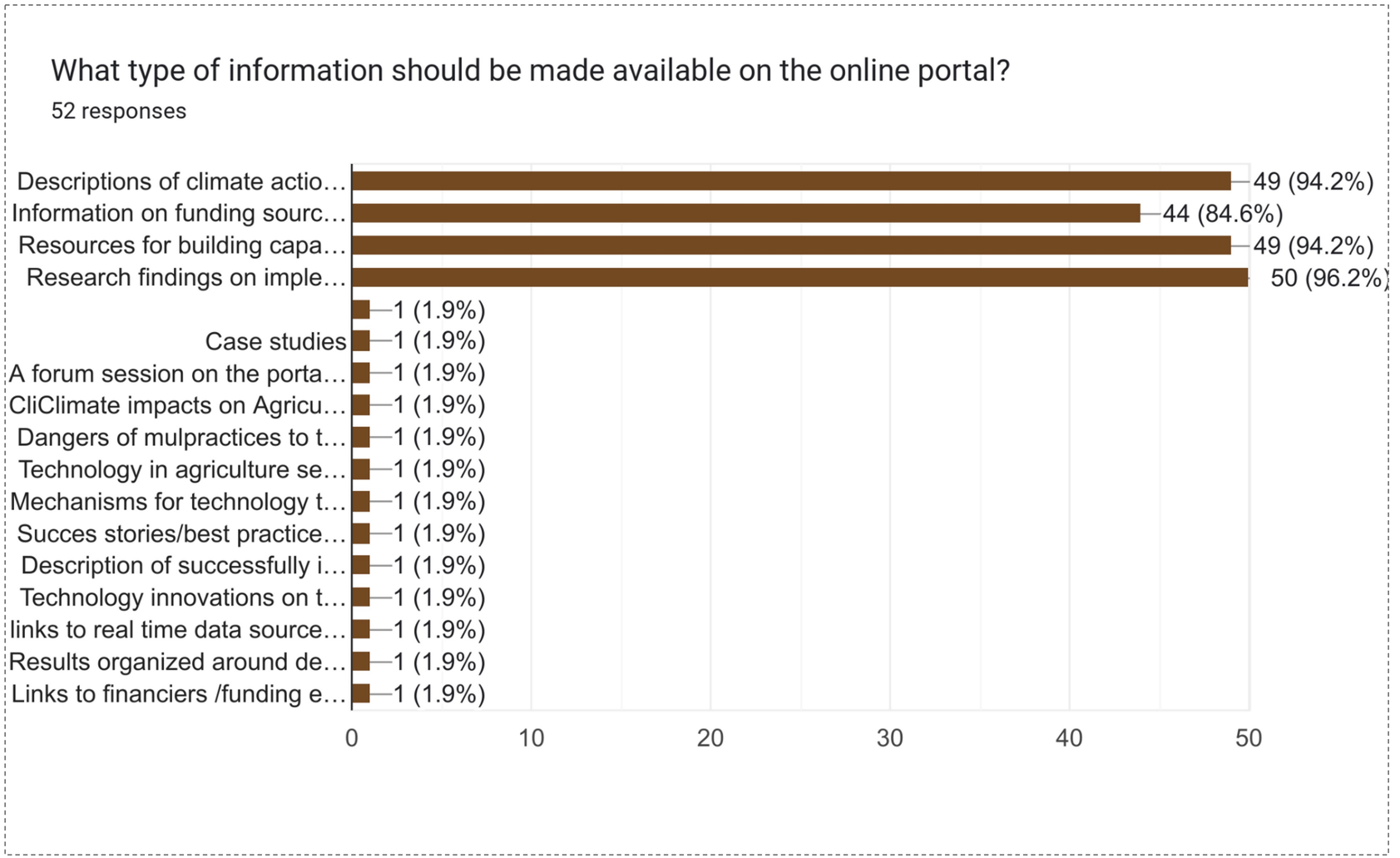
92%

For the leading response

1. **Information Sharing** on existing climate action initiatives.
2. **Raising Awareness** of options in climate action in agriculture.
3. **Aiding Fundraising** focused on countries.

Source: *Post-COP 27 Online Portal for Agriculture & Food Security Questionnaire by Nendo* (n=52 responses).

Key Information: Research, Resources, and Descriptions



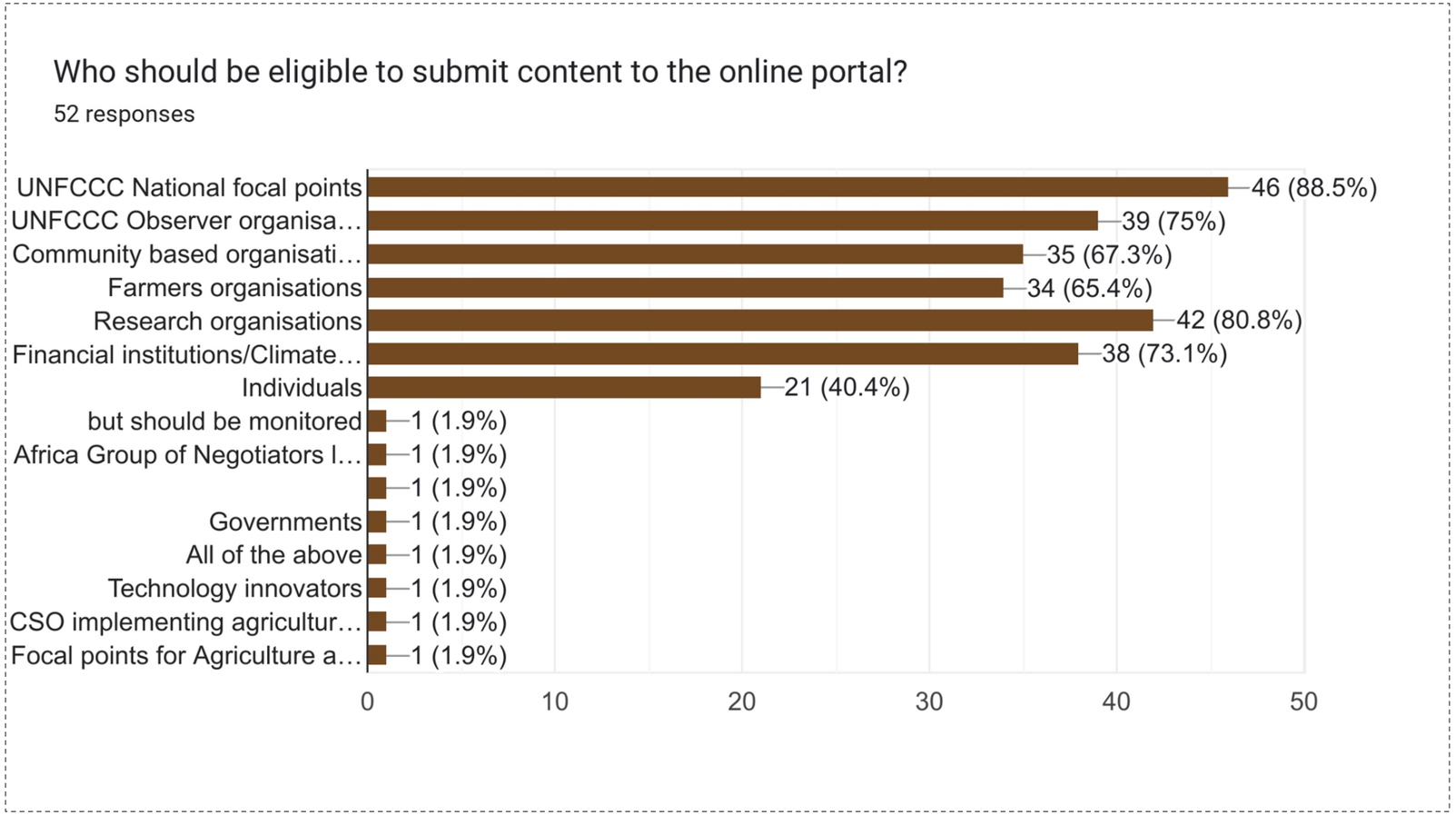
96%

For the leading response

1. **Implementation Research** of climate action in agriculture.
2. **Knowledge Resources** to help with capacity building
3. **Descriptions** of climate action in agriculture.

Source: *Post-COP 27 Online Portal for Agriculture & Food Security Questionnaire by Nendo* (n=52 responses).

Eligible Publishers: National Focal Points & Researchers



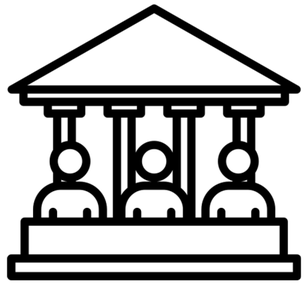
88%

For the leading response

1. **National Focal Points**
2. **Research Organisations**
3. **UNFCCC Observer Organisations**

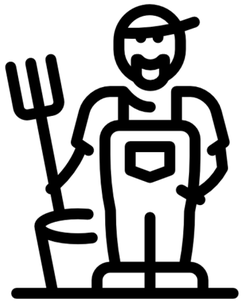
Source: *Post-COP 27 Online Portal for Agriculture & Food Security Questionnaire by Nendo* (n=52 responses).

Stakeholders: Who is the Online Portal For?



Government and key decision makers

- Nations/governments, government institutions, Ministries of Agriculture
- Non Governmental Organisations (NGOS)
- Bilateral and multilateral development partners in agriculture sector
- Donors & Funding Agencies



Farmers and Individuals

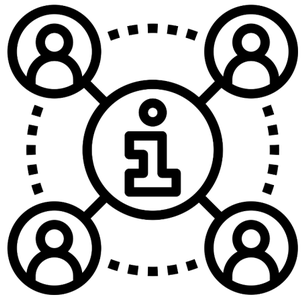
- Farmer-based organizations, Large, Medium and Small holder farmers
- Agricultural NGOs, Organizations in agriculture
- Cooperatives, Civil society organizations (CSO's)
- Individuals interested in climate change, food security and agriculture across the world

Academics, Researchers, and Experts

- Academia and research institutions, think - tanks and media, and students
- Experts: Negotiators, agri-based climate change experts, policy makers
- Technical committees of NDCs

Source: *Post-COP 27 Online Portal for Agriculture & Food Security Questionnaire by Nendo* (n=52 responses).

Survey: Four Broad Success Factors for the Online Portal

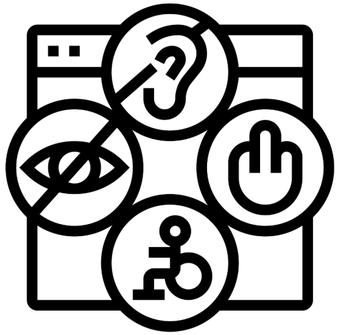


Information Sharing

- Focus on creating and raising awareness and **sharing information**
- Frequent updates and supply of up-to-date and **relevant information**, regular updating of content
- Share **offers** and **opportunities**, capacity building possibilities

Publishing

- Consistent accurate, insightful and **timely content** will make it successful
- Have **periodic reviews** by expert within AGNES - on agriculture
- Conduct outreach through **national focal points.**



Accessibility

- Make **accessibility of information** regarding climate change, food insecurity and agriculture readily available to all interested parties
- Accessible and easy to use
- Inclusion of key features (for) sharing of opportunities and e-discussion.

National & Local Outlook

- Take into account national and regional specificities
- Have both a national and community based outlook
- Co-operation.

Questionnaire Responses

Source: *Post-COP 27 Online Portal for Agriculture & Food Security Questionnaire by Nendo* (n=52 responses).

Risks: Inaccurate Info, Ethics, and Online Portal Usability

Accuracy of information

- Duplication of data due to lack of knowledge in data scrutiny
- Inaccurate information due to incomprehensive research
- Insufficient current data on agriculture especially stories of change
- Misinformation in regards to different regions
- Predatory publications that are not about agriculture / food security
- Contradicting information especially from NGOs who at times they just want to advance their ways of doing things without proper researches about them

Ethics and Security

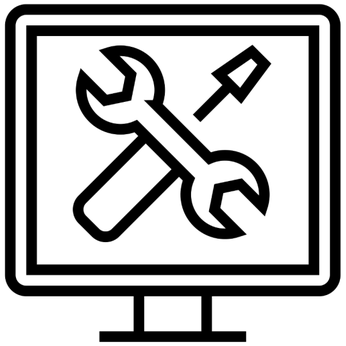
- Security issues (hacking)
- Restrictions on publications
- Filling the portal with content that is not relevant advertisements, offensive comments
- Data privacy issues

Usability challenges

- Lack of utilization
- If it's not user friendly, not responsive
- End users not knowing its existence

Source: *Post-COP 27 Online Portal for Agriculture & Food Security Questionnaire by Nendo* (n=52 responses).

Risks: Maintenance, Access Charges, Reach & Coverage



Maintenance

- Sustainability of online portal; there is need for something like an E-discussion and access to relevant opportunities in climate and agriculture to continually attract people that need that information.

Financial access?

- If a cost is charged on getting information or registration then many of the target beneficiaries will be left out.

Limited reach driven by lack of internet access / disruptions

- Interruptions of internet and overlapping of activities of participants.
- Inadequate accessibility by farmers due to lack of internet services / bundles.
- Not reaching to the farmers/pastoralists, who should be the ultimate target.

Unequal coverage of regions

Questionnaire Responses

Source: *Post-COP 27 Online Portal for Agriculture & Food Security Questionnaire by Nendo* (n=52 responses).

Online Portal: Definitions and Criteria - An Opportunity?

Survey: Suggested Websites - 10/17 as Online Portals

Organisation/Institution	URL	Is it a portal?
Climtag	https://climtag.vito.be/en	✓
FAO	https://www.fao.org/home/en	✓
SADC	https://www.sadc.int/	✗
Elengo	https://www.farmcourses.com/	✗
Climate Nepal	https://www.climatenepal.org.np/	✗
Odin Africa	http://www.odinafrica.org/en/	✓
NDC Partnership	https://ndcpartnership.org/	✓
UGPO	https://cc-tunisie.com/ugpo-cc/#	✗
Climate.gov	https://toolkit.climate.gov/content/funding-opportunities	✗

Organisation/Institution	URL	Is it a portal?
YPARD	https://www.ypard.net/	✓
Care Climate Change	https://careclimatechange.org/	✓
UNFCCC Submission Portal	https://www4.unfccc.int/sites/submissionsstaging/Pages/Home.aspx	✓
Nairobi Convention Clearing House	https://www.nairobiconvention.org/clearinghouse/	✗
Copernicus Marine Service	https://marine.copernicus.eu/	✓
Green Climate Fund	https://www.greenclimate.fund/	✓
Greenhouse Gas Management Institute	https://ghginstitute.org/	✓
United Nations Climate Action	https://www.un.org/sustainabledevelopment/climate-action/	✗

Source: *Post-COP 27 Online Portal for Agriculture & Food Security Questionnaire by Nendo* (n=52 responses).

Stocktake & Benchmarks for Online Portals

Approach - Search & Selection of Online Portals

Search & Selection

Nendo used secondary research to find and categorise websites that would be considered online portals. This was done by taking phrases that could be used interchangeably to find resources related to climate action in agriculture, food security, and climate change. An important aspect for consideration is keywords, phrases, and search terms. Nendo used a variety of words to capture over 20 websites available in this spreadsheet. Phrases used included:

1. "climate change **online portal**"
2. "agriculture **online portal**"
3. "food security **online portal**"
4. "climate change **dashboard**"
5. “agriculture **dashboard**”
6. "food security **dashboard**”
7. "climate change **database**"

What this shows is that there’s not a generally accepted term for what a web/online portal is. Creating a standard definition can help going forward.

Approach - Analysis & Diagnosis of Online Portals

Analysis

After searches were complete, websites were evaluated for their relevance and whether they could be classified as online portals. Two tools were used to evaluate a shortlist of 10 online portals:

1. WebPageTest.org: this tool which allows for an analysis of the online portal where it is loaded on an mid-range Android mobile phone with a 3G mobile connection in India. This allows for testing the online portal in average 'global south' conditions.
2. Google PageSpeed Insights: this diagnostic tool for websites ranks them using multiple technical criteria from Google including: Performance Score, Accessibility Score, Best Practices Score, and Search Engine Optimisation Score.

Each of these tools allowed for the online portals to undergo an individual review by a Nendo Analyst as well as a technical review aided by the two tools above.

Diagnosis & Recommendations

This was followed by diagnosis and recommendations of best-practices, lessons, and recommendations for the operationalizing of an online portal for sharing information on projects, initiatives, and policies for increasing opportunities for implementation of climate action to address issues related to agriculture and food security.

Recommended Portals for Deep-Dive Analysis

World Bank Climate Change Knowledge Portal

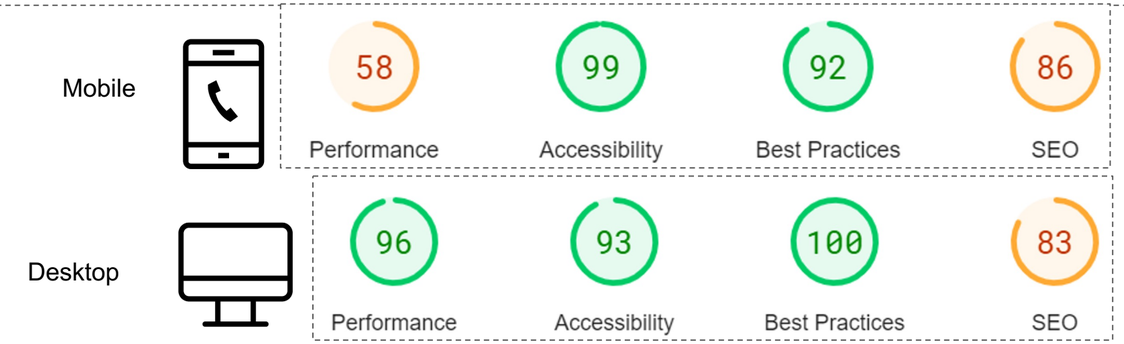
- The Climate Change Knowledge Portal available on the World Bank website is also an example of an existing dashboard that seeks to provide global data on historical and future climate, vulnerabilities and impacts of climate-related information.
- The portal shares a breakdown of global data, both historical and futuristic, which can be viewed by country profile.
- The site also provides a glossary of terms and definitions for the user to reference from.

https://climateknowledgeportal.worldbank.org/

Mobile

Desktop

United States Climate.gov Global Climate Dashboard



https://www.climate.gov/climatedashboard

According to WebPageTest.org

- This site was very slow to connect and deliver initial code.
- It began rendering content with little delay. The largest contentful paint time was slower than ideal.

Functionality based on usability:

- This site took a long time to become interactive. It had accessibility issues, none serious.

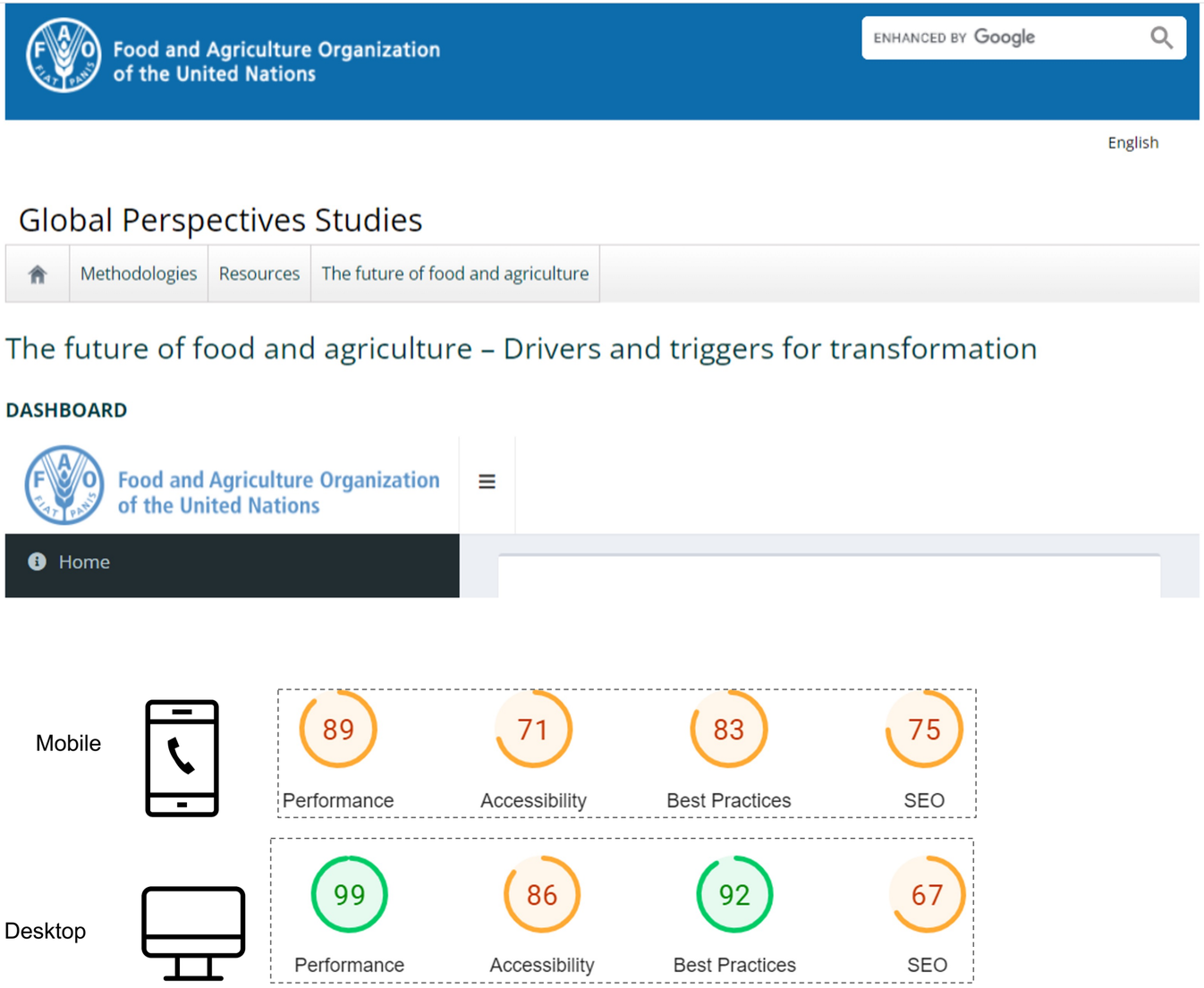
Functionality based on resilience:

- This site had no security issues detected.

- A dashboard of different climate indicators, such as temperature, precipitation, sea level, and greenhouse gases, is displayed on the website.

- The Climate Dashboard allows users to explore and visualize different aspects of climate change. The data can be viewed at various scales, from global to regional. The website also includes articles, videos, and other educational resources that explain climate science and its impact.

Food and Agriculture Organization of the United Nations



https://www.fao.org/global-perspectives-studies/fofa-dtt-dashboard/en/

According to WebPageTest.org

Functionality based on speed:

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Functionality based on usability:

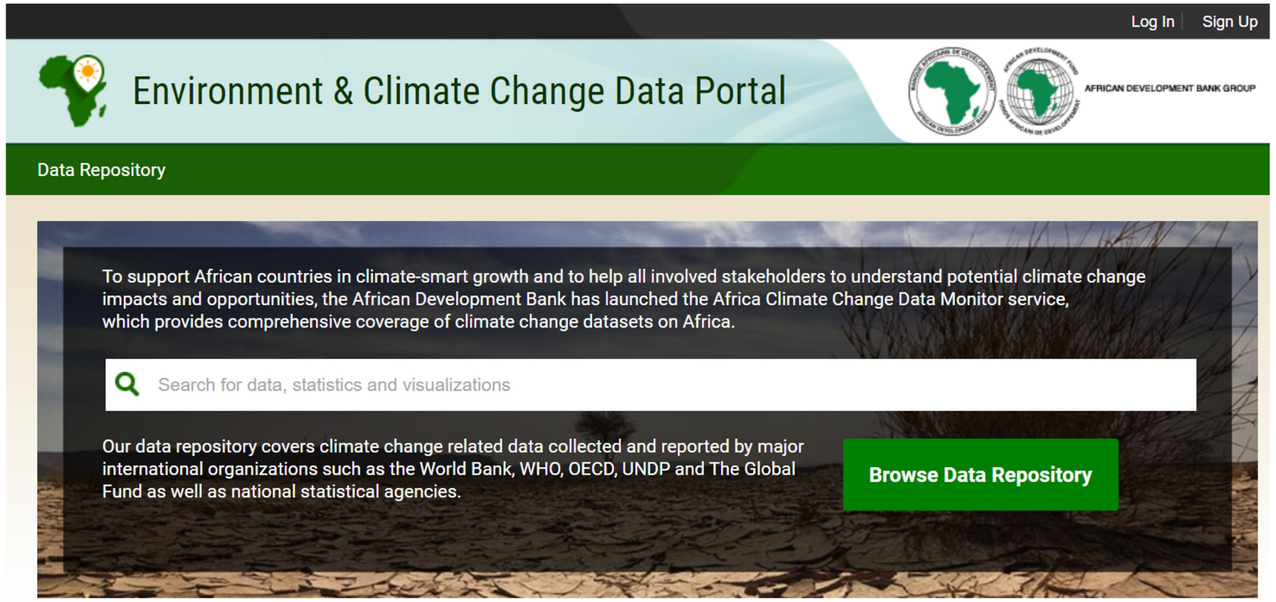
- This site took a long time to become interactive. It had accessibility issues, none serious.

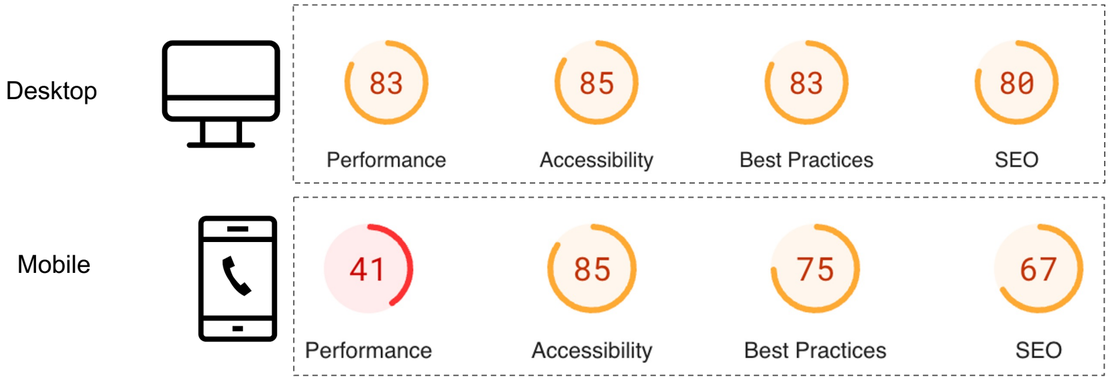
Functionality based on resilience:

- This site had no security issues detected.
- The website includes a range of data visualisations, charts, and maps that show information on agricultural productivity, trade flows, and other indicators related to the DTT program.
- The website has a straightforward and user-friendly interface, with a menu that allows users to access different sections of the dashboard easily.
- The website is targeted towards policymakers, researchers, and other stakeholders who are interested in the role of digital tools and trade in promoting agricultural development.

Additional Existing Online Portals Used for Benchmarking and Stocktaking

AfDB Environment & Climate Change Portal





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Functionality based on usability:

- This site took a long time to become interactive. It had accessibility issues, none serious.

Functionality based on resilience:

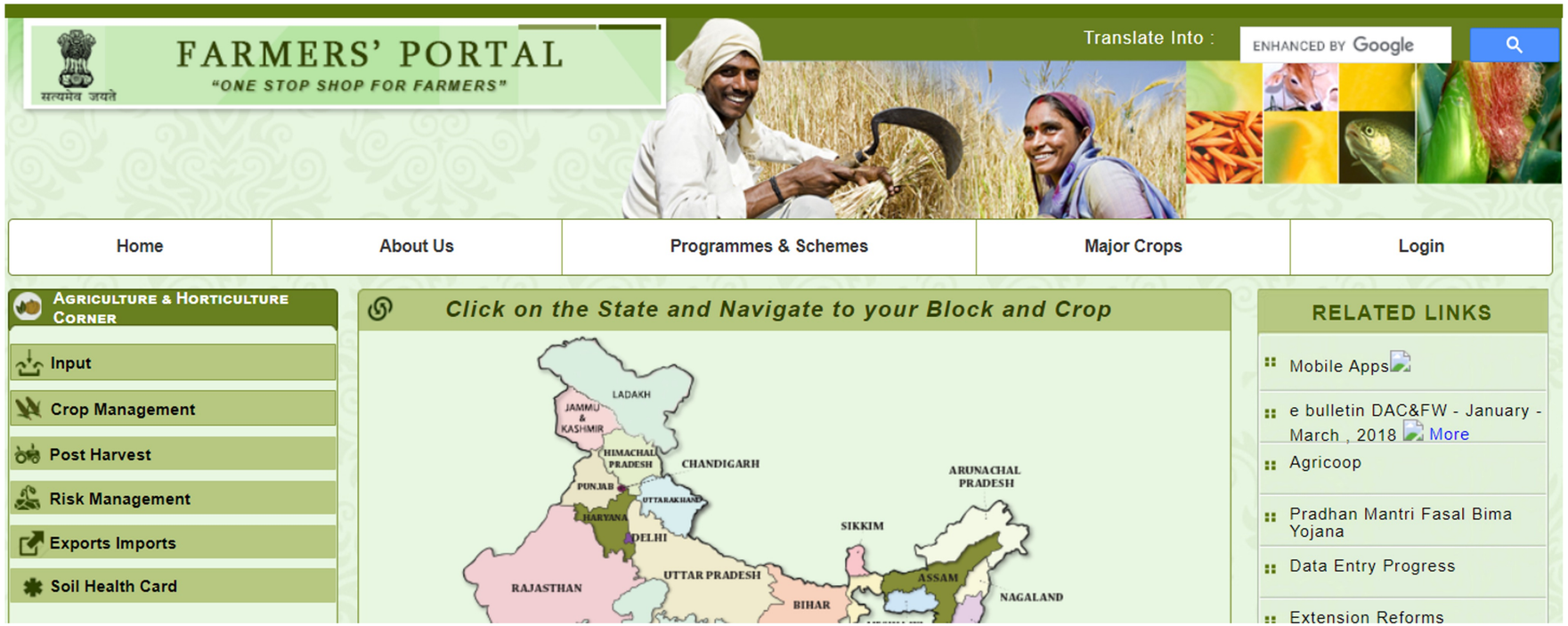
- This site had no security issues detected.

- The African Development Bank Group has an Environment & Climate Change Data Portal that aims to support African countries in climate change growth among other objectives.

- The strength of this portal is arguably in how it has been arranged, providing a data repository with an in-depth breakdown of various quick data points on environmental performance per country profile/region, all easily available on the introductory page of the portal.

https://africaclimate.opendataforafrica.org/

Indian Government Farmers' Portal



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Functionality based on resilience:

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Mobile

Performance	Accessibility	Best Practices	SEO
57	86	50	58

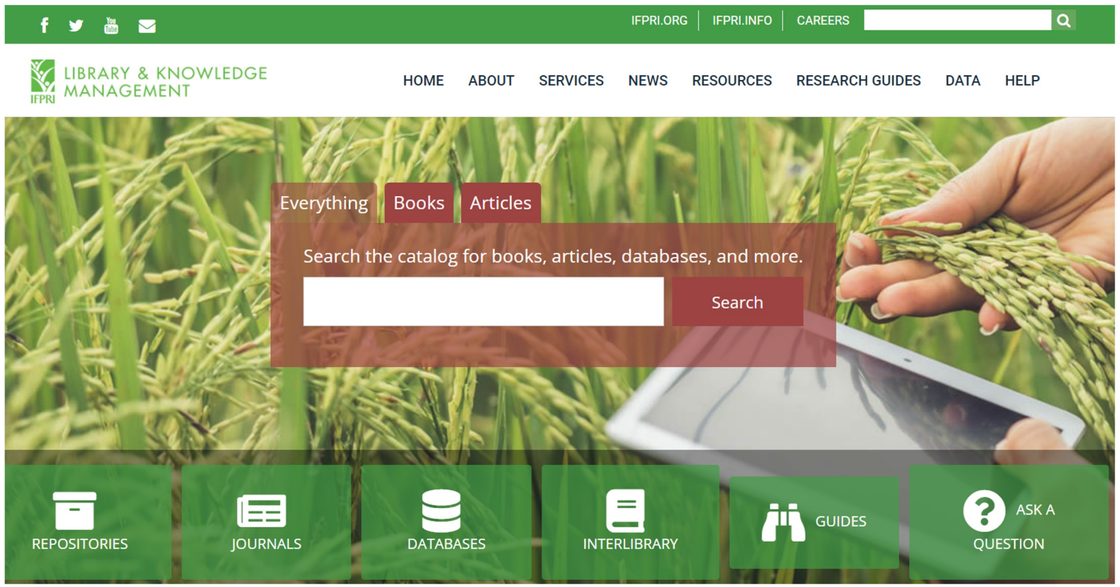
Desktop

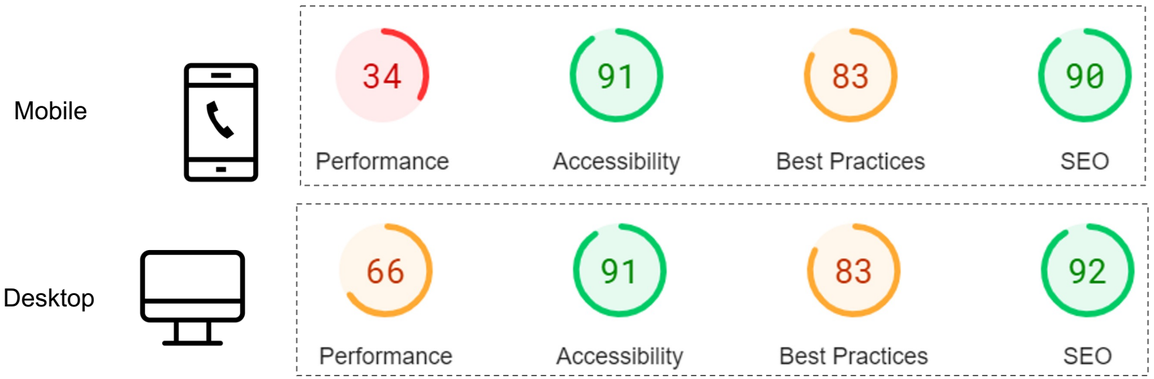
Performance	Accessibility	Best Practices	SEO
78	86	58	70

- This online portal is Ideal for farmers' organizations, one of the users the UNFCCC portal is looking to target. The portal provides a vast selection that the user would be interested in, from agriculture & horticultural corner to Veterinary information and irrigated/unirrigated areas to educate the user on topics of interest.

https://farmer.gov.in/

International Food Policy Research Institute





https://www.ifpri.org/project/food-security-portal

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Functionality based on usability:

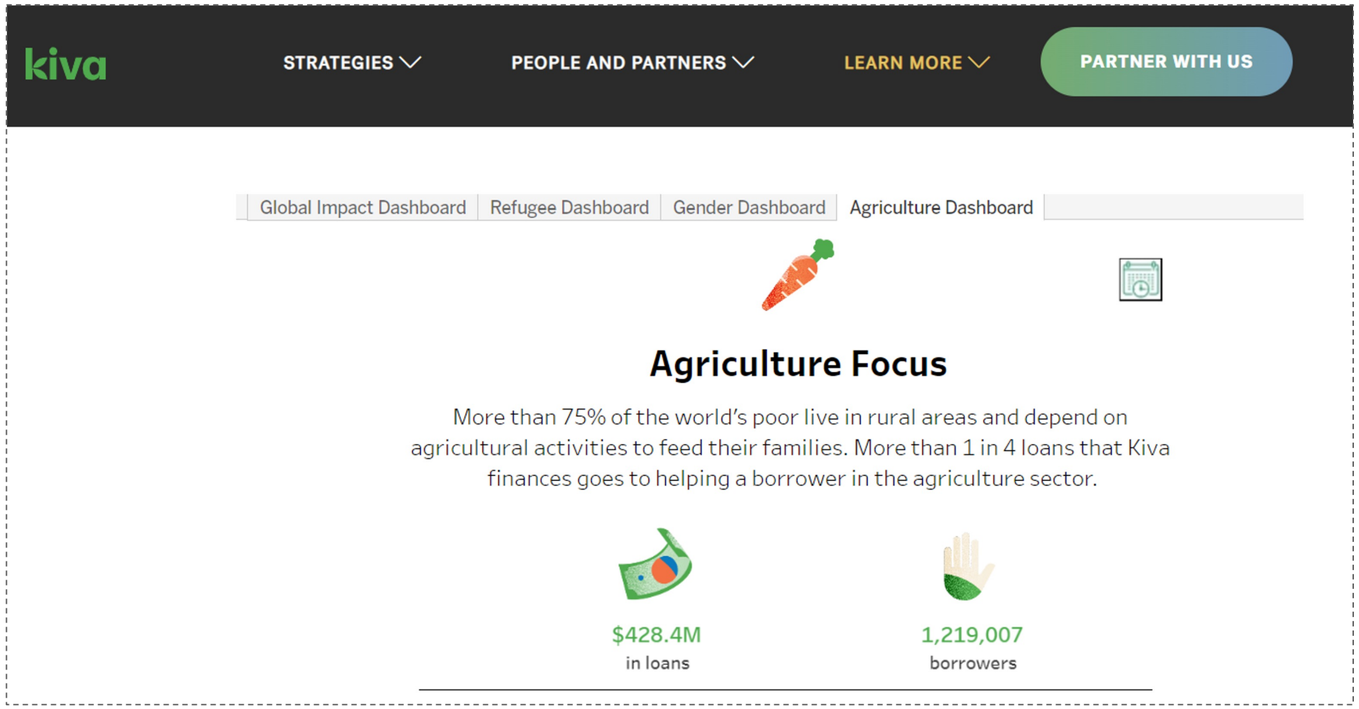
- This site took a long time to become interactive. It had accessibility issues, none serious.

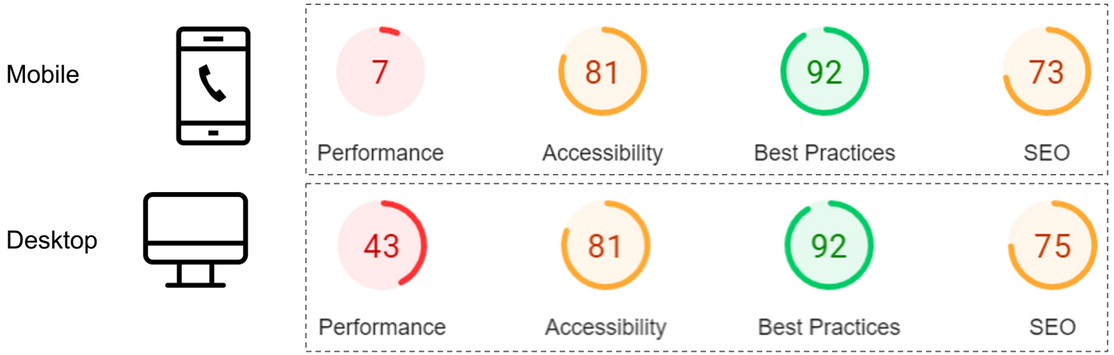
Functionality based on resilience:

- This site had no security issues detected.

- The portal provides key data to monitor food security situations and food prices, as well as tools for policy analysis and capacity development.
- The portal aims to help policymakers and other stakeholders find appropriate and timely responses to address food insecurity.
- The library tab is well laid out with a search catalog for books, articles, databases and repositories for users to use while searching for educational material as per their needs.

Kiva's Agriculture Dashboard





https://www.kiva.global/agriculture-focus/agriculture-dashboard/

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Functionality based on usability:

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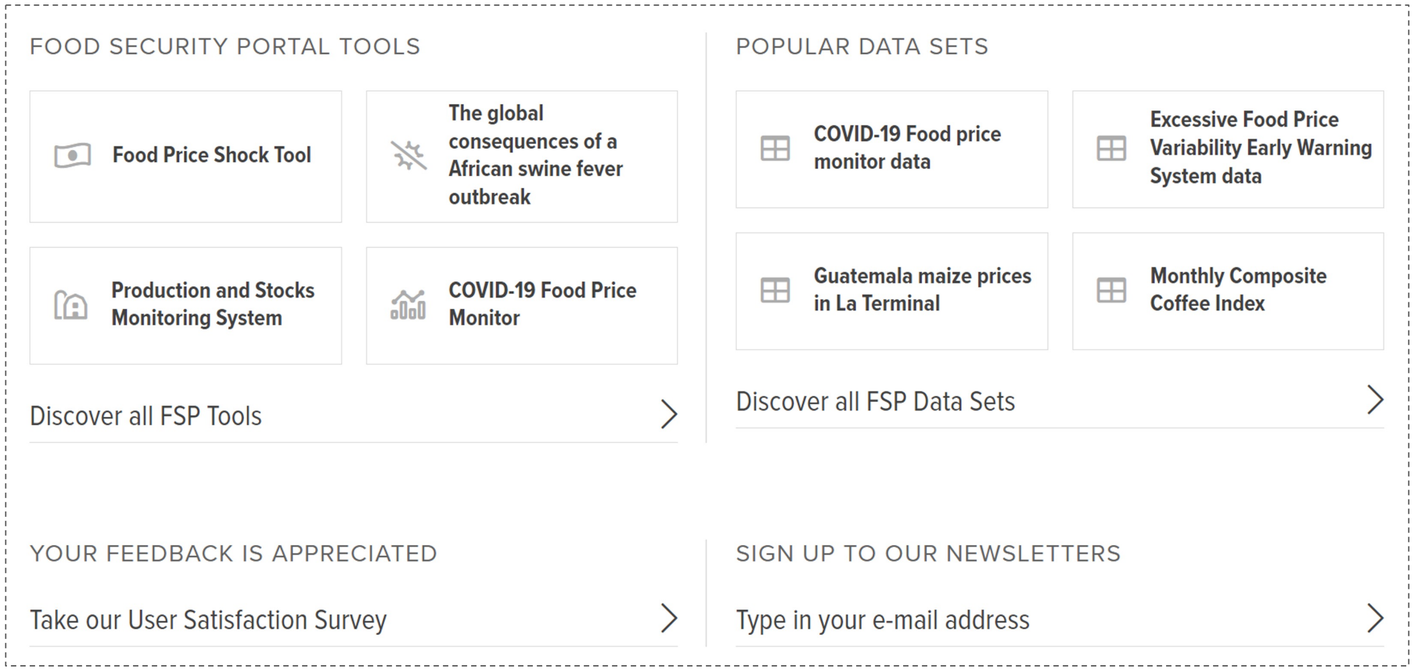
Functionality based on resilience:

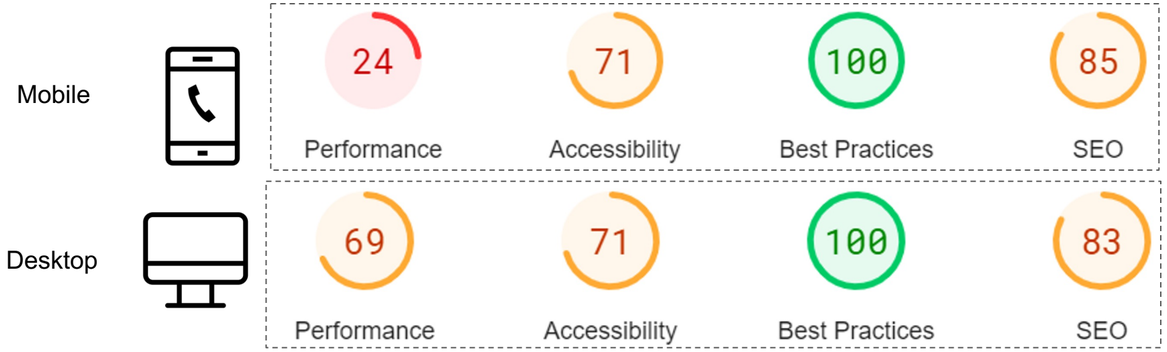
- This site had no security issues detected.

- Design: The website has a modern and clean design, with a white background and clear typography that makes it easy to read and navigate.

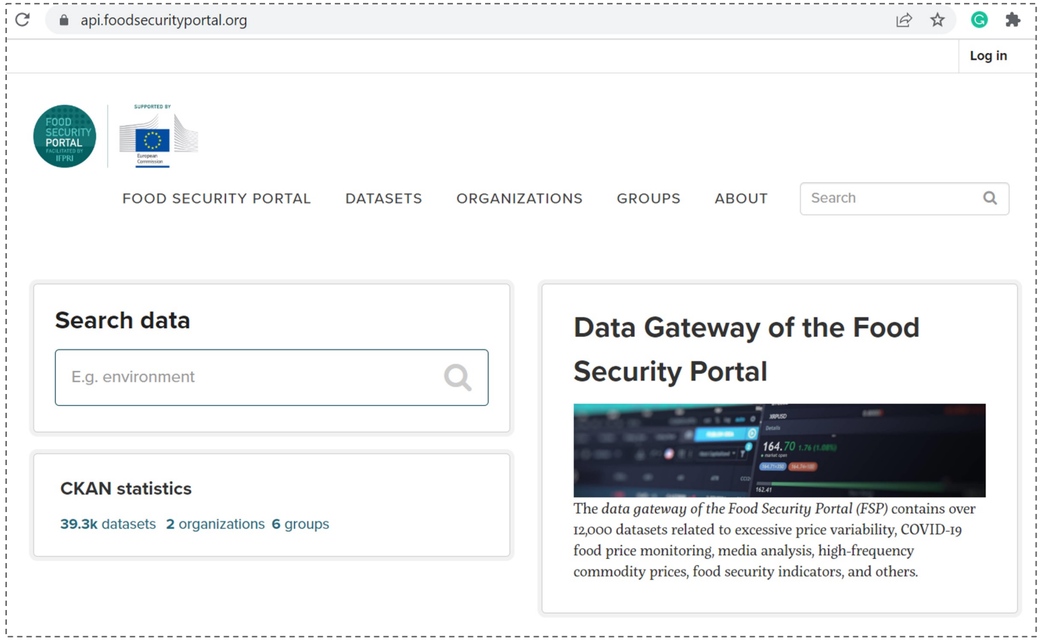
- Limited scope: The website appears to focus primarily on a specific approach to supporting smallholder farmers (namely, through financing), so users who are interested in different approaches may not find the information they need.

Food Security Portal - Global Data Sets



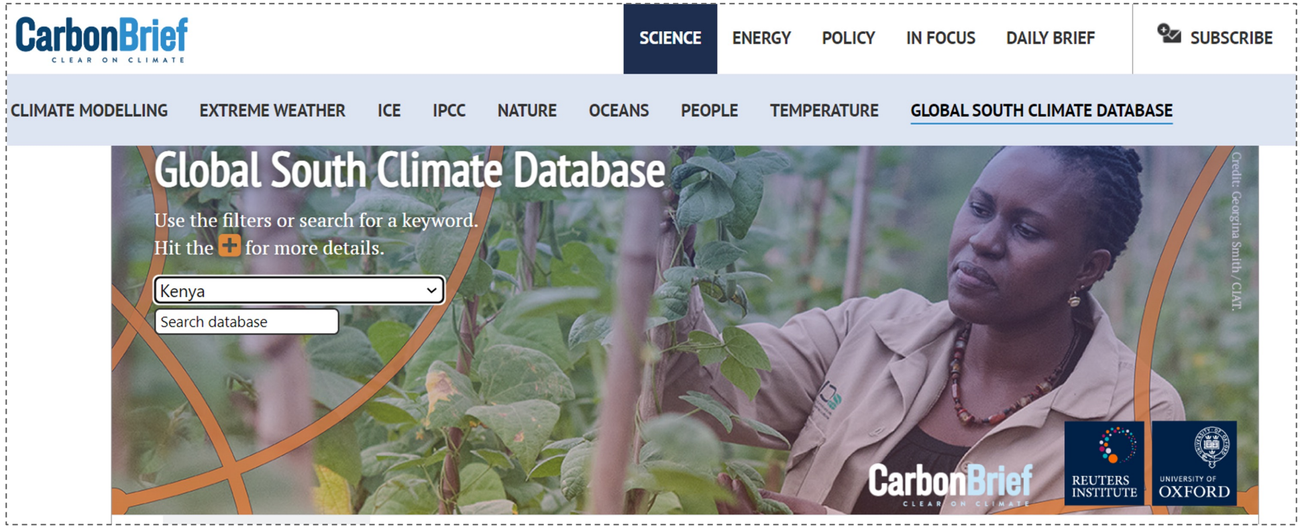


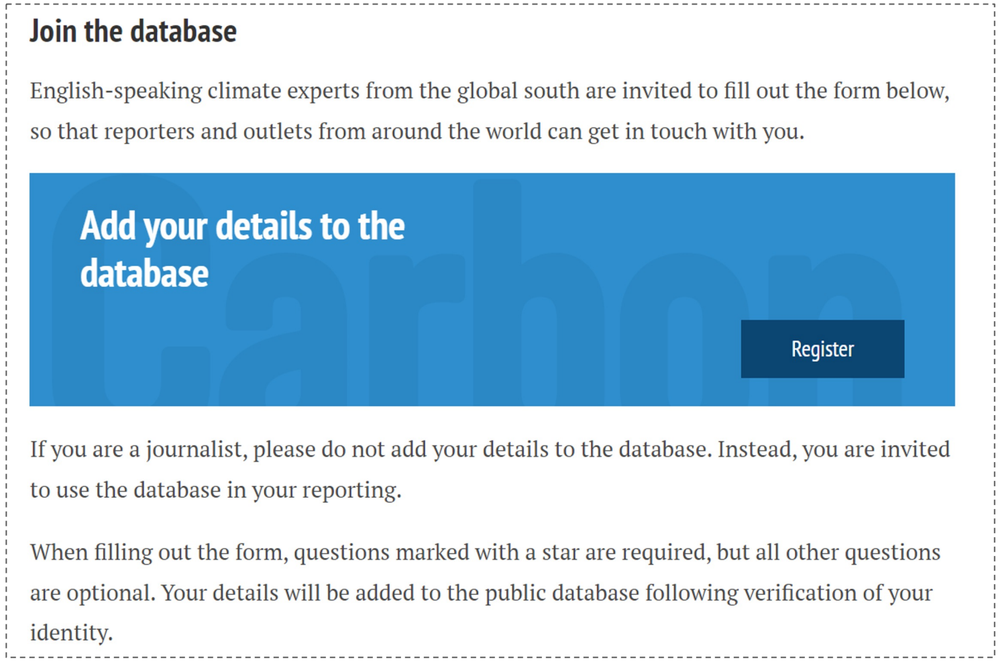
- With over 12,000 datasets available, the portal has made it easy for the user by creating a 'data search tab' that offers ease for the user to search the specific/preferred category or thematic area on the portal, as opposed to perusing over 10K resources available.



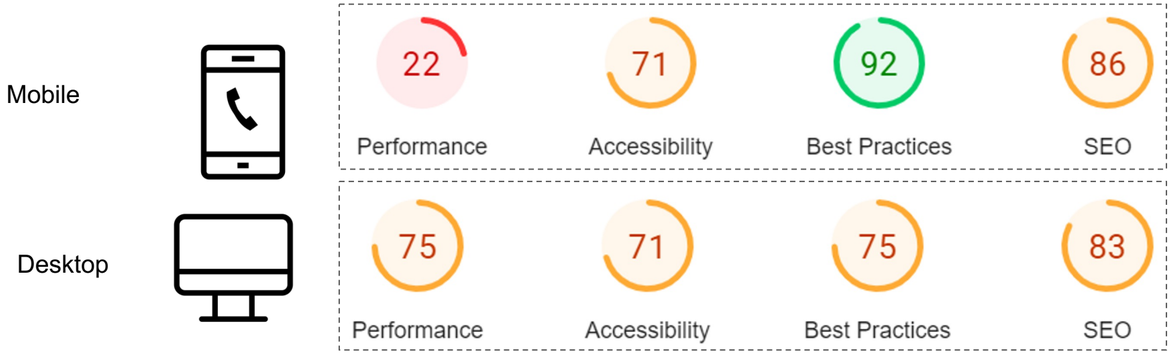
https://www.foodsecurityportal.org/

Carbon Brief - Global South Climate Database



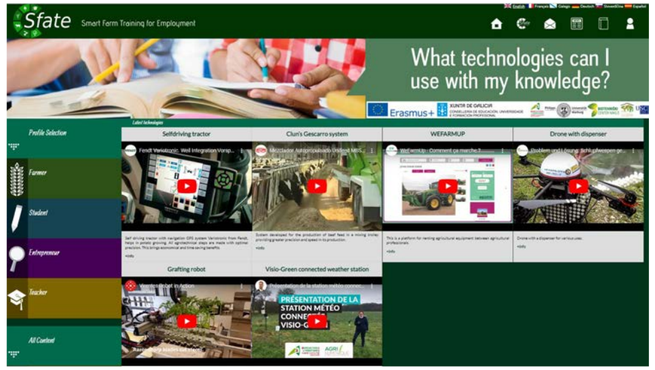


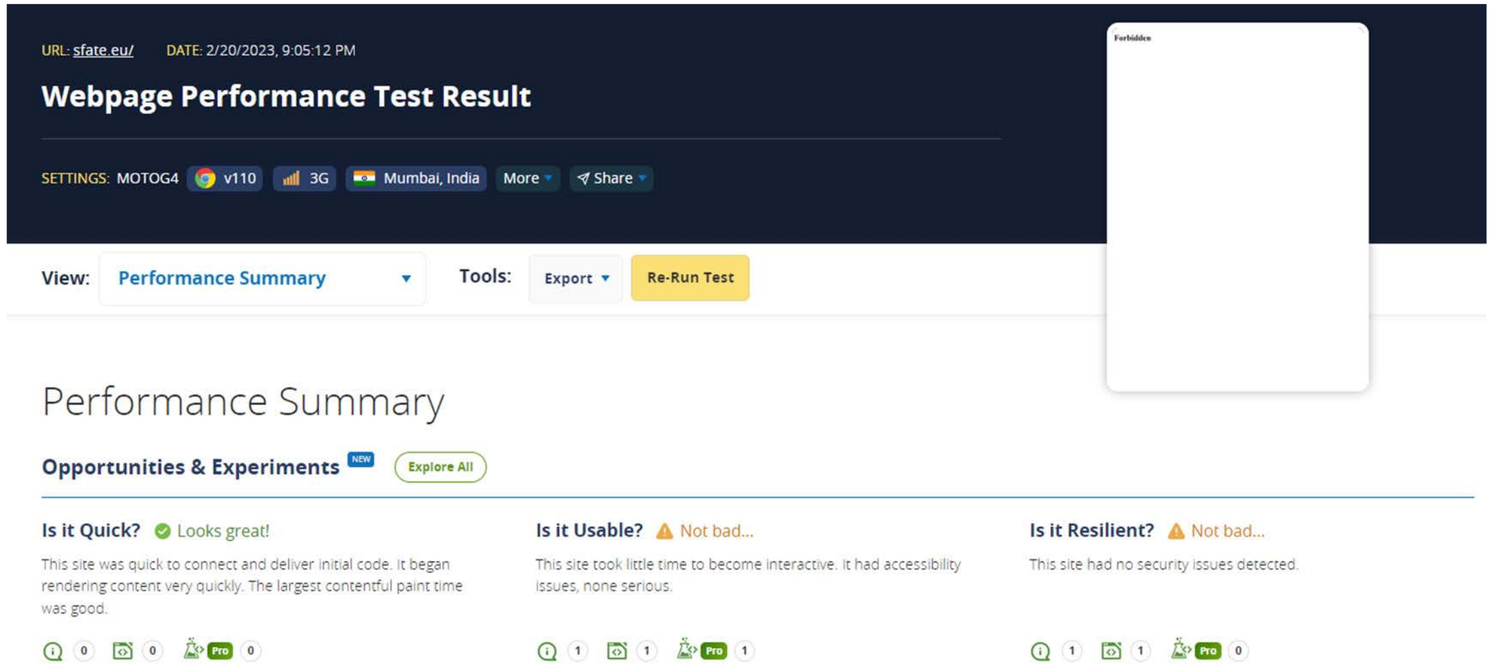
- The layout has a Visually appealing dashboard that introduces the website to the user.
- The UNFCCC could use this feature as their introductory page to appeal to the user.
- The database shares a filter section that allows the user to filter by nationality.
- This database also presents an opportunity for UNFCCC portal to be replicated by adding a registration list by allowing users to add their details to join the database, as well as an opportunity for users to share feedback on their experience using the database.



https://www.carbonbrief.org/global-south-climate-database/

Smart Farm Training for Employment (SFATE)





- The SFATE (Smart Farm Training for Employment) ERASMUS + project has created a web portal that stands out, as the portal is noticeably created to share information with key stakeholders such as: farmers, agriculture students, teachers, advisors, and other actors on available Smart Farming technologies, their functionality, and the advantages they offer.
- The country of origin and focus of data shared is EU based.
- The portal has a 'Find' section on the tab that UNFCCC could replicate, but personalize to activate the link to help the user search specific resources using their own keywords.
- The website also provides a profile selection of user profiles that target: 'Farmer' 'Teacher', 'Student', and 'Entrepreneur'. This is something that UNFCCC could use to attract various user groups to log into the site.

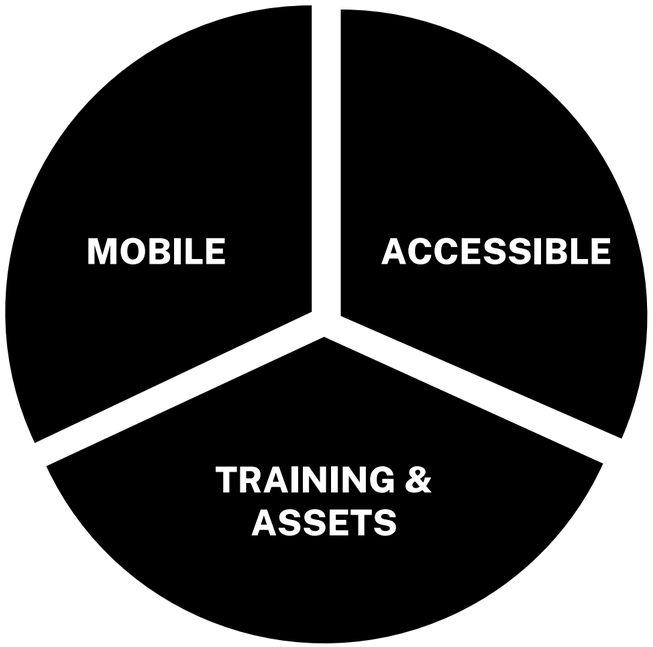
http://sfate.eu/

3 Suggested Negotiation Points

Negotiation Points: Mobile, Accessible, and Training

Mobile-First

- *+90 Google PageSpeed Insights Score*
  - The UNFCCC online portal ought to be built capable of being used via a mobile phone (not for complex tasks, but enough to generate a score of 90/100 in Google's PageSpeed Insights
- *Speed, Usability, and Security*
  - The UNFCCC online portal ought to focus on speed of loading images and content, the user experience of the website, and security for its users.



Accessibility

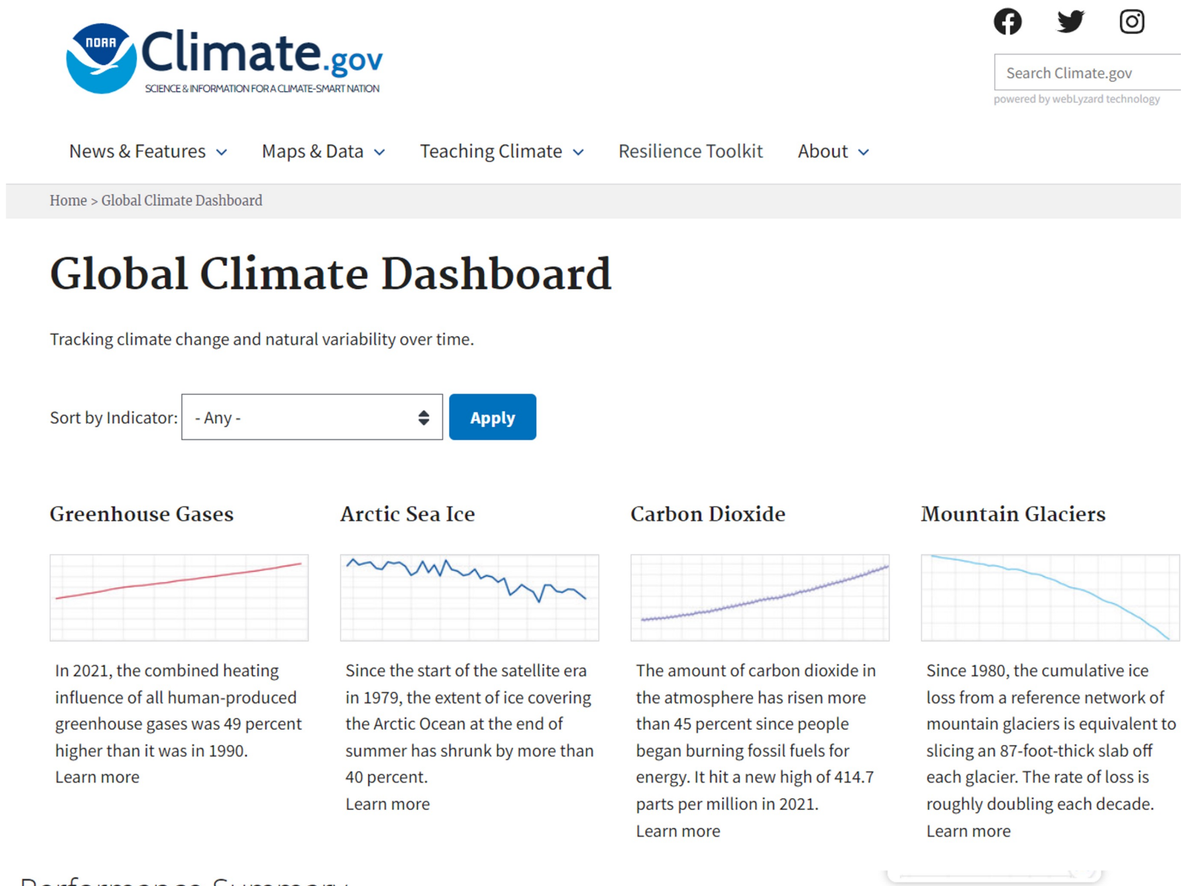
- *Voice-to-Text*
  - To raise the likelihood that farmers can benefit from the online portal and its information, the website ought to be built with overall accessibility as a top priority. Specifically the voice-to-text feature should be prioritised to allow less literate internet users to interact with the information on their phones.
- *Multi-language Support*
  - The UNFCCC online portal ought to be available in the six official languages of the UN. This will allow for the website to serve a broad set of stakeholders across the world.

Training & Assets

- *Capacity Building*
  - The UNFCCC online portal ought to focus on training, professional development and capacity building as a core feature. This will require an investment in the content to inform, educate, and inspire stakeholders.
- *Visual Assets to Raise Awareness*
  - The online portal may require packaging of data and information in infographics, motion graphics, and various visual formats (visual assets). These can be shared across social media and used to attract website visitors and deliver awareness and key messages related to the online portal and its information to stakeholders.

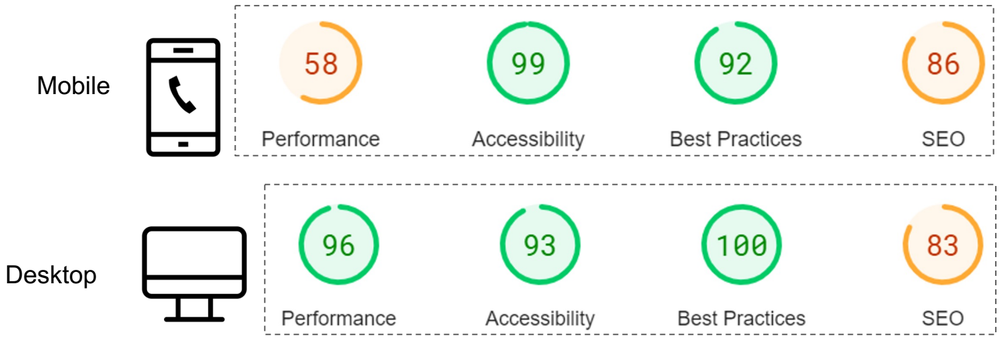
Recommended Portals by Architecture (Speed, Usability and Security)

Climate.gov Global Climate Dashboard



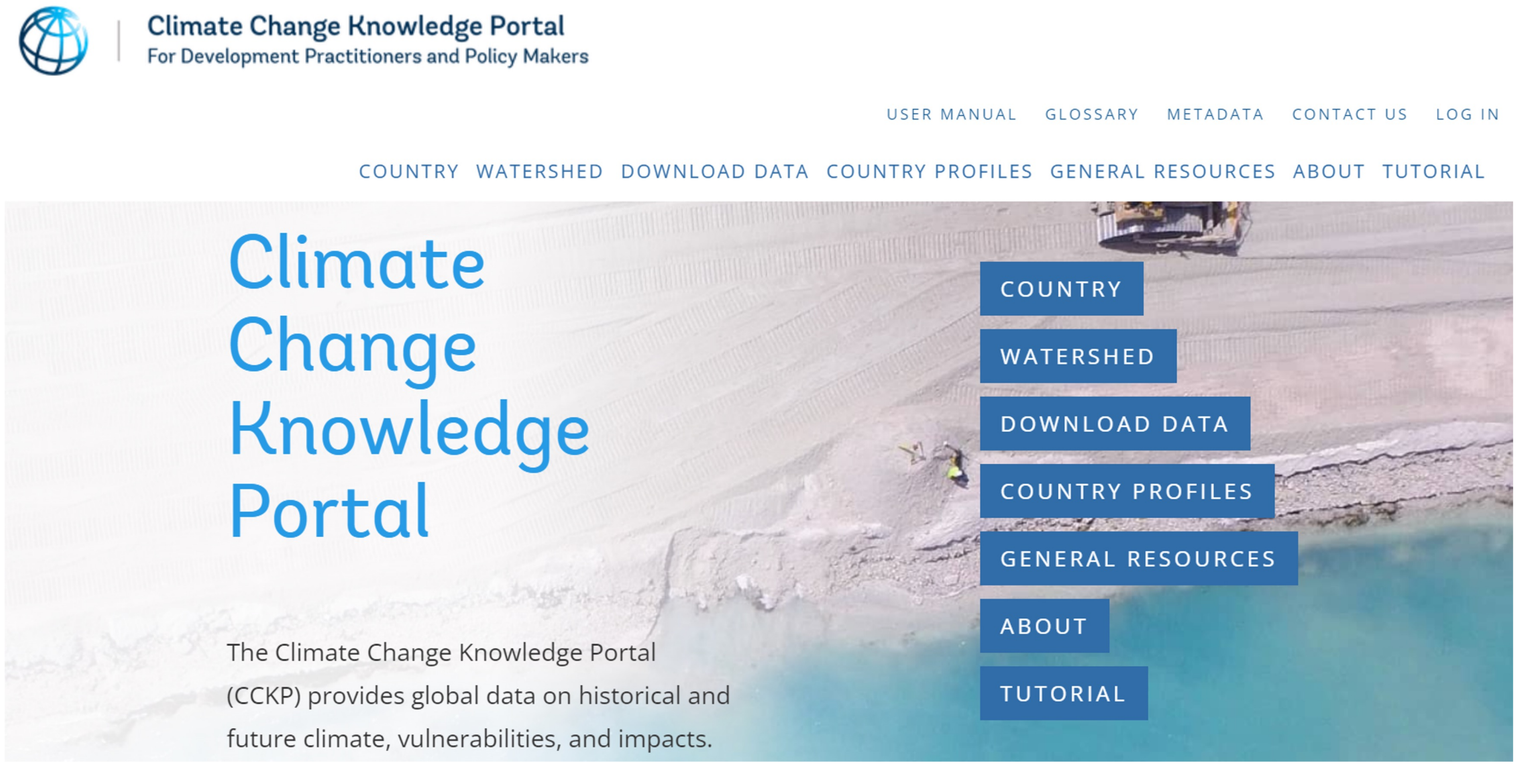
- A dashboard of different climate indicators, such as temperature, precipitation, sea level, and greenhouse gases, is displayed on the website.

- The Climate Dashboard allows users to explore and visualize different aspects of climate change. The data can be viewed at various scales, from global to regional.
- The website also includes articles, videos, and other educational resources that explain climate science and its impact. Despite that, it does not lose o performance.
- The UNFCCC portal should prioritise optimising the portal to be faster, user friendly and secure as it also increases search engine optimisation.



https://www.climate.gov/climatedashboard

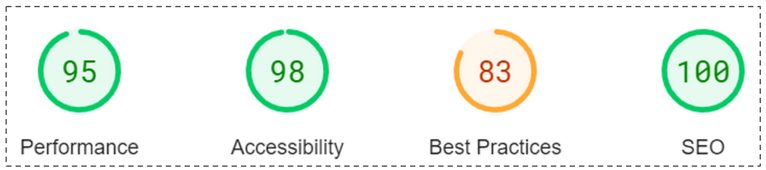
World Bank Climate Change Knowledge Portal



- The Climate Change Knowledge Portal available on the World Bank website is also an example of an existing dashboard that seeks to provide global data on historical and future climate, vulnerabilities and impacts of climate-related information.
- The portal shares a breakdown of global data, both historical and futuristic, which can be viewed by country profile.
- The site also provides a glossary of terms and definitions for the user to reference from.

Mobile

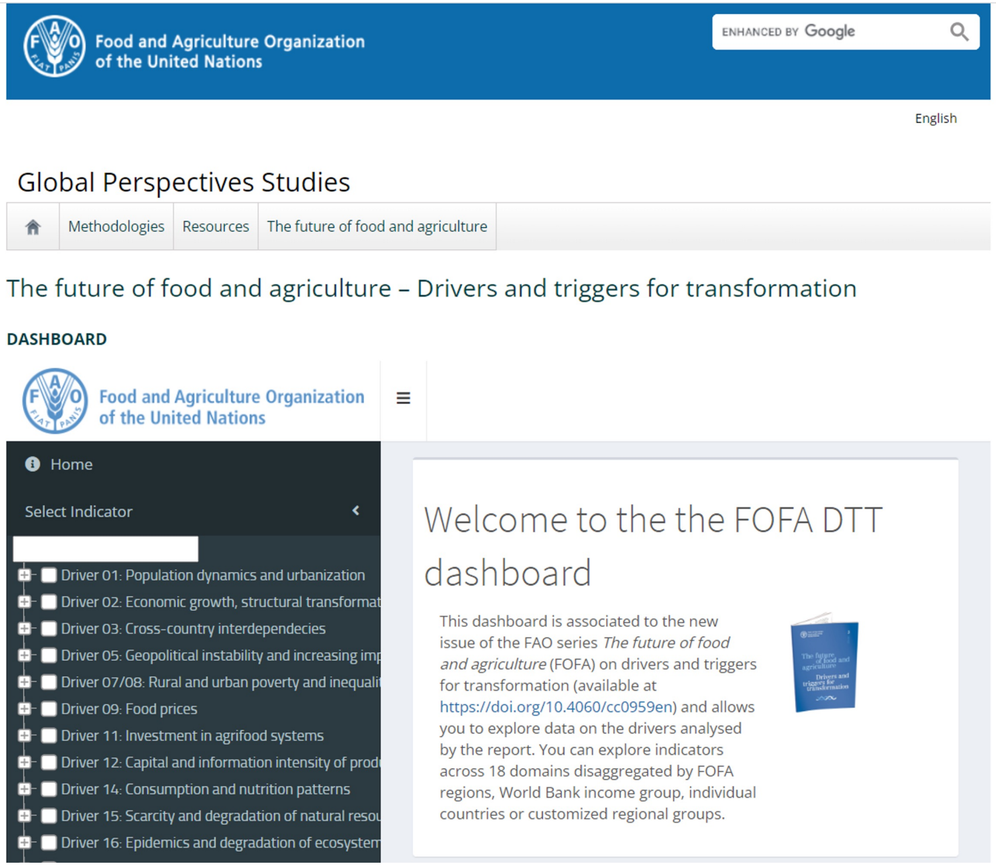
Desktop



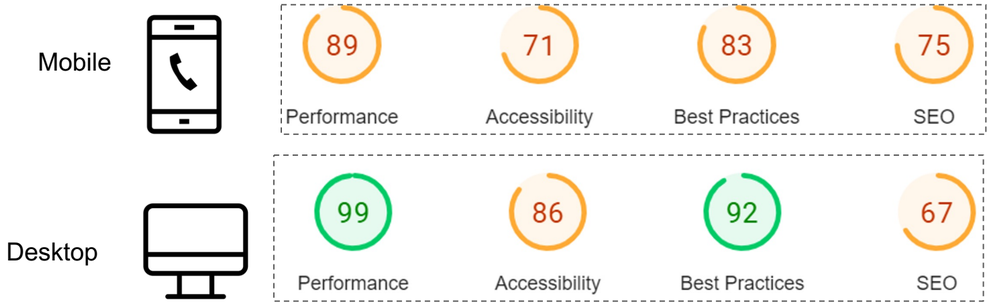
https://climateknowledgeportal.worldbank.org/

Recommended Portal Showcasing User Friendliness

FAO Global Perspective Studies



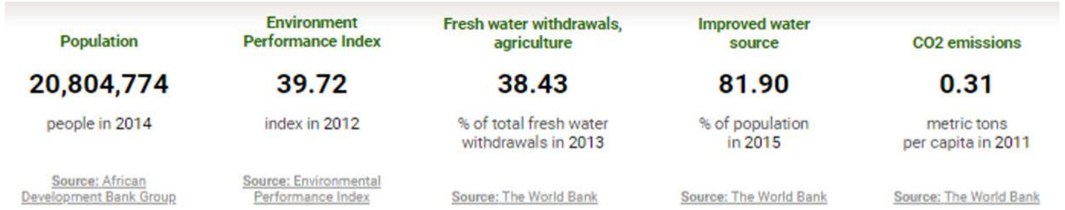
- The website includes a range of data visualisations, charts, and maps that show information on agricultural productivity, trade flows, and other indicators related to the DTT program.
- The website has a straightforward and user-friendly interface, with a menu that allows users to access different sections of the dashboard easily.
- The website is targeted towards policymakers, researchers, and other stakeholders who are interested in the role of digital tools and trade in promoting agricultural development.
- In order to suit the mobile first category for users accessing the portal on their phones, the UNFCCC portal should be user friendly and well visualised. This will make it easier to navigate the site.

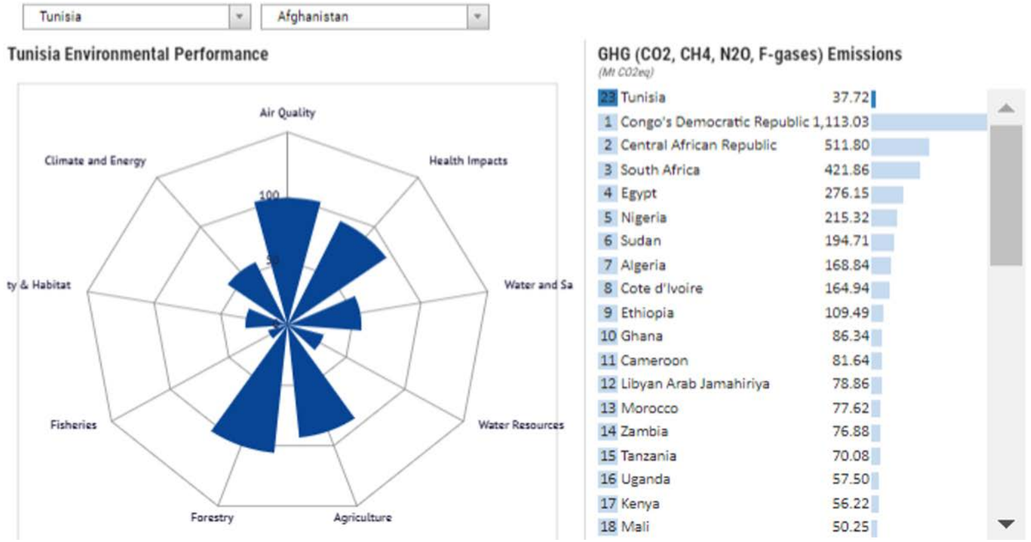


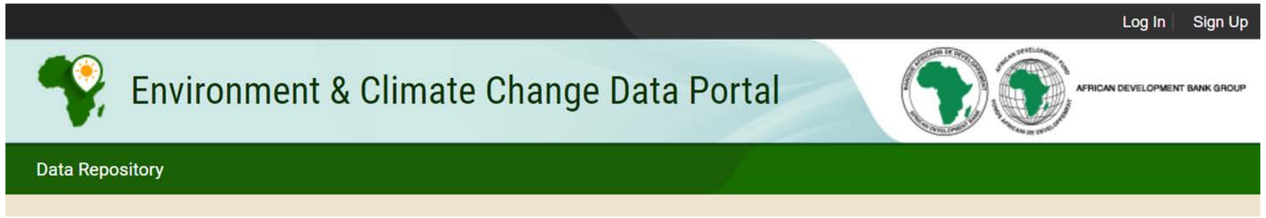
https://www.fao.org/global-perspectives-studies/fofa-dtt-dashboard/en/

Recommended Portal Showcasing An Evidence Repository and Regional Organisation

AfDB Environment & Climate Change Portal

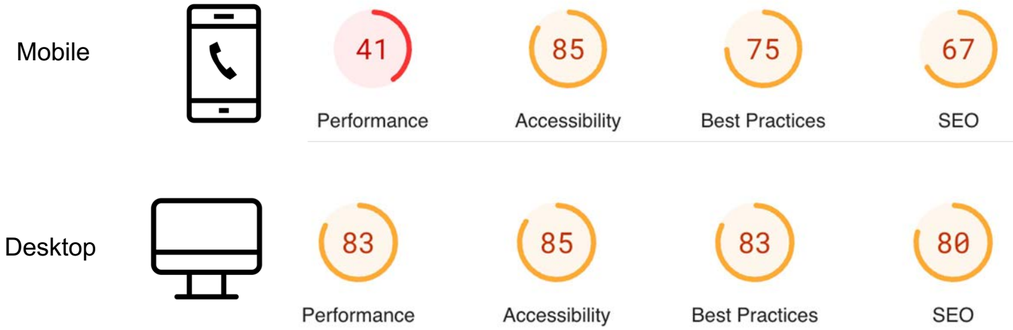






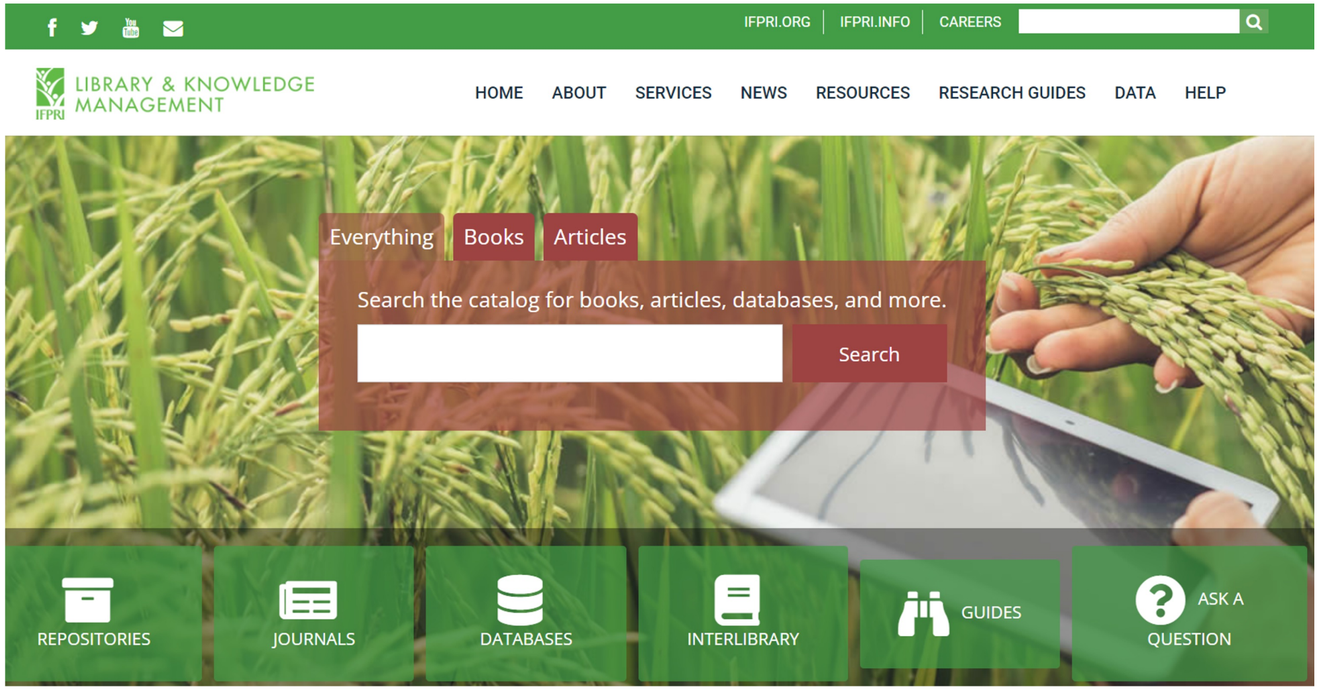
- The African Development Bank Group has an Environment & Climate Change Data Portal that aims to support African countries in climate change growth among other objectives.

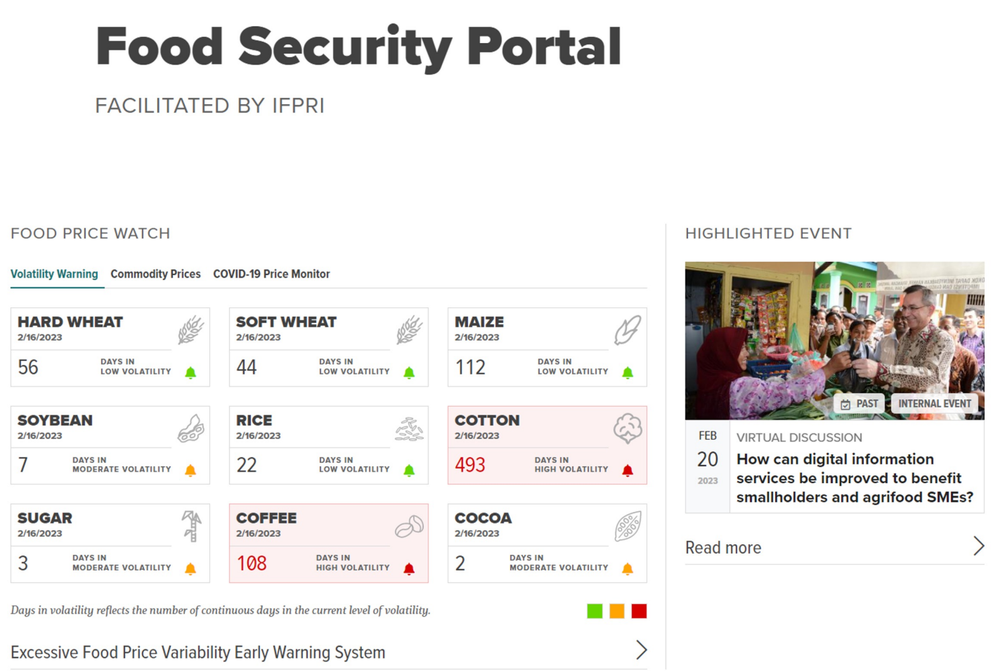
- The strength of this portal is arguably in how it has been arranged, providing a data repository with an in-depth breakdown of various quick data points on environmental performance per country profile/region, all easily available on the introductory page of the portal.
- The UNFCCC should include a repository easily accessible to users where they can find research work done as well as data about their own region.

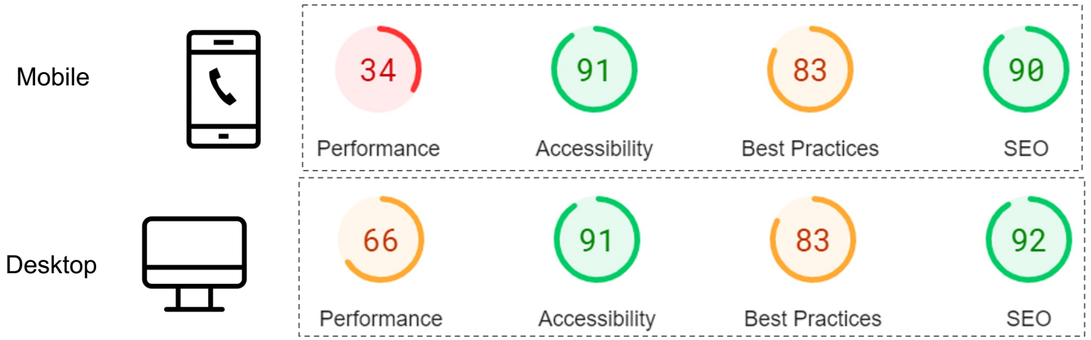


https://africaclimate.opendataforafrica.org/

International Food Policy Research Institute





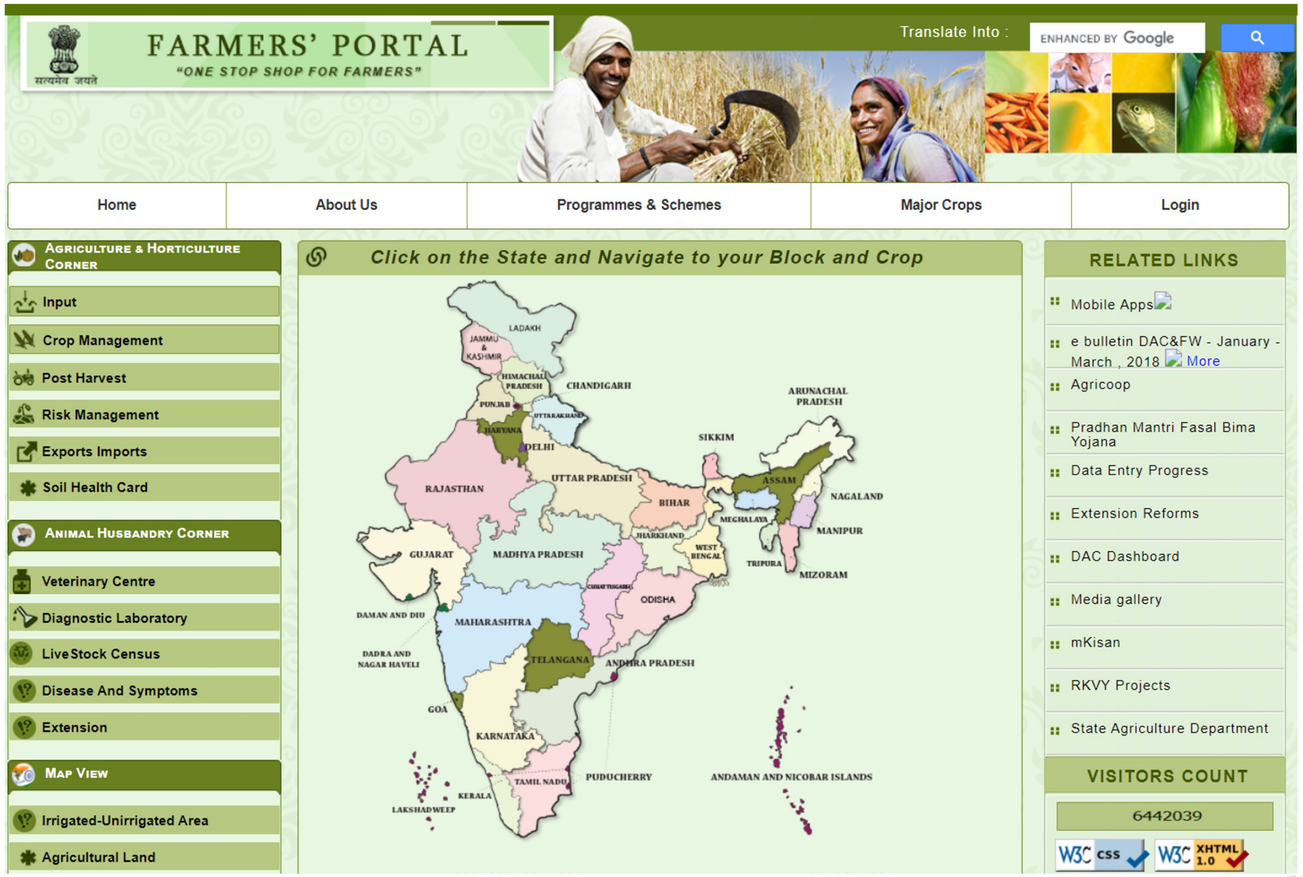


- The portal provides key data to monitor food security situations and food prices, as well as tools for policy analysis and capacity development.
- The portal aims to help policymakers and other stakeholders find appropriate and timely responses to address food insecurity.
- The library tab is well laid out with a search catalog for books, articles, databases and repositories for users to use while searching for educational material as per their needs.

https://www.ifpri.org/project/food-security-portal

Recommended Portal Showcasing Capacity Building

Indian Government Farmers' Portal



- Ideal for farmers' organizations, one of the users the UNFCCC portal is looking to target.
- The portal provides a vast selection that the user would be interested in, from agriculture & horticultural corner to Veterinary information and irrigated/unirrigated areas to educate the user on topics of interest.
- The UNFCCC could emulate this portal to provide educational content to the users which will aid in capacity building.

Mobile

Performance	Accessibility	Best Practices	SEO
57	86	50	58

Desktop

Performance	Accessibility	Best Practices	SEO
78	86	58	70

Performance Summary

Opportunities & Experiments NEW Explore All

Is it Quick? Needs Improvement.

This site was very slow to connect and deliver initial code. It began rendering content with considerable delay. The largest contentful paint time was slower than ideal.

8 8 Pro 10

Is it Usable? Needs Improvement.

This site took a long time to become interactive. It had accessibility issues, none serious.

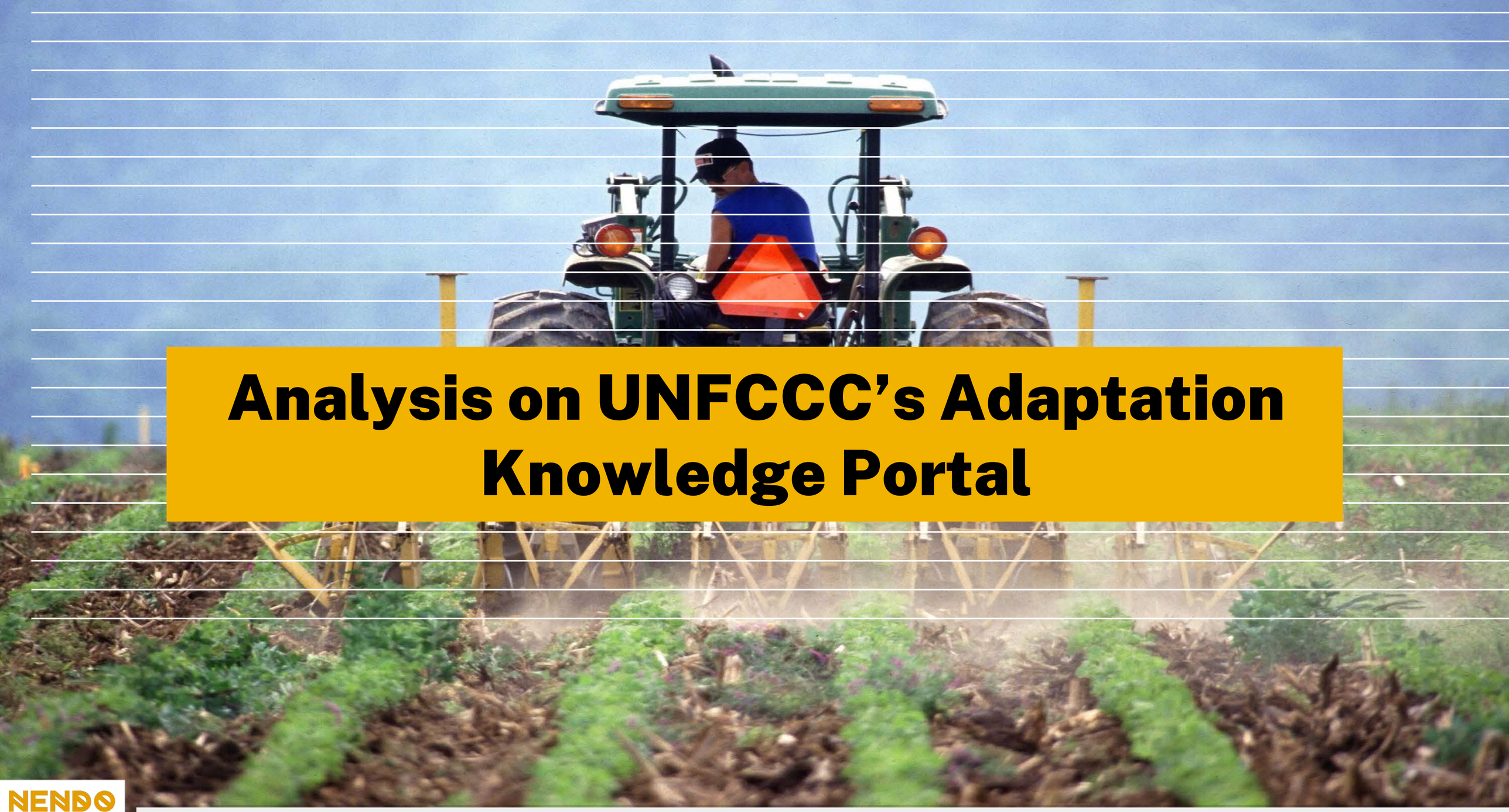
5 5 Pro 5

Is it Resilient? Not bad...

This site had no security issues detected.

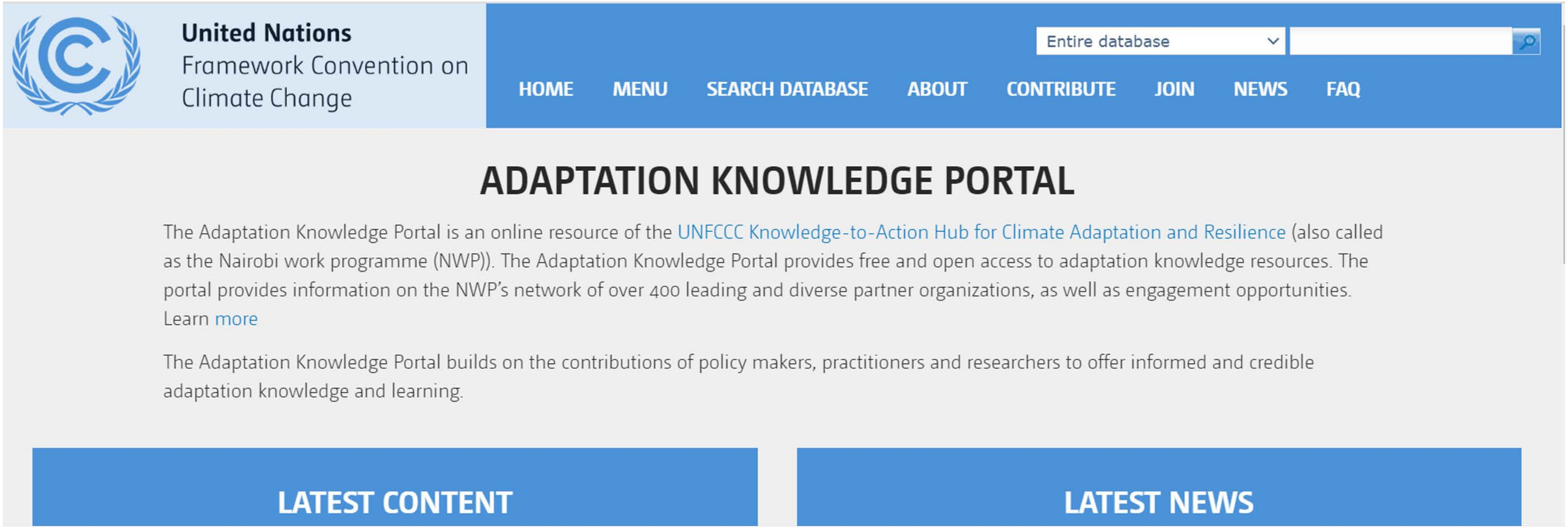
4 4 Pro 9

https://farmer.gov.in/



Analysis on UNFCCC's Adaptation Knowledge Portal

The UNFCCC Adaptation Knowledge Portal



The UNFCCC Adaptation Knowledge Portal

Performance Summary

Opportunities & Experiments NEW

Explore All

Is it Quick? Needs Improvement.

This site was very slow to connect and deliver initial code. It began rendering content with considerable delay. The largest contentful paint time was slower than ideal.

8 8 Pro 11

Is it Usable? Needs Improvement.

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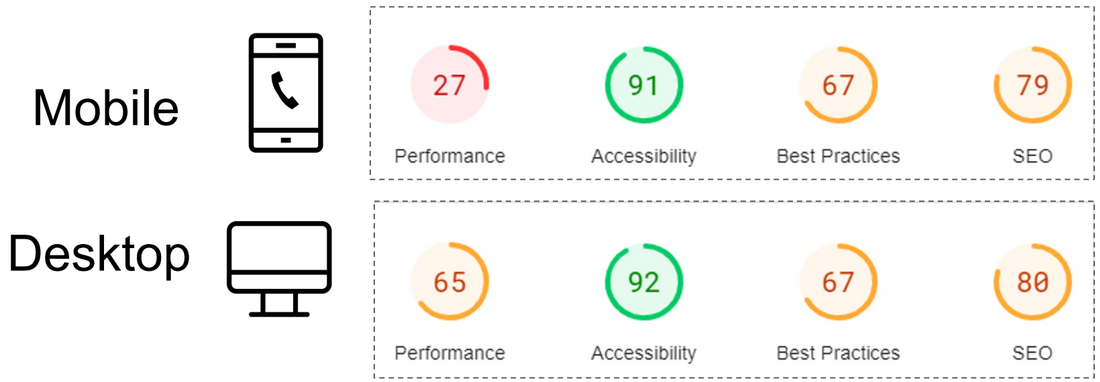
4 4 Pro 4

Is it Resilient? Not bad...

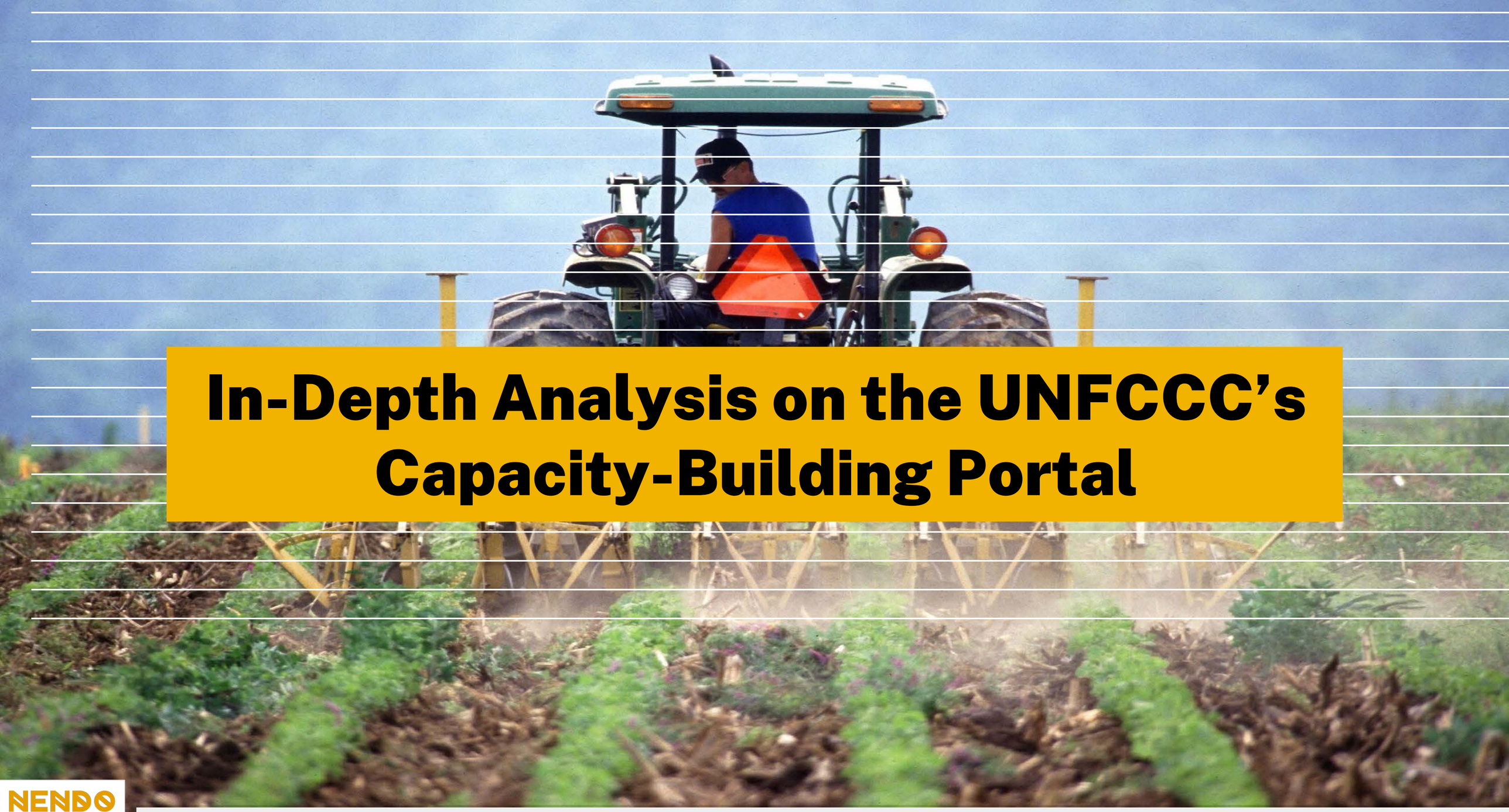
This site had no security issues detected.

2 2 Pro 4



- The UNFCCC Adaptation Knowledge Portal scores the lowest compared to the Capacity building portal. This comes from the low Performance score on both the mobile and desktop version.
- Both SEO and website best practices are also low which would result in having low viewership on the portal.

Source: UNFCCC Adaptation Knowledge Portal



In-Depth Analysis on the UNFCCC's Capacity-Building Portal

UNFCCC Capacity-Building Portal

UNFCCC Capacity-Building Portal

Performance Summary

Opportunities & Experiments NEW

Explore All

Is it Quick? Needs Improvement.

This site was very slow to connect and deliver initial code. It began rendering content with considerable delay. The largest contentful paint time was slower than ideal.

8 8 Pro 11

Is it Usable? Needs Improvement.

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4 4 Pro 4

Is it Resilient? Not bad...

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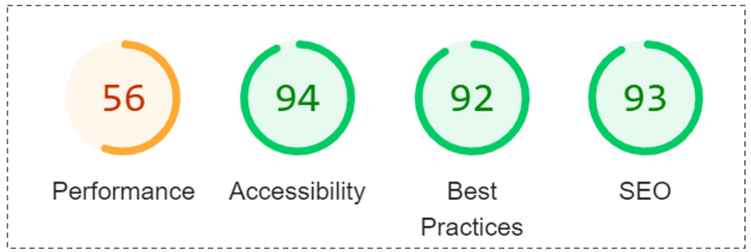
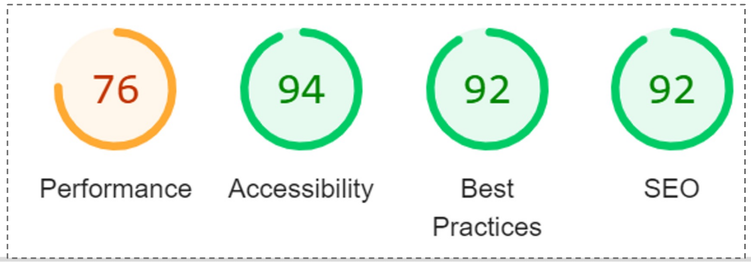
2 2 Pro 4

Mobile



Desktop



- The portal has a great score on SEO as well as best practice and Accessibility. However, the performance is low. This can be attributed to the long loading time of the website which makes it unresponsive when being launched.
- The portal does not have any security issues according to www.webpagetest.org.

Source: https://unfccc.int/capacity-building-portal

Conclusions & Recommendations

Search Engine Optimisation (SEO) Recommendations

The UNFCCC capacity building, as well as the adaptation knowledge portal, were both analysed for performance and **Search Engine Optimisation (SEO)**. The following is the recommendation by Nendo to ensure the page is more optimised and user-friendly.

1. **Improve page load speed**: The UNFCCC adaptive knowledge portal has a relatively slow load time, which can negatively impact SEO. To improve this, the website should consider using a Content Delivery Network (CDN) to speed up content delivery. This will also improve user experience.
2. **Improve content structure**: The websites have a lot of content, but it is not organised in a clear and structured way. The use of subheadings, bullet points, and lists can help improve readability and make it easier for users to find the information they are looking for.
3. **Implement internal linking**: The websites should include internal links between pages to help search engines understand the website's structure and content hierarchy.
4. **Additional Visualisation:** In order to increase the user-friendliness of the two portals, visualisations can be added to act as hyperlinks to specific pages as opposed to the various texts used. The integration of ions and other visual aid will help users navigate the portals easily cutting down the time used to read all categories available.
5. **Optimize meta tags**: The website's meta tags could be optimized for better search engine visibility. The title tag should be concise and descriptive, while the description tag should provide a brief overview of the page content with relevant keywords.

Guiding Questions for Development of the Online Portal

What is the unique value proposition of the portal that other existing platforms do not address?

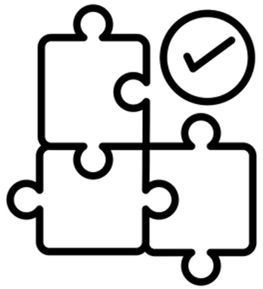
Currently, there is little popular online portal that has a clear analysis of localized content that focuses solely on the impact of climate change on **agriculture** and food security, an area that the UNFCCC portal would look to address.

Why would the intended users visit the portal, and what added value do they get from using it?

The intended user is likely to benefit from simplicity and localized data points available per the country of their interest, as opposed to the more popular globalised content available.

Primary and secondary users

Primary (National Focal points) and secondary users (Farmers and local CBOs).



What opportunities does the portal solve?

- Categories of sectors impacted by climate change as part of the data repository.
- Complement in providing in-depth local data on the impact of climate change split by specific regions in Africa.

Information Management and Governance Structure Considerations

Through the survey, we were able to derive an opinion on who would oversee the governance and management structure of the portal as: The National Focal Points, Research Organizations and UNFCCC Observer Organizations.

How to ensure the quality of the information and services provided by the portal?

- If a group of experts are able to access and populate the online portal successfully.
- Potentially a focal point in the Ministry of Agriculture (as a technical expert) akin to the Designated National Authority role assisting with verification.
- By ensuring that no software bugs / issues are detected that would impede the quality of the website's performance.
- By reviewing the effectiveness of users to accurately self-serve on the portal through the consistent use of a knowledge base, repository videos and written web-hosted documents.

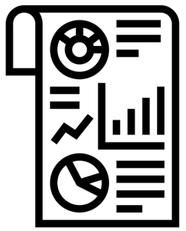
What are the key factors in management and governance structure to ensure the success and sustainability of the portal?

- Ensuring consistent quality assurance of the online portal.
- Appointing a smaller group of experts and volunteers who would be given access to populate the portal.
- Training and documentation of the process behind populating the portal and maintenance of it to ensure continuity.

Digital Features to Consider in the UNFCCC Portal

	Feature	Description
1.	Background	An introduction to what the feature is about and what it will do for the user in the user manual/guide.
2.	Library/Repository	A tab/area that lists a number of case studies, research, and evidence for users to review and download.
3.	Search Feature	This allows the user ease in their search process of the possibly many resources/reports/articles that would be available on the website. The user is therefore able to select a specific resource that they are interested in.
4.	Downloadable Resources	Suitable for offline reading in PDF form (for documents) and possibly CSV/XLS for raw data (if applicable).
5.	FAQ	Frequently asked questions to guide the user into the online portal's offerings and helpful links.
6.	Multiple Country/Region Selection	This would help the user understand the impact on climate change on various countries as per their need/preference. This feature may be availed in the dashboard function or when evaluating data.
7.	No cookie policy	Most portals reviewed did not have an 'Allow all cookies' policy. GDPR compliance will be key for privacy.
8.	Profile Selection	Creating individual links with a breakdown of the various user groups the UNFCCC portal intends to target, which include Farmers' organizations, Climate investors, and other stakeholders.

Social Media Marketing Recommendations for the Online Portal



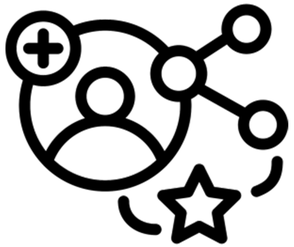
Creation of visual assets such as infographics, data visualisations, and posters to publish across social media. This helps the data and information travel further in visual form. These can form part of a ‘content calendar’ posted (for example) twice a week.

Platforms: Facebook, Twitter, Instagram

Raise awareness on the online portal across social media through webinars. Encourage invited subject-matter experts to publicise their participation (and the video recording and takeaways) on social media thereafter.

Set aside budget for paid ads for reach.

Platforms: LinkedIn and Twitter



Encourage cross-posting and co-publishing with other organisations including UNFCCC observers, national focal points, research organisations, and key experts. Provide them a ‘playbook’ including visuals and sample captions to share with a hashtag for tracking posting and publishing referencing the UNFCCC.

Platforms: Facebook, Twitter, Instagram

Appendices

Appendix 1: Financial Costs & Implications

Introduction

For the online portal to address several Africa and developing countries' needs, it must make certain considerations based on some of the continents' challenges. These include ensuring key stakeholders can experience the online portal on various smartphones, particularly Android phones, which are often the majority. The online portal must also work reliably across high, moderate, and low internet speeds. Accessibility of the website will be valuable to ensure that internet users with disabilities or who require voice assistance can hear the information shared with a screen reader and other accessibility tools.

These considerations must be factored in, requiring finances, talent, and time to achieve this. This appendix includes the following sections focused on financial cost implications and considerations:

- Online Portal - whether to buy, build, or rent/license the technology
- Multi-language support - how to achieve an online portal accessible in multiple languages
- Mobile application development - whether to create mobile applications (apps) for Android and iPhone and the considerations
- Financial sustainability - what areas to consider with the online portal
- The online portal building process – technical sustainability

Appendix 1: Financial Costs & Implications

Online Portal - Buy, Build or Rent/License the Technology

For the upcoming UNFCCC online portal, there is a decision to be made by the UNFCCC secretariat. There are three options. To buy, build, or rent. A table with the pros and cons of each is below for consideration.

	Buy	Build	Rent
Pros	• Speed: this is among the fastest ways to get a website going and often results in the full purchase of an existing standalone solution. • Integration: if the sourcing is done well, this can be integrated into existing technologies and be a cost-effective way to create a seamless experience for end-users. • Price: this can be less expensive up-front as the purchase can allow internal talent to focus on content and other project areas.	• Customisation: great levels of flexibility are afforded when building your own custom solution that fits your exact requirements. • Intellectual Property: when built by you and your IT department, the privacy settings and intellectual property generated belong to UNFCCC.	• Speed: This is a fast way to get the platform up and running. They include active maintenance • Maintenance: The website is constantly updated and retains top talent invested in its ongoing security, user experience, and maintenance. • User Experience: with white labelling, it is sometimes indistinguishable to the end-user that the platform is being rented (or owned/operated by another entity).
Cons	• Integration: when self-hosting, this is often one of the more expensive challenges with buying software and building the integrations into existing technologies and platforms. • Training: there is often added work with training and capacity building for stakeholders. Some software vendors will charge for this service.	• Timelines: custom software solutions often take a long time to build. • Costs: they can be more affordable in some ways but require either outsourcing, subcontracting, or internal staff to work on them - all of which have implications. • Maintenance: custom software can be harder and costlier to maintain as it requires specialised support over time for training, support, and ongoing adjustments.	• Price: The price of renting is often quite high, especially over time, with monthly or annual fees recurring perpetually. • Ownership/IP: It can be unclear who owns the platform's intellectual property as this is often owned by the firm renting it.

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Multi-Language Support

In 2023, basic multi-language support is becoming increasingly available through advances in internet and content translation technologies. Online portal developers can install free and paid modules and website add-ons onto websites to translate the contents into major global languages. The user interface for access is often a button to change the language with the flag of the desired language.

For context and accuracy, it is often valuable to have the involvement of translators to validate random samples of what has been generated by the technology-based translations. If the degree of accuracy is low, it may require translation by professional translators. If it is high, there's greater confidence in using it on websites. These options are used on millions of websites to make them more accessible.

Mobile Application Development

A mobile application is a valuable addition to many websites. However, the price of creating a dedicated mobile app can be costly. On HowMuchToMakeAnApp.com, a mobile app available in both the Google Android and Apple iOS app stores with a basic set of features, it would be $87,500. This is an estimate on the lower end, depending on the functional specifications of the website. The maintenance cost would also differ as it would need security and user experience changes.

The wiser alternative would be creating the website with a robust mobile web experience. This means that the navigation and user experience of the website is reliable and works well on various mobile phones. That would be a wiser investment.

A cost/benefit analysis would be needed to determine the proportion of users who would download the mobile app. If this number is small, say less than 5% of all users, investing in a dedicated mobile app may not make as much sense. To counter this, a modern way of building flexible websites that double up as mobile apps is to create a Progressive Web App (PWA). These appear like mobile apps, but instead of loading a customised mobile application, they load the mobile version of the website; most users can’t tell the difference. A PWA would require a deliberate design and strategic decision in building the website to allow it to be built and deployed in both app stores. PWAs allow for lower costs of maintenance.

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Financial Sustainability of an Online Portal

The funding to create this online portal would go to several key areas:

1. Creation: to fund the design, development, and deployment of the online portal
2. Content: to create, capture, and input the content for the online portal
3. Maintenance: to maintain the online portal regularly

Each of these areas has considerations that need to be made to ensure that the funding is adequately allocated and acquired. During the creation phase, the question is whether to build, buy, or rent/license the online portal. This decision will determine the up-front costs and how quickly it can be deployed.

The content phase is often underestimated. This involves research to determine which food security and agriculture stakeholders there are, their actions and whether they are relevant to the online portal. If the goal is to have 1,000 organisations on the online portal, then there are aspects to consider including:

- Research - who finds and categorises the organisations. Is it the nations themselves who put out open calls? UNFCCC and UN-affiliated bodies that do this? Public/private partners?
- Are organisations invited to self-register, or can any institution visit the website and input itself for consideration? Is it automatic, i.e. you register and you appear on the website, or you register, are vetted, and then appear on the website? If so, who does this vetting? Is it automated or done by people such as a panel of experts?

Thanks to technology advancements, UNFCCC's online portal developers can automate some of these activities. Still, some - in the early stages of launch - require human investment in research, time, and uploading content into the online portal to start. Some would consider this part of the curation and moderation - selecting what types of organisations can get in.

In addition, the UNFCCC Secretariat must determine how the price of creation, content, and maintenance would be conducted. This may be funded in full or in part by the UNFCCC Secretariat, members, or public/private partners may fund this in full or in part.

Appendix 1: Financial Costs & Implications

The Online Portal Building Process (Technical Sustainability), part 1

The process of building an online portal will likely follow the following key stages. These will depend on resources (capital, talent, etc.)

Pre-Project

Scoping - determining the scope (blueprint) for the online portal:

1. **Project Scope Definition** - The key deliverable is a scope of work summing up the expectation of the website project and guiding ways of working between those building it and those commissioning it.
2. **Information Architecture** - The key deliverable is a sitemap - a flowchart diagram resembling an organogram showing the hierarchy of all the pages on the website and how they relate, and where they are nested under.
3. **Functional Specifications** - The key deliverable outlines the preferred functions and features in phases for delivery of the online portal. A specific section to focus on is that of users - who are they, what permission levels do they have, what activities do they conduct, what information is required for them, what devices are they likely to access the website, and so on.

These documents and the context of where the online portal is expected to reside (e.g. hosted and domiciled with an offline server in a particular country, e.g. Kenya, Switzerland, Ethiopia, or the United States) can help determine how it is built.

The Online Portal Building Process (Technical Sustainability), part 2

Project

The project itself requires six distinct phases:

1. Wireframing: Using the Project Scope, Functional Specifications, and Information Architecture, a series of lightweight visual diagrams with boxes and short descriptions (wireframes) are used to show what the potential website could appear like on a desktop, tablet, and mobile phone. These are created and can be adjusted based on feedback from prospective users and experts.
2. Design: Using the wireframes, more higher-fidelity designs are created for key pages to show how they would look and feel. These are made and approved for the back-end to be developed to bring the features and functionalities to life in a sequence (some features will take longer to build but may come once a set of minimum viable features are developed).
3. Development: Using approved designs, the online portal would then have its back-end or software engineering and web development take place. This builds on the Information Architecture, Functional Specifications, Scope, Wireframes, and Designs. A 'staging site' shows a small group how the online portal is shaping up over time.
4. Data Entry & Content Transfer: After development is approved, a process of adding data and transferring content into the developed portal occurs. This can also happen with a smaller group of experts or volunteers who will be given access to populate the online portal.
5. Testing & Quality Assurance: Before going live, the website undergoes testing on various devices such as mobile phones, tablets, and desktop computers. Even different browsers such as Chrome, Safari, Edge, and more are used to see if the website performs well with all of them. In addition, quality assurance is done to look for content, technical, and software bugs/issues. This is when UNFCCC may launch the online portal in 'alpha' (an early pre-release version for testing) or 'beta' (a stable release with most features but still going through changes and incorporating user feedback) before a full-scale rollout.

After all these phases are complete, training and documentation are required for key stakeholders. This can involve the creation of a knowledge base and repository of videos and written web-hosted documents to guide prospective users on how to perform certain tasks using the online portal.

Appendix 2: Nendo's Project Terms of Reference

- **Architecture, functional requirements, and user group**
  - What would be the targeted user group and essential functional requirements of the online portal?
  - What is the unique value proposition of the portal that other existing platforms do not address?
  - Why would the intended users visit the portal, and what added value do they get from using it?
  - What existing problems or shortcomings does the portal solve?
  - Considering industry trends and best practices, what are typical usage scenarios of the portal by different user groups, and how could this evolve?
  - Given the experience of other portals, what could be the results framework of the online portal?

- **Recommendations on management and governance structure**
  - What are the key factors in management and governance structure to ensure the success and sustainability of the portal?
  - How to ensure the quality of the information and services provided by the portal

- **Financial costs**
  - What are the cost implications, including either building from scratch or leveraging existing portals through harmonization?
  - What are the cost implications for having a multi-language version of the portal?
  - What are the cost implications of developing a mobile App for the online portal?
  - How to ensure the financial and technical sustainability of the portal?

Appendix 2: Nendo's Project Terms of Reference

- **Stocktaking, benchmarking, best practices and lessons learned from existing relevant portals.**
  - What are the most relevant online portals? Are there notable opportunities to avoid duplications by enhancing synergies? How can the new portal create synergies and use these existing provisions?
  - Provide examples of other online platforms with relative strengths and weaknesses

Appendix 3: Africa's Mobile/Internet Users Challenges

- In Sub-Saharan Africa, 40% of the adult population are now connected to mobile internet services. However, another 44% live in areas covered by mobile broadband networks but do not yet use mobile internet services (the usage gap).

- By the end of 2021, 515 million people subscribed to mobile services in Sub-Saharan Africa, representing 46% of the population – an increase of almost 20 million on 2020.

- However it is projected that there will be nearly 100 million new subscribers by 2025, taking the total number of subscribers to 613 million (50% of the region's population).

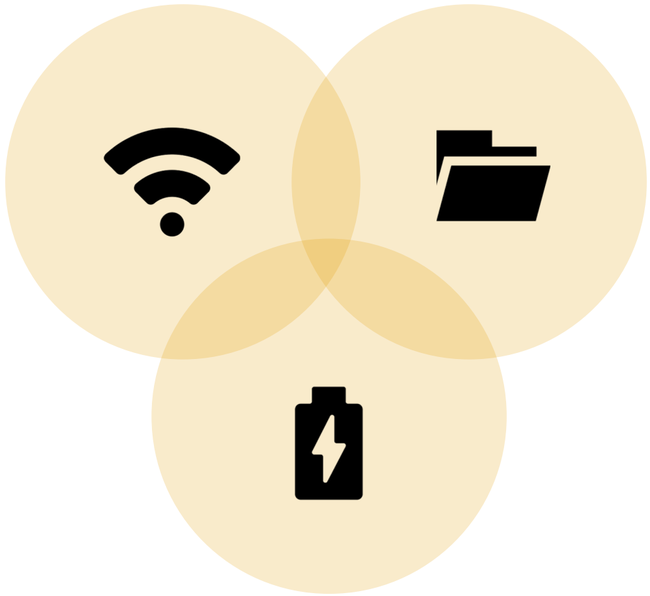
Source: GSMA Mobile Economy - Sub Saharan Africa(2022)

Appendix 4: Affordability, Literacy & Content Gaps

- The “usage gap” is a strong reminder of our societies' social, cultural and generational divides.
  - **Affordability.** The cost of handsets, energy and data are still high for some populations. While low-cost solutions are improving for handsets as they are for solar-energy kits and networks, further collaboration by all stakeholders and governments remains essential to lower barriers and facilitate access for all.
  - **Lack of digital skills and literacy.** The remaining unconnected population is disproportionately illiterate or has low levels of literacy. The digital transformation of our societies brings more opportunities for the connected, but makes digital illiteracy the new frontier of inclusion.
  - **Lack of content in local languages** represents a major issue outside of the US, EU and China. Content and services must be relevant to citizens and meet their needs.

Source: 3 reasons why most Africans aren't on the internet – and how to connect them by Stephane Richard - World Economic Forum

Appendix 5: App Challenges on Data, Space, & Battery



DATA
Consuming Fewer Megabytes

SPACE
With Smaller Apps

BATTERY
By Optimising Performance

Source: Nendo's *State of Mobile Data Report (2019)*

- The third one could be considered and "access gap" mostly financial that limits their ability in the following ways:
  - Africans have to contend with the economics of taking their limited earnings and managing the purchase of smartphones that are relatively more expensive compared to feature phones.
  - When end-users are grappling with digital services, mobile apps, websites, and experiences they care about saving 3 things:
    - **Space on their phones:** they want the storage for things they care about such as photos of their loved ones and apps they use on a regular basis. Taking up space on the phone may lead to being uninstalled.
    - **Megabytes:** apps must find ways to operate in a 'lite' way meaning they send and receive as few extra megabytes as possible. The idea here being to save the end-user the cost of maintaining and using the app.
    - **Battery life:** it costs money to charge and maintain the phones when there's no solar or on-grid electricity available. When apps are built to include features that optimise on the battery life this is a major win for the African digital end-user.

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