Findings From Tendrel Platform

Balancing Economic Development and Environmental Conservation

Findings from the Citizen Engagement Platform (TENDREL)

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Introduction

Central to Bhutan's Gross National Happiness philosophy is balancing material pursuit with environmental conservation, cultural preservation and spirituality. A balanced approach to development is more urgent as the world grapples with the consequences of the climate crisis that affect all aspects of life from food production to livelihood and the liveability of the earth. Pursuing sustainable development is complex and challenging as issues are interconnected creating a tension between development and conservation and it is baffling for leaders.

Based on the seed question provided by the National Council of Bhutan -- How do you balance economic development and environmental conservation? -- the 2022 summer cohort of the Youth Initiative took on the development-conservation tension to discuss how the two could coexist in an ever changing world. 30 youths from diverse backgrounds delved into the challenges and complexities of pursuing holistic and sustainable development.

A panel of subject experts engaged with the members on the topics of Gross National Happiness development philosophy, urban development, environment, economy, and food security and green financing. From the five day exercise, the participants formulated 32 solutions to the seed question, which was published on the Citizen Engagement Platform.

BCMD organised an advocacy campaign on social media to create awareness on the Citizen's Engagement Platform (TENDREL) and increase engagement on the poll. The Tendrel platform engaged over 4000 people from across different Dzongkhags to vote on the proposed solutions.

Please scan to engage on the Citizen Engagement Platform (TENDREL).

Data Analysis

The 32 solutions collected from the youth camp were grouped into 9 major themes. The respondents could either 'agree' 'disagree' or 'neutral/pass' from voting on a solution and if interested could provide additional solutions[1].

This report consists of demography of the respondents followed by an analysis for most popular, most opposed and contentious recommendations. Gender, age and district analysis was also conducted to see if there was any pattern or differences in responses to the poll. A thematic analysis was conducted to gauge most popular responses under each theme.

Limitations

- This is not a research study but a poll to gauge how respondents react (agree or disagree) to the suggested solutions to the challenges of addressing climate change.

- The total number of respondents is not to be mistaken for sample size.

- As the poll was online, it could have excluded those who are not on social media or those who do not have access to the internet.

- The findings from this poll are from the youth who attended the Youth Initiative Summer Camp in 2022, new responses were not received from the nationwide polling.

[1]The new solution was moderated by the National Council Secretariat.

Key Findings

The pilot campaign of the Tendrel platform received over 4000 responses. Users from various age groups from each one of Bhutan's 20 dzongkhags, responded "agree," "disagree," or "neutral/pass" to a set of 32 answers to the question, "how do you balance economic development and environmental conservation?"

There are several interesting findings from this survey:

1. On average, 87% of users agreed with a given answer, while 4.4% disagreed, and 8.6% were unsure.

2. The most popular answer, that we must "educate the public on the reduce, reuse, recycle, and upcycle," received 94.5% agree and about 2% disagree. While the least popular answer, that we must "monitor import of cheap fashion and disposal of fabric wastes," received only 75% agree and over nearly 12% disagree.

3. There is a statistically significant difference in how men and women respond. Men were more likely to say they disagreed with a response, while women were more likely to say they were unsure about it. Given that these genders had identical likelihood of saying they agreed with an answer, this suggests that conviction is a gendered trait.

4. There are statistically significant differences in how various age groups respond to answers.

5. There are patterns in how various dzongkhags differ in their responses with others. Dzongkhags like Thimphu, Chhukha, and Paro saw high agree rates for business-centred responses, while others like Bumthang favoured more environmental conservation.

6. The answers also suggested several economic opportunities, such as eco-friendly tourism, locally sourcing raw materials, ICT infrastructure, etc.

Demographics

TOTAL RESPONDENTS: **4005**

THAT ANSWERED OUR CAMPAIGN QUESTION,
WE HAD PARTICIPANTS FROM
ALL RELEVANT AGE GROUPS IN BHUTAN.

53% OF VOTERS WERE MALE ●
46.6% OF VOTERS WERE FEMALE ●
0.5% OF VOTERS WERE NON-BINARY. ●

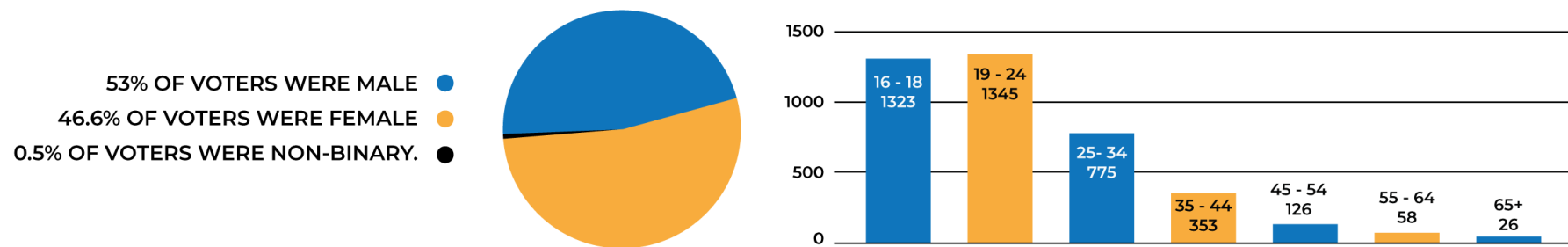| Age	Count
16 - 18	1323
19 - 24	1345
25- 34	775
35 - 44	353
45 - 54	126
55 - 64	58
65+	26

Figure 1. Demography

The poll on balancing economic development and environmental conservation engaged 4005 respondents from across the country.
53% were male and 46.6% female followed by 0.5% who identified themselves as non-binary. The poll had respondents from all 20 districts. Thimphu has the highest number of respondents at 648 followed closely by Trashiyangse at 573. Gasa has the least number at 16.
33.6% were in the age range of 18-24 years followed by 33% in the age range of 16-18 years.

To ensure a high engagement rate, users of the platform only had to answer the campaign question by agreeing, disagreeing, or saying they were unsure about pre-developed responses. There were 32 such responses developed by 30 youths who attended the 5-day-day Camp on balancing economic development with environmental conservation The responses were categorised into nine themes – waste management, education, geographic, infrastructure, business, policy, research and development and technology.

Response Superlatives

The most popular answer was "Educate the public on reduce, reuse, recycle and upcycle" with 94.5% in agreement and 2% disagreement. The least popular response was "Monitor import of cheap fashion and disposal of fabric wastes" with 75% of agreement and 12% disagreement. The current poll shows a similar trend as the poll on "How to mitigate climate change?" Both polls show greater public support to solutions related to education and least support to policy-related interventions that curtail consumer choice.

Most Popular
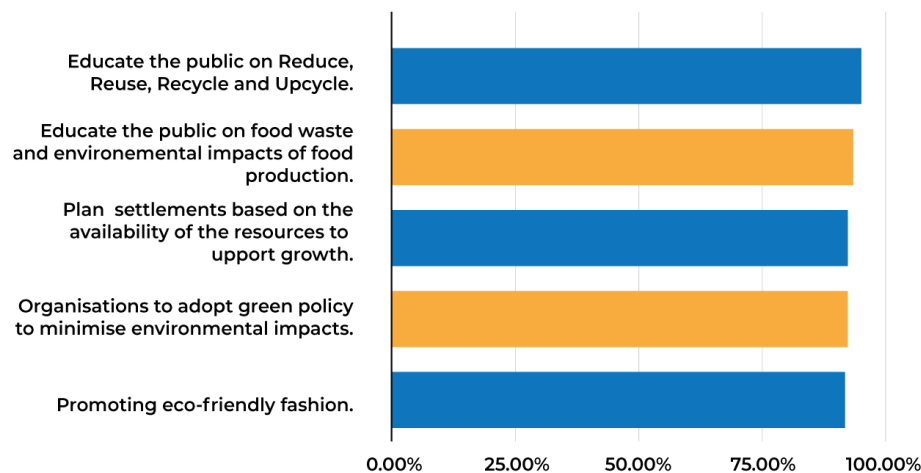The top five most popular answers, as measured by how high their agree% were, are:

Figure 2. Top 5 solutions with the highest percentage of agreement

Most Opposed
The top five least popular answers, as measured by how high their disagree% were, are:
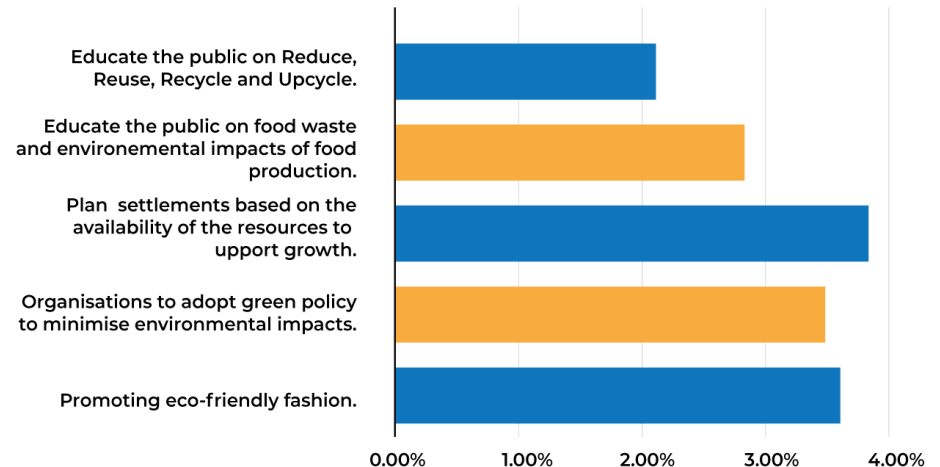

Figure 3. Top 5 solutions with the highest percentage of disagreement

Most Controversial
The following were the five most controversial answers. These are the answers that saw the largest difference between how many people agreed and disagreed with them. In other words, these are the answers that drew the biggest difference in people's responses.
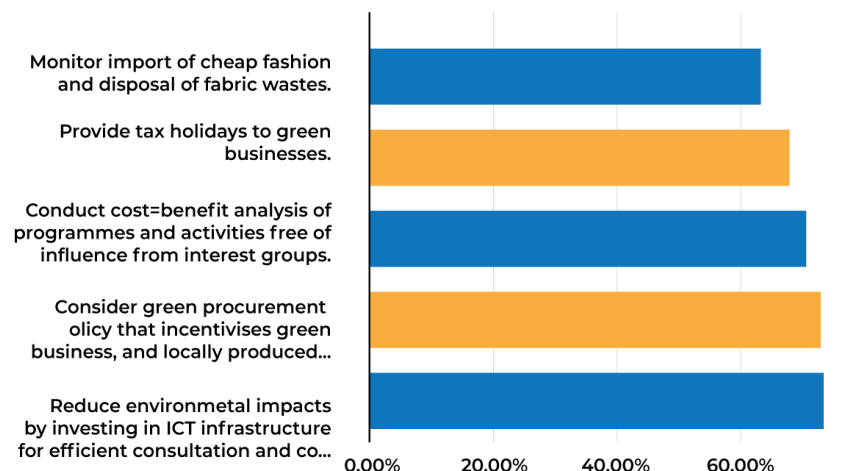
5

MOST CONTROVERSIAL ANSWERS

Figure 4. Top 5 solutions with the highest percentage of divisiveness

Figure 5. Top 5 solutions with the highest percentage of consensus

However, only three of these were statistically significant, meaning that we can claim these three were statistically controversial.
- Monitor import of cheap fashion and disposal of fabric wastes. (P-value = 0.0009)
- Provide tax holidays to green businesses. (P-value = 0.01)
- Conduct cost-benefit analysis of programmes and activities free of influence from interest groups. (P-value = 0.08)

Least Controversial
The following are the least controversial answers, i.e., these answers drew the least difference in opinion from respondents.
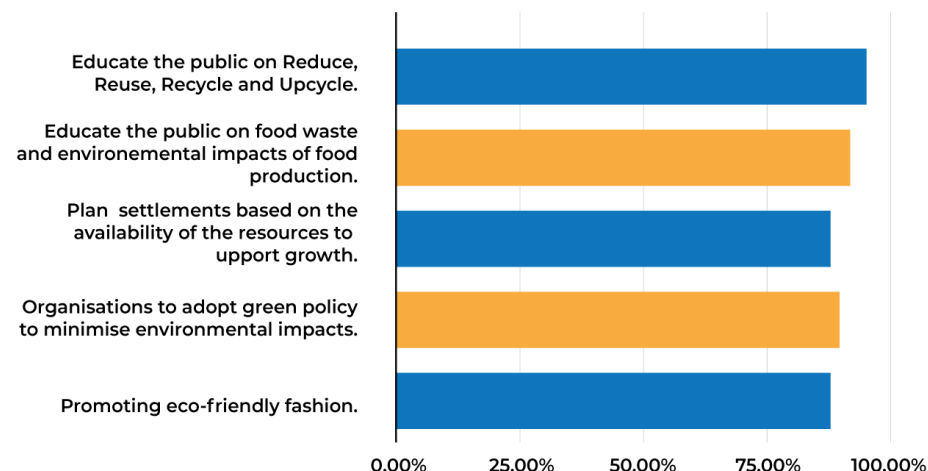
However, only one was statistically significant.
- Educate the public on Reduce, Reuse, Recycle and Upcycle. (P-value = 0.05)

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Answering Patterns by Gender

The following graph compares responses by male and female based on which gender is more likely to give that response. There is almost an equal split for agree, a slight lean towards women for unsure, but a large lean towards men for disagree. This means that if a response is "disagree," the response is about 1.3 more likely to be from a man than from a woman.

HERE IS AN INTERESTING PATTERN

MEN

WERE MUCH MORE LIKELY TO SAY THEY DIAGREED WITH AN ANSWER THAN WOMEN.

WOMEN

WERE MUCH MORE LIKELY TO SAY THEY WERE UNSURE ABOUT AN ANSWER.

MEN AND WOMEN WERE EQUALLY LIKELY TO SAY THEY AGREED WITH AN ANSWER.
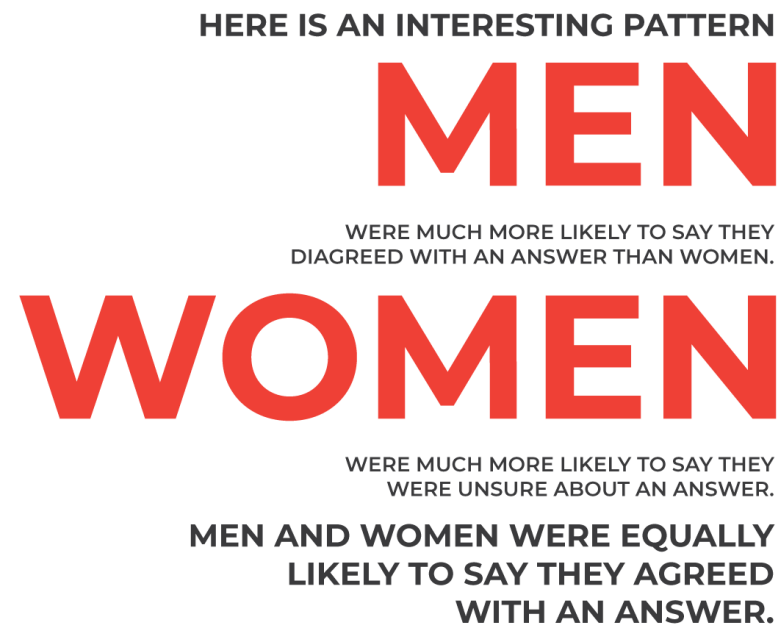
Figure 6. Answering patterns by gender

These genders had significant differences in the following answers:
- **Differences in agree:**
  - "Invest in ongoing assessment of environmental and social impacts of economic activities" - where women were more likely to agree than men.
  - "Promoting eco-friendly fashion" - where women were more likely to agree than men.
  - "Educate the public on food waste and environmental impacts of food production" - where, once again, women were more likely to agree than men.

- **Differences in disagree:**
  - "Use technology to link producers, suppliers, and consumers" - where men were slightly more likely to disagree than women.
  - "Organisations to adopt green policy to minimise environmental impacts" - where women were slightly more likely to disagree than men.

- **Differences in unsure:**
  - "Enforce a spatial planning act to manage urban design and development"
  - "Consider green procurement policy that incentivises green business, and locally produced products over imported goods" "Monitor import of cheap fashion and disposal of fabric wastes."
  - "Conduct cost-benefit analysis of programmes and activities free of influence from interest groups."

The survey collected responses from three options for gender including non-binary, however only male and female had enough respondents to be useful in the statistical analysis for this section.

There is a statistical significance in how males and females respond to these answers. In general, men were more likely to say they disagree with an answer than women, who were more likely to say they were unsure.

Answering Patterns by Age

Figure 7. Percentage of answering patterns by age

To find out if any age group responded to an answer differently than others, we first calculated the proportions of Agree, Disagree, and Unsure for each age group. We did that for individual questions and for the entire campaign (this is shown above), We then took the age group averages for each question, found their averages, then calculated a Z score for each age group for each question. This allows us to answer questions like, "do 16 - 18 year olds think differently about answer #4 than others?"
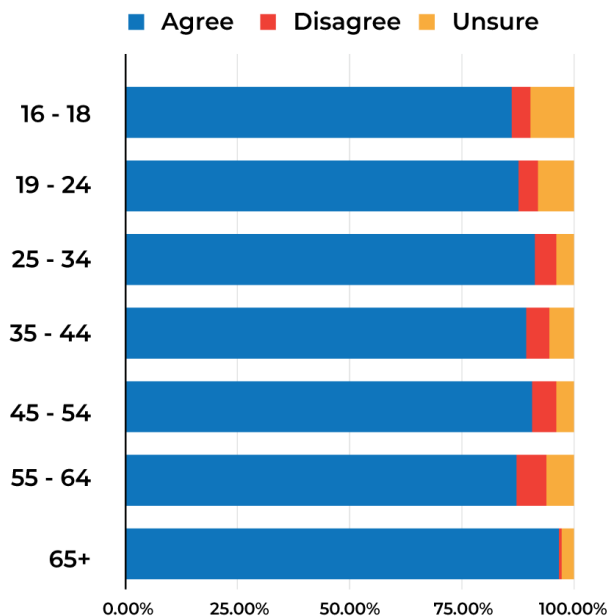
We found the following:

- Answers where 16 - 18 year olds have statistically significant, different responses:
  ○ They are most likely to disagree with the following:
    ▪ Consider green procurement policy that incentivises green business, and locally produced products over imported goods.
    ▪ Monitor import of cheap fashion and disposal of fabric wastes.
    ▪ Disseminate research findings on the environment through creative means so that it is used to make decisions.
    ▪ Relevant agencies to educate the public and the private sector on eco-friendly house design and construction materials.
    ▪ Proper spatial planning and designated areas for landfills and drop-off points can help in waste management
    ▪ To curb the rural urban disparities, equal developmental activities and distribution of resources need to be taken into action.

- Answers where 45 - 54 year olds have statistically significant, different responses:
  - They are most likely to disagree with the following:
    - Provide tax holidays to green businesses.
    - Invest in ongoing assessment of environmental and social impacts of economic activities.

  - They are most likely to agree with the following:
    - Poor monitoring and evaluation of waste disposal and management, therefore periodic monitoring and evaluation is required

- Answers where 55 - 64 year olds have statistically significant, different response:
  - They are most likely to disagree with the following:
    - Plan settlements based on the availability of the resources to support growth.
    - Enforce a Spatial Planning Act to manage urban design and development.
    - Update and harmonise Acts and Laws across sectors to strengthen enforcement of environmental regulations.
    - Organisations can collaborate and start upcycling units to reduce waste and environmental impacts.
    - Standards to measure construction methods & monitor the entire process to encourage adaptation for renewable sources of materials & energy.
    - Invest in nutritional testing and certification of local produce to boost the economy.
    - Educate the public on Reduce, Reuse, Recycle and Upcycle.
    - Promoting eco-friendly fashion.
    - Educate the public on food waste and environmental impacts of food production.

- They are most likely to be unsure about:
  - Conduct cost-benefit analysis of programmes and activities free of influence from interest groups.
  - The private sector and the business communities need to be educated on environmentally conscious business practices and values.

- They are most likely to agree with the following:
  - Make information about the environment accessible on public domains through a data centre.
  - Reduce environmental impacts by investing in ICT infrastructure for efficient consultation and coordination with local governments.

- Answers where 65+ year olds have statistically significant, different responses:
  - They are most likely to disagree with the following:
    - Educate lawyers on environmental justice for fair enforcement of environmental laws, regulations and policies
    - Diversify the tourism industry with more eco-friendly programmes and activities to promote economic development.

  - They are most likely to agree with the following:
    - Poor monitoring and evaluation of waste disposal and management, therefore periodic monitoring and evaluation is required
    - Consider green procurement policy that incentivises green business, and locally produced products over imported goods.

- They are most likely to be unsure about:
  - Reduce environmental impacts by investing in ICT infrastructure for efficient consultation and coordination with local government.

Set emission limits and regular strict monitoring and evaluation to be conducted.

- They are less likely to be unsure about:
  - Plan settlements based on the availability of the resources to support growth.
  - Enforce a Spatial Planning Act to manage urban design and development.
  - Provide tax holidays to green businesses.

Set emission limits and regular strict monitoring and evaluation to be conducted.

Answering Patterns by Dzongkhag

In general, people from various dzongkhags voted in the following pattern:
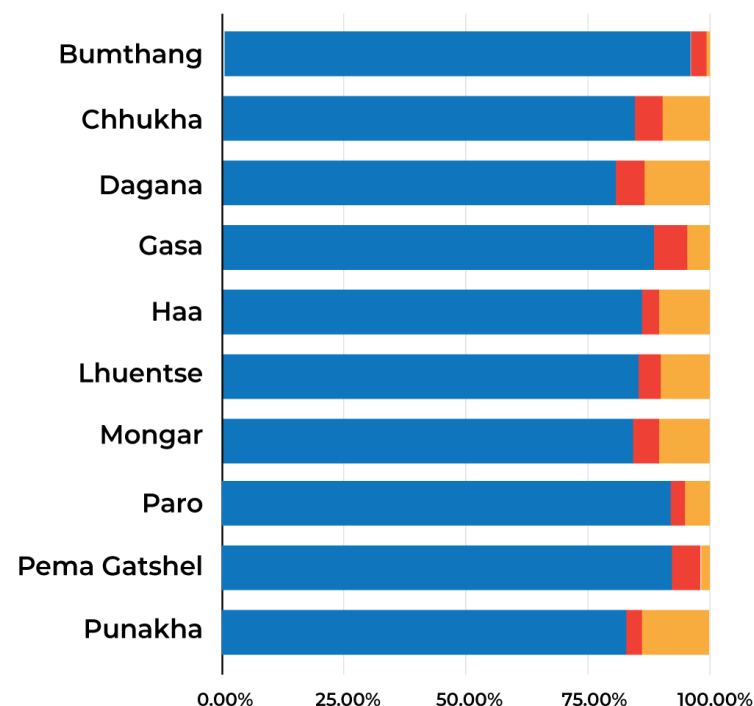
Dzongkhag Profiles
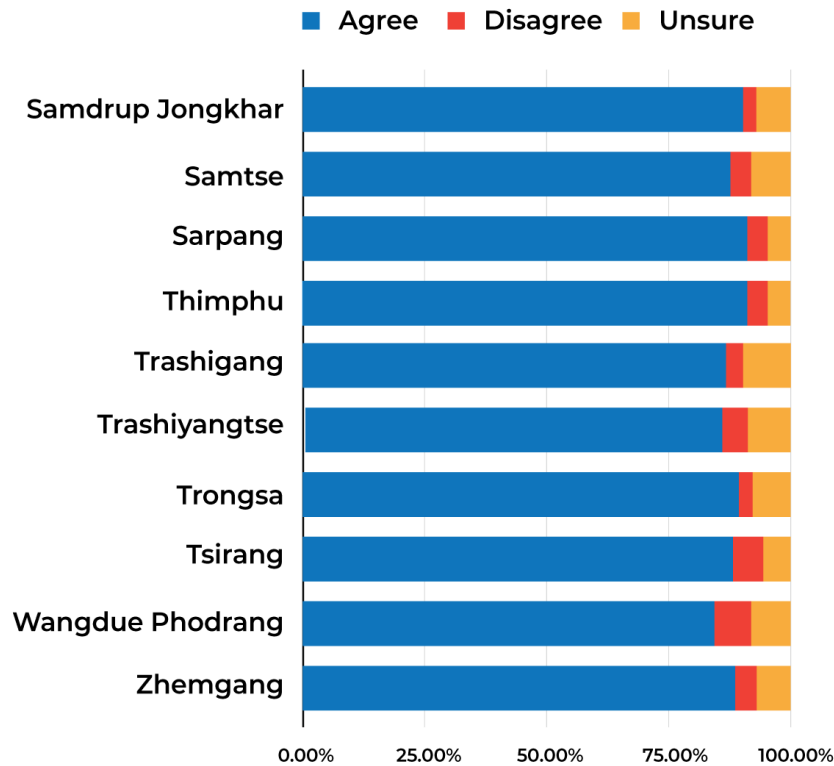
Figure 8. Percentage of answering patterns by Dzongkhag

We wanted to find out which answers were the most popular (highest agree %), least popular (lowest agree %), and most opposed (highest disagree %) in each dzongkhag. Studying this might be helpful to understand the voting patterns of each dzongkhag, and the receptivity of the community to programmatic or policy interventions.

A visual analysis of this pattern shows that there is a variety in the way they vote. Comparatively more respondents from Dagana and Punakha chose "unsure" and more respondents from Bumthang chose "agree" on seed responses provided and more respondents from Gasa and Wangdi tended to "disagree" with the responses provided in the poll.

Dzongkhag Profiles

	Most Popular	Least Popular	Most Opposed
Bumthang	Consider green procurement policy that incentivises green business, and locally produced products over imported goods. (100%)	Enforce a Spatial Planning Act to manage urban design and development. (85.4%)	Create awareness about fiscal incentives to promote green businesses. (9.1%)
Chhukha	Educate the public on Reduce, Reuse, Recycle and Upcycle. (95.9%)	Conduct cost-benefit analysis of programmes and activities free of influence from interest groups. (67.6%)	Conduct cost-benefit analysis of programmes and activities free of influence from interest groups. (13.5%)
Dagana	Organisations can collaborate and start upcycling units to reduce waste and environmental impacts. (95%)	Monitor import of cheap fashion and disposal of fabric wastes. (45.9%)	Monitor import of cheap fashion and disposal of fabric wastes. (21.6%)
Gasa	Proper spatial planning and designated areas for landfills and drop-off points can help in waste management (100%)	Provide tax holidays to green businesses. (50%)	Monitor import of cheap fashion and disposal of fabric wastes. (20%)
Haa	Educate the public on food waste and environmental impacts of food production. (100%)	Monitor import of cheap fashion and disposal of fabric wastes. (56.7%)	Monitor import of cheap fashion and disposal of fabric wastes. (16.7%)
Lhuentse	Plan settlements based on the availability of the resources to support growth. (93.8%)	Provide tax holidays to green businesses. (76.9%)	Monitor import of cheap fashion and disposal of fabric wastes. (9.9%)
Mongar	Plan settlements based on the availability of the resources to support growth. (100%)	Conduct cost-benefit analysis of programmes and activities free of influence from interest groups. (67.1%)	Reduce environmental impacts by investing in ICT infrastructure for efficient consultation and coordination with local governments. (14.5%)

Paro	The private sector and the business communities need to be educated on environmentally conscious business practices and values. (96.6%)	Provide tax holidays to green businesses. (78%)	Provide tax holidays to green businesses. (11.3%)
Pema Gatshel	Promoting eco-friendly fashion. (100%)	Make information about the environment accessible on public domains through a data centre. (75%)	Make information about the environment accessible on public domains through a data centre. (25%)
Punakha	Promoting eco-friendly fashion. (94.8%)	Monitor import of cheap fashion and disposal of fabric wastes. (61.1%)	Monitor import of cheap fashion and disposal of fabric wastes. (13%)
Samdrup Jongkhar	Educate the public on food waste and environmental impacts of food production. (94.7%)	Provide tax holidays to green businesses. (82.6%)	Provide tax holidays to green businesses. (7.1%)
Samtse	Plan settlements based on the availability of the resources to support growth. (96.1%)	Monitor import of cheap fashion and disposal of fabric wastes. (74.5%)	Monitor import of cheap fashion and disposal of fabric wastes. (15.4%)
Sarpang	Invest in ongoing assessment of environmental and social impacts of economic activities. (100%)	Monitor import of cheap fashion and disposal of fabric wastes. (78.3%)	Provide tax holidays to green businesses. (12.8%)
Thimphu	Promote eco-friendly business values such as locally sourcing raw materials and production of multiple produce from one raw material. (98.3%)	Provide tax holidays to green businesses. (77.8%)	Provide tax holidays to green businesses. (12.8%)
Trashigang	Invest in Research & Development to reduce environmental degradation from transport of imports that have local substitutes. (100%)	Reduce environmental impacts by investing in ICT infrastructure for efficient consultation and coordination with local governments. (70.6%)	Monitor import of cheap fashion and disposal of fabric wastes. (15.8%)
Trashi yangtse	Plan settlements based on the availability of the resources to support growth. (97.2)	Monitor import of cheap fashion and disposal of fabric wastes. (71.8%)	Monitor import of cheap fashion and disposal of fabric wastes. (14.7%)

Theme-wise Analysis

The responses from the YI Camp are organised into nine themes with some items/responses cutting across multiple themes (See annex 1). Under this section, the report presents the most popular responses under each thematic group.

Education

Under the Education theme, the most popular responses were Educate the public on Reduce, Reuse, Recycle, and Upcycle (94.58%), Educate the public on food waste and environmental impacts of food production (92.94%), and The private sector and the business communities need to be educated on environmentally conscious business practices and values (90.59%).

Waste Management

Under the Waste Management theme, the most popular responses were Educate the public on Reduce, Reuse, Recycle and Upcycle (94.58%), Poor monitoring and evaluation of waste disposal and management, therefore periodic monitoring and evaluation is required (88.66%), and Educate the public on food waste and environmental impacts of food production (92.94%)

Geographic

Under the Geographic theme, the most popular responses were Plan settlements based on the availability of the resources to support growth (91.85%), Enforce a Spatial Planning Act to manage urban design and development (85.1%), and To curb the rural urban disparities, equal developmental activities and distribution of resources need to be taken into action (87.96%)

Planning and Policy

Under the Planning and Policy theme, the most popular responses were Update and harmonise Acts and Laws across sectors to strengthen enforcement of environmental regulations (87.55%), Standards to measure construction methods & monitor the entire process to encourage adaptation for renewable sources of materials & energy (86.44%), and To curb the rural urban disparities, equal developmental activities and distribution of resources need to be taken into action (87.96%)

Leveraging Technology

Under the Leveraging Technology theme, the most popular responses were Use technology to link producers, suppliers and consumers (89.39%), Organisations can collaborate and start upcycling units to reduce waste and environmental impacts (90.52%), and Build the capacity of local governments to leverage the benefits of ICT and minimise impacts on environment from transports (84.13%).

Leveraging Business

Under the Leveraging Business theme, the most popular responses were Diversify the tourism industry with more eco-friendly programmes and activities to promote economic development (89.53%), Promote eco-friendly business values such as locally sourcing raw materials and production of multiple produce from one raw material (88.74%), and Invest in nutritional testing and certification of local produce to boost the economy (86.75%)

Research and Business

Under the Research and Business theme, the most popular responses were Invest in Research and Development to reduce environmental degradation from transport of imports that have local substitute (86.26%), Invest in ongoing assessment of environmental and social impacts of economic activities (85.91%), and Disseminate research findings on the environment through creative means so that it is used to make decisions (82.87%)

Policy

Under the Policy theme, the most popular responses were Update and harmonise Acts and Laws across sectors to strengthen enforcement of environmental regulations (87.55%), Organisations to adopt green policy to minimise environmental impacts (91.64%), and Provide tax holidays to green businesses (78.19%)

Infrastructure

Under the Infrastructure theme, the most popular responses were Reduce environmental impacts by investing in ICT infrastructure for efficient consultation and coordination with local governments (83.14%), Relevant agencies to educate the public and the private sector on eco-friendly house design and construction materials (85.8%), and Make information about the environment accessible on public domains through a data centre (83.11%)

Annexe 1:

Thematic organisation of seed responses from Tendrel platform.
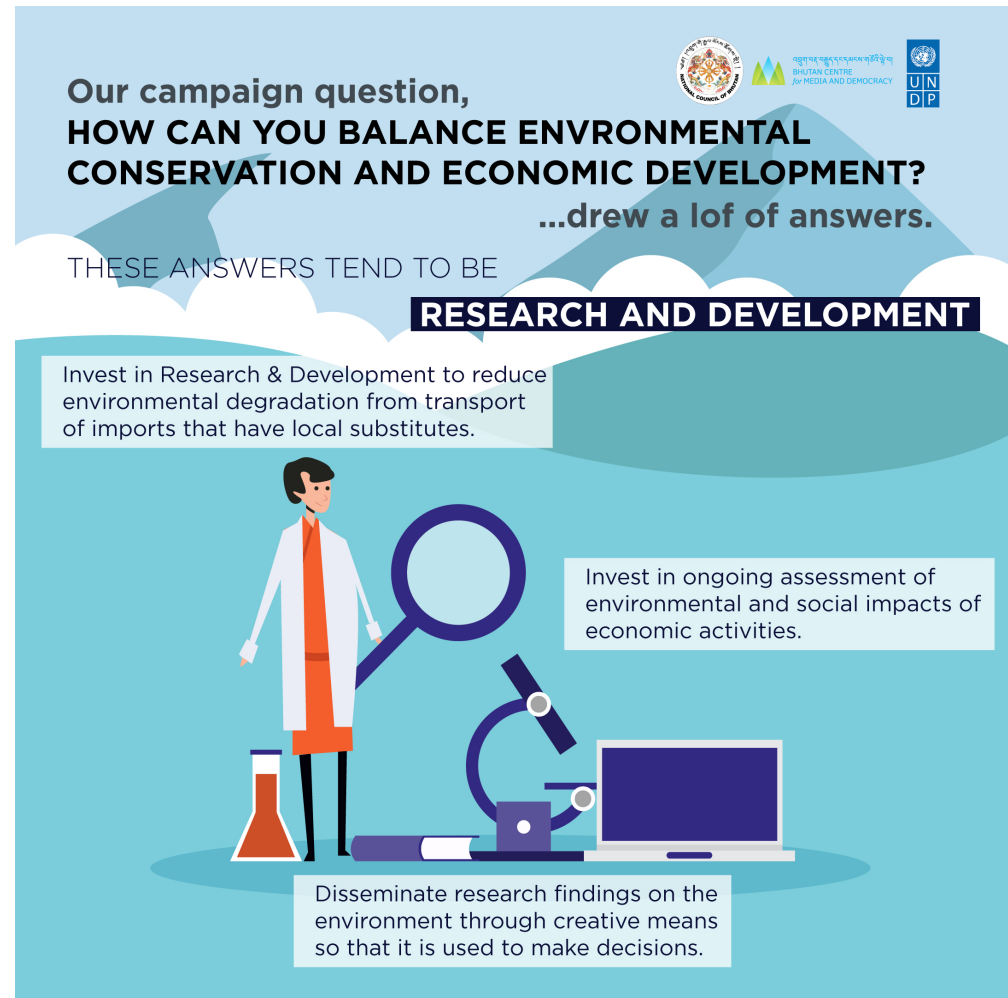
Geograp

Planning and Policy

Our campaign question,

HOW CAN YOU BALANCE ENVIRONMENTAL CONSERVATION AND ECONOMIC DEVELOPMENT?

...drew a lot of answers.

THESE ANSWERS TEND TO BE **GEOGRAPHIC**

To curb the rural urban disparities, equal developmental activities and distribution of resources need to be taken into action.

Plan settlements based on the availability of the resources to support growth.

RECREATIONAL

INDUSTRIAL

RESIDENTIAL

Enforce a Spatial Planning Act to manage urban design and development.

Our campaign question,

HOW CAN YOU BALANCE ENVIRONMENTAL CONSERVATION AND ECONOMIC DEVELOPMENT?

...drew a lot of answers.

THESE ANSWERS TEND TO BE **POLICY-RELATED**

Proper spatial planning and designated areas for landfills and drop-off points can help in waste management

Consider green procurement policy that incentivises green business, and locally produced products over imported goods.

Leveraging Technology

Education

Our campaign question,

HOW CAN YOU BALANCE ENVRONMENTAL CONSERVATION AND ECONOMIC DEVELOPMENT?

...drew a lof of answers.

THESE ANSWERS TEND TO BE **TECHNOLOGY-RELATED**

Organisations can collaborate and start upcycling units to reduce waste and environmental impacts.

Build the capacity of local governments to leverage the benefits of ICT and minimise impacts on environment from transports.

Reduce environmental impacts by investing in ICT infrastructure for efficient consultation and coordination with local governments

Use technology to link producers, suppliers and consumers.

Our campaign question,

HOW CAN YOU BALANCE ENVIRONMENTAL CONSERVATION AND ECONOMIC DEVELOPMENT?

...drew a lot of answers.

THESE ANSWERS TEND TO BE **EDUCATION-RELATED**

Make information about the environment accessible on public domains through a data centre.

Educate the public and the private sector on eco-friendly house design and construction materials.

Educate lawyers on environmental justice for fair enforcement of environmental laws, regulations and policies.

Leveraging Business

Policy

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Waste Management

Our campaign question,
HOW CAN YOU BALANCE ENVRONMENTAL CONSERVATION AND ECONOMIC DEVELOPMENT?
...drew a lof of answers.

THESE ANSWERS TEND TO BE **WASTE MANAGEMENT**

Educate the public on Reduce, Reuse, Recycle and Upcycle.

Proper spatial planning and designated areas for landfills and drop-off points can help in waste management.

Educate the public on food waste and environmental impacts of food production.

Infrastructure

Our campaign question,
HOW CAN YOU BALANCE ENVRONMENTAL CONSERVATION AND ECONOMIC DEVELOPMENT?
...drew a lof of answers.

THESE ANSWERS TEND TO BE **INFRASTRUCTURE**

Adopt creative means and formats for public education on sustainable design.

Relevant agencies to educate the public and the private sector on eco-friendly house design and construction materials.

Reduce environmental impacts by investing in ICT infrastructure for efficient consultation and coordination with local governments.

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