

A photograph of a lush green forest landscape. In the foreground, a waterfall cascades down a rocky cliff face. The background shows rolling hills covered in dense, vibrant green trees under a bright blue sky with scattered white clouds. The overall scene is a representation of biodiversity and natural beauty.

Societal Awareness of Biodiversity

in India, Indonesia, Vietnam, Brazil, Colombia, Mexico, Peru, Kenya and South Africa

Secondary analysis of the “Biodiversity Awareness Study 2022”

WWF Germany & Sinus Institute

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| Publisher | WWF Germany |
| Status | November 2022 |
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| Cover Photo | © Jonathan Borba/Unsplash |

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Background of the study, study design and methodology

Background of the study

On behalf of WWF, the company of Hall & Partners collected data on societal awareness of biodiversity in ten non-European countries. The SINUS Institute was commissioned to use this data as a basis for calculating the newly developed indicator “Societal Biodiversity Indicator” in the countries of India, Indonesia, Vietnam, Brazil, Colombia, Mexico, Peru, Kenya and South Africa, under the direction of well-known German behavioural science scientists and to evaluate it differentiated according to socio-demographic characteristics. The total value of the indicator shown here refers to all countries included in the study.

This report is a summary of the main findings from the surveys that were conducted in India, Indonesia, Vietnam, Brazil, Colombia, Mexico, Peru, Kenya, and South Africa.

Study design and methodology

The study is based on an online survey of people aged 18 to 65. At least 1,000 people were interviewed in each of the countries included in the study. The surveys were conducted in the national language. The survey period was from the 25th of November until the 9th of December 2021.

When conducting the random survey, the aim was to cover important socio-demographic characteristics to the greatest extent possible. Wherever this was feasible, we monitored for gender, age, education, household income, residential location, and children in the household. A special feature of the survey is that in each country, only those persons were interviewed who do not have a generally negative attitude towards environmental issues.

Figure 1: Study design and methodology



Figure 2: Composition of random survey - gender, age, education

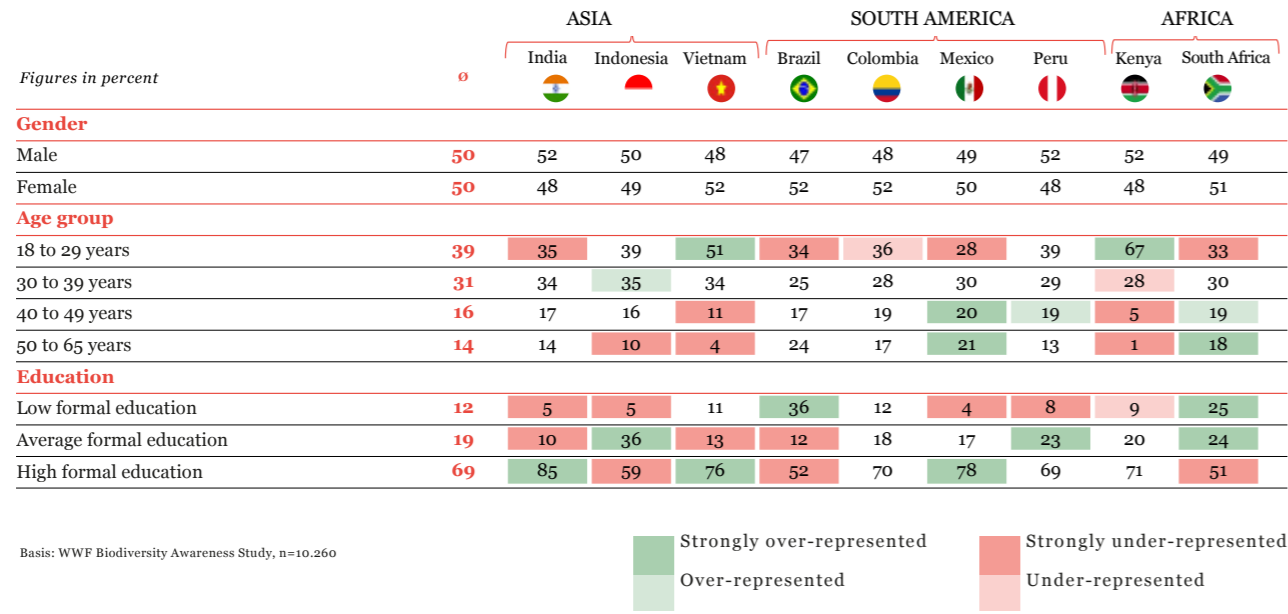
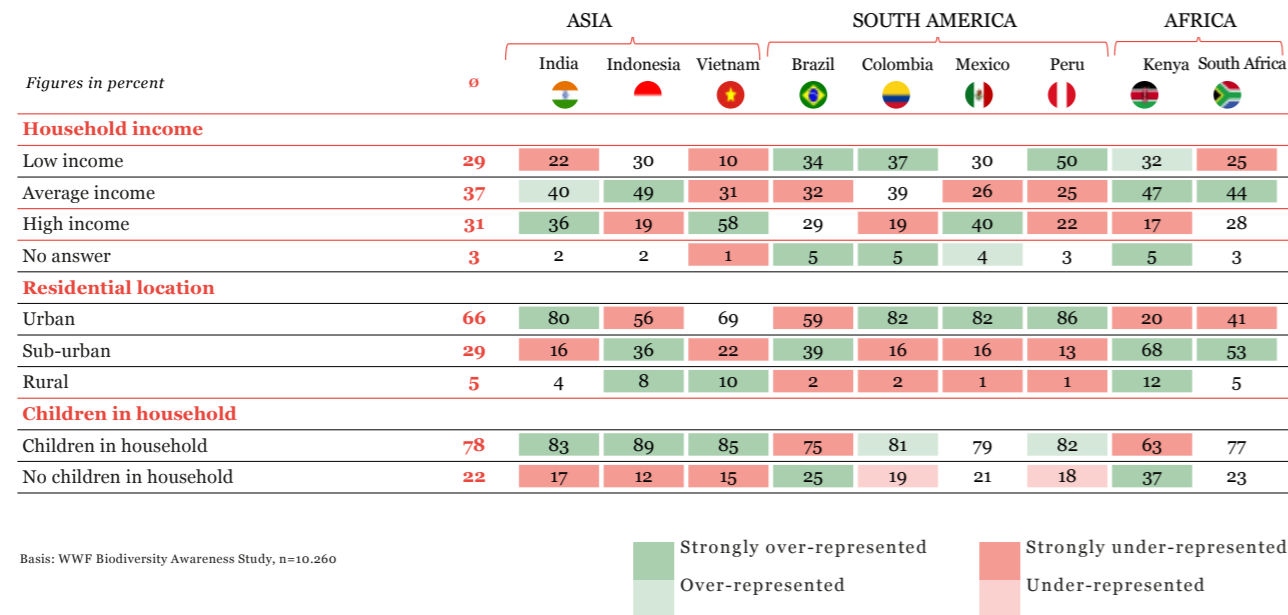


Figure 3: Composition of random survey - household income, residential location, children in the household



Preserving biodiversity is one of the great challenges of our time.

The societal indicator was developed to make the targets measurable and tangible.

Composition of the societal indicator and analytical procedure

Background to the development of the Societal Biodiversity Indicator

The term “biodiversity” encompasses the diversity of animal and plant species, the diversity of ecosystems and habitats, as well as the diversity of genes, genetic information, and hereditary material. Preserving biodiversity is one of the great challenges of our time, as it is in sharp decline worldwide. For this reason, the protection of biodiversity has long been one of the politically important national and international priorities.

The central political document that regulates the safeguarding of the diversity of life at an international level is the United Nations Convention on Biological Diversity (CBD) from the year 1992, which was also signed and ratified by the Federal Republic of Germany. To implement this Convention in Germany, the National Strategy on Biological Diversity was signed off by the Federal Cabinet on the 7th of November 2007. A key objective of this strategy is to raise public awareness of the need to protect and maintain biodiversity and to keep nature intact. Specifically, the following goal was formulated: “By 2015, at least 75 percent of the population shall consider the conservation of biological diversity to be one of society’s priority tasks. The importance of biological diversity is firmly anchored in society’s consciousness. People’s actions are increasingly geared towards this and are leading to a significant reduction in the pressure on biological diversity” (BMU 2007, page 60 et seq.).

In order to make these targets measurable and thus empirically tangible, the “awareness of biodiversity” Societal Biodiversity Indicator was developed. It shows the extent to which this objective has been met (see Kuckartz and Rädiker 2009) and is part of the set of indicators for the National Strategy on Biological Diversity (see Ackermann et al. 2013). The data for its calculations has been collected in Germany since 2009 at two-year intervals by way of nature awareness studies.

In 2020/2021, the Societal Biodiversity Indicator was revised in a research project led by well-known German behavioural science scientists to include a wider range of environmental behavioural variables when measuring societal awareness of biodiversity. This report presents the newly developed indicator for nine non-European countries.

Composition of the Societal Biodiversity Indicator

For the empirical recording of the Societal Biodiversity Indicator “awareness of biodiversity”, a series of 33 questions was designed.

Based on content related and methodological criteria, 17 questions were developed to measure six psychological factors that are significant in explaining eco-friendly behaviour (predictor variables, see Table 1): Attachment to nature, awareness of the problem, involvement with groups committed to the protection of biodiversity (social identity), perception of eco-friendly behaviour as a social norm, attitudes towards eco-friendly behaviour and perceived behavioural control.

Another 16 questions were used to measure four facets of behavioural intentions (see Table 2): Willingness to make lifestyle changes, willingness to make private behavioural changes, willingness to take collective action and willingness to pay to protect nature.

In total, the new Societal Biodiversity Indicator thus consists of ten psychological factors that can be combined into a single overall index value: The index value formed per person is based on the sum of the mean values of the psychological factors, weighted by the standardised factor loadings. The stronger the correlation between a factor (for example "closeness to nature") and the nature protecting behavioural intentions, the greater the weighting for this factor.¹ Therefore, the following applies: The higher the index value, the more likely it can be assumed that there is a high awareness of the importance of biodiversity.

A variable is a latent not observable psychological construct that can be changed or altered. Variables are used in psychology experiments to determine if changes to one thing result in changes to another.

¹The development, operationalisation and exact calculation of the new Societal Biodiversity Indicator can be found in Bamberg et al. (2022).

Table 1: Questions for measuring the predictor variables

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|---|---|
| <p>Closeness to nature (Please indicate in each case to what extent the following statements apply in your opinion: completely, to a large extent, 50/50, hardly or not at all).</p> | <ul style="list-style-type: none"> • I am not separate from nature, but a part of nature. • I feel connected to nature. • In nature, I feel connected to something higher. |
| <p>Problem awareness (Please indicate in each case to what extent the following statements apply in your opinion: completely, to a large extent, 50/50, hardly or not at all).</p> | <ul style="list-style-type: none"> • Biodiversity on earth is decreasing. • Our lifestyle is contributing to the degradation of biodiversity worldwide. • By destroying biodiversity, humankind is endangering its own existence. |
| <p>Social identity (Please indicate in each case to what extent the following statements apply in your opinion: completely, to a large extent, 50/50, hardly or not at all).</p> | <ul style="list-style-type: none"> • I feel connected to groups that are actively working for the protection of biodiversity. • Intensive contact with groups that actively work for the protection of nature and biodiversity corresponds to my interests and wishes. • I have a lot in common with people who actively work in groups for the sustainable use of nature and resources. |
| <p>Descriptive social norm (Please indicate in each case to what extent the following statements apply in your opinion: completely, to a large extent, 50/50, hardly or not at all).</p> | <ul style="list-style-type: none"> • People who are important to me prefer to buy products that are produced in an environmentally friendly way. • People who are important to me make their daily journeys, for example to work or to the shops, mainly on foot or by bike. • People who are important to me are willing to pay more for ecologically produced products. |
| <p>Attitudes (Please indicate in each case how you find the following options in principle: very good, rather good, 50/50, rather bad or very bad).</p> | <ul style="list-style-type: none"> • I find that when shopping, preferring products that are produced in an eco-friendly way is ... • I find that mainly walking or cycling for everyday journeys, e.g. to work or to the shops, is ... • I find that paying more for products that are produced in an eco-friendly way is ... |
| <p>Perceived behavioural control (Please indicate in each case how difficult you find it is to implement the following behaviours: very easy, rather easy, 50/50, rather difficult or very difficult).</p> | <ul style="list-style-type: none"> • For me personally, preferring products that are produced in an eco-friendly way is ... • For me personally, paying more for products that are produced in an eco-friendly way is ... |

Table 2: Questions used to measure the four facets of behavioural intentions

| | |
|---|--|
| <p>Willingness to make lifestyle changes (To what extent are you personally willing to ... Answer options: very willing / rather willing / less willing / completely unwilling / no answer).</p> | <ul style="list-style-type: none"> • ... change the brand of cosmetics or medicinal products if you find out that their production en-dangers biodiversity? • ... to use a guidebook when shopping that informs you, for example, about endangered fish species? • ... buy more organically produced food? • ... to live more sparingly so that future generations can continue to use the diversity and abundance of nature? |
| <p>Willingness to make private behavioural changes (To what extent are you personally willing to ... Answer options: very willing / rather willing / less willing / completely unwilling / no answer).</p> | <ul style="list-style-type: none"> • ... make your friends and acquaintances aware of the protection of biological diversity? • ... to inform yourself about current developments in the field of biodiversity? • ... reduce your own meat consumption? • ... to choose the eco-friendly behavioural alternative in everyday life, because the next generation has a right to an intact natural environment? |
| <p>Readiness for joint action (To what extent are you personally willing to ... Answer options: very willing / rather willing / less willing / completely unwilling / no answer).</p> | <ul style="list-style-type: none"> • ... create habitats for animals and plants, such as flower meadows or ponds, together with other people? • ... help with the maintenance of a nature reserve together with other people? • ... work actively in a nature conservation association to protect biodiversity? • ... to campaign publicly (e.g. through petitions, demonstrations) for politicians to do more to protect nature for all people living today and for future generations? |
| <p>Willingness to pay (To what extent are you personally willing to ... Answer options: very willing / rather willing / less willing / completely unwilling / no answer).</p> | <ul style="list-style-type: none"> • ... donate to the care and preservation of a protected area? • ... to pay higher prices for food produced in a sustainable and environmentally friendly way? • ... pay more for products that are produced in an eco-friendly way, if this means that they support economically weaker regions in Germany? • ... pay more for products from economically weaker countries that are produced in an eco-friendly way, so that international trade becomes fairer? |

Analytical procedure

The Societal Biodiversity Indicator was calculated for all countries included in the study. Additionally, the survey data was differentiated according to gender, age, education, household income, residential location, and the presence of children in the household.

- Age groups: under 30 years of age, 30 to 49 years, 50 to 65 years of age.
- Education groups: Low: “No formal schooling” or “Primary or secondary education”; Average: “Some college education”; High: “University or undergraduate education” or “University post-graduate education”.
- Household income: categorised by country as being low, average, and high.

Differences in the response behaviour of these population groups were examined using a chi-squared test (e.g. the under 30’s age group compared to the average). This is based on a confidence interval of 95 per cent and 99 per cent, which is usual for use in social scientific research. Accordingly, characteristics are interpreted as being over-represented or under-represented in the random survey if this can be said with a probability of at least 95 per cent. Characteristics that have a probability of 99 per cent are considered to be strongly over-represented or strongly under-represented.

The result of the significance test always depends on the group size. The larger the group (the higher the number of participants), the more likely it is that even minor over-representations and under-representations can be shown to be significant.

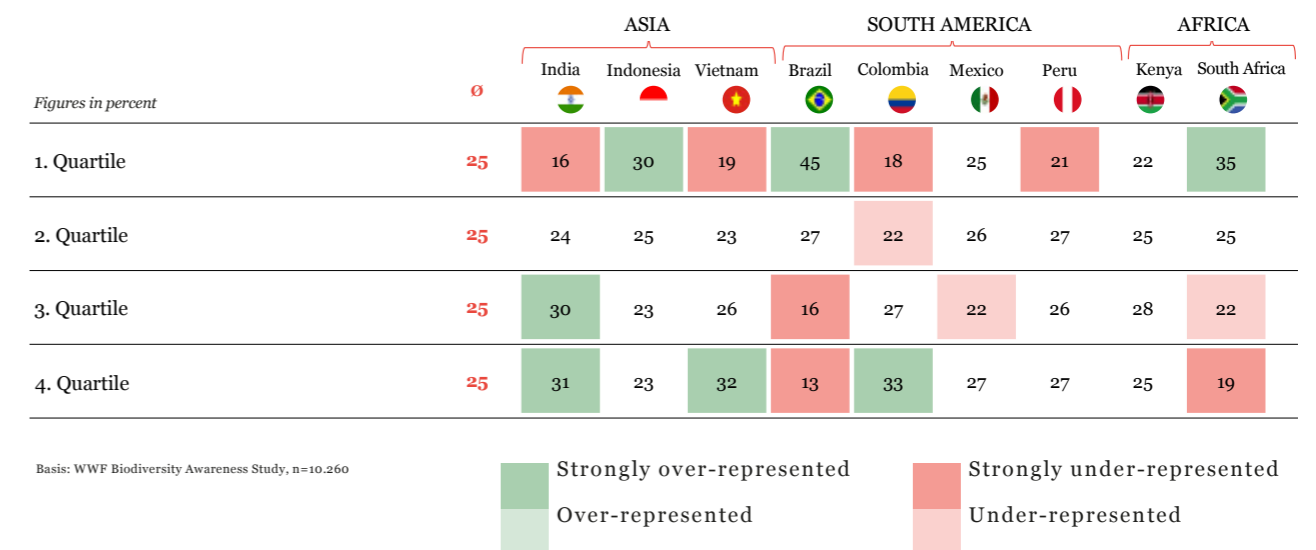
The Societal Biodiversity Indicator allows the assessment of biodiversity awareness across different countries.

Main findings of the analyses

Societal Biodiversity Indicator in a cross-country comparison

For a comparison of the countries included in the study, three threshold values were calculated, dividing the total sample (N = 10,260) into four equally sized groups (quartiles). The fourth group contains the 25 per cent of respondents with the highest index scores across all countries (see Figure 4).

Figure 4: Societal Biodiversity Indicator in the cross-country comparison



Division of total survey sample into four equally sized groups (quartiles).

According to the Societal Biodiversity Indicator (4th quartile), the comparison of the countries under consideration shows that the respondents in Colombia (33%), Vietnam (32%) and India (31%) most frequently have a high awareness of biodiversity. Average awareness is high in Mexico (27%), Peru (27%), Kenya (25%) and Indonesia (23%). In contrast, the values in South Africa (19%) and especially in Brazil (13%) are below average.

Socio-demographic view of the indicator across all countries (global)

Across all countries, a differentiated analysis by means of socio-demographic characteristics shows that a high awareness of biodiversity (Societal Biodiversity Indicator) is dependent upon education (low vs. high: Δ 10 percentage points), household income (low vs. high: Δ 9 percentage points), residential location (urban vs. sub-urban: Δ 9 percentage points), age (18 to 29 year-olds vs. 30 to 49 year-olds Δ 7, and household situation (with those having children vs. those without children: Δ 5 percentage points). The lowest value is found in the group with a low level of formal education (17%), the highest value in the group with those having the highest household income (30%).

The number of respondents with a high awareness of biodiversity increases with the level of education and household income. Furthermore, the level is higher in the group living in urban areas than in the group living in suburban areas, higher in the age group 30-49 than in the age group 18-29, and higher in the group that has children than in the group that does not have children (see Figures 5 and 6).

Figure 5: Societal Biodiversity Indicator across all countries by gender, age, and education

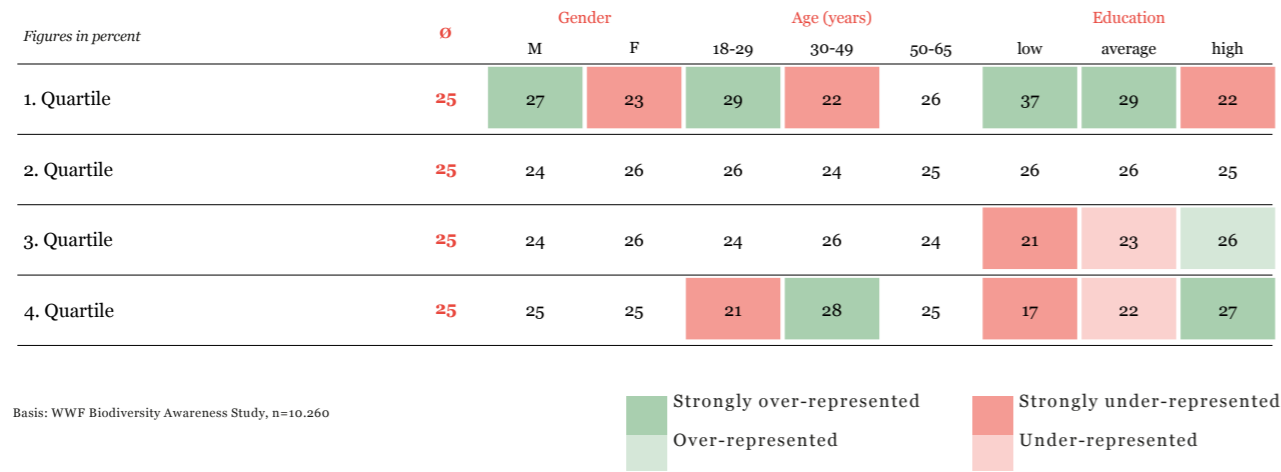
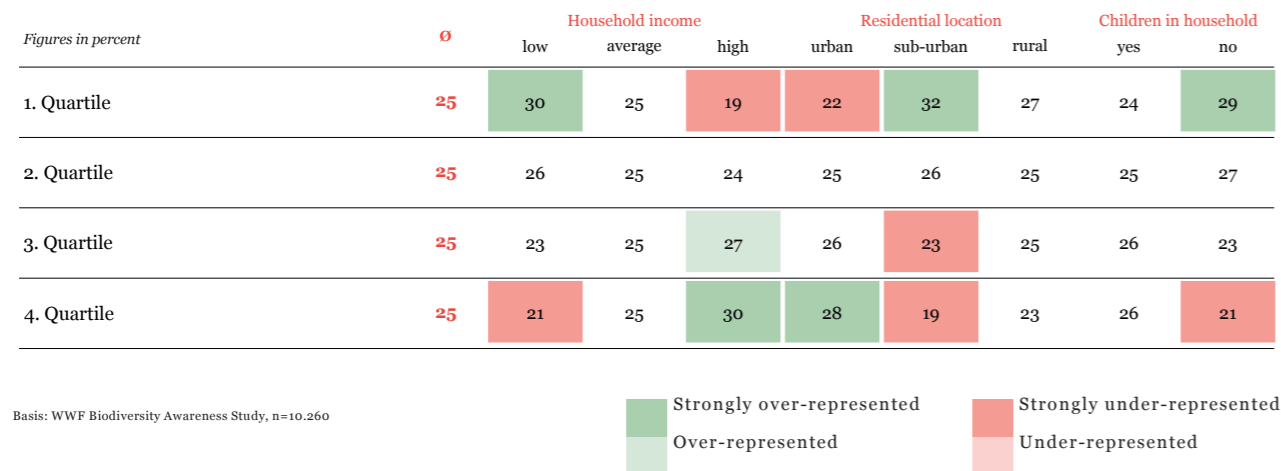


Figure 6: Societal Biodiversity Indicator across all countries by household income, residential location, and by the presence of children in the household



Socio-demographic view of the indicators in the individual countries

The socio-demographic characteristics included in the analysis have varying degrees of effect on the Societal Biodiversity Indicator in the countries under consideration.

- The household income has an influence in most countries. Significant differences can be found in India, Indonesia, Brazil, Colombia, Mexico, and South Africa. In Brazil, for example, the range goes from 8% (high awareness in the low-income household group) to 18% (high awareness in the high-income household group).
- Age is significant in three countries. In Colombia, awareness of biodiversity increases with the age of the respondents (see Figure 7; 18 to 29 year-olds: 21%, 30 to 49 year-olds: 37%, 50 to 65 year-olds: 46%). By contrast, in Indonesia and Vietnam it is the 30 to 49 year-olds who are more likely than average to have a high awareness of biodiversity.
- Education is relevant in India, Indonesia, and Peru. In each case, it is respondents with low formal education who show below-average awareness of the importance of biodiversity. For example, in Indonesia, only 9% of respondents with low formal education meet the requirements of the Societal Biodiversity Indicator. Among the respondents with intermediate formal education, the figure is 21% and among those with high formal education it is 25%.
- The residential location is also noticeable in individual countries. In Indonesia, Vietnam, Brazil and Mexico, high biodiversity awareness is more widespread in cities than in rural areas. For example, 30% of Indonesians living in cities have a high awareness of biodiversity. For the groups living in sub-urban or rural residential areas, it is only 13% and 12% respectively of the surveyed Indonesians (see Figure 8).
- As to whether there are children living in the household of the respondents only plays a role in Mexico: For 29% of the Mexicans surveyed who stated that children do live in the household, a high awareness of biodiversity was measured. In households without children, the figure is only 19%.
- Gender does not play a role in any country. In the groups with high awareness of biodiversity, no significant differences could be demonstrated.

Figure 7: Societal Biodiversity Indicator in Columbia by gender, age, and education

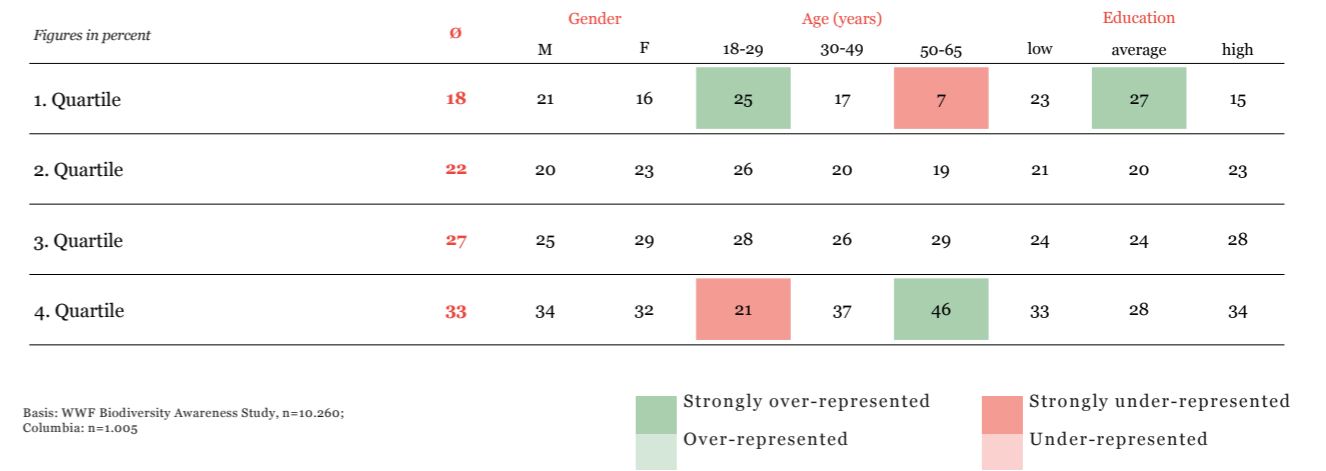
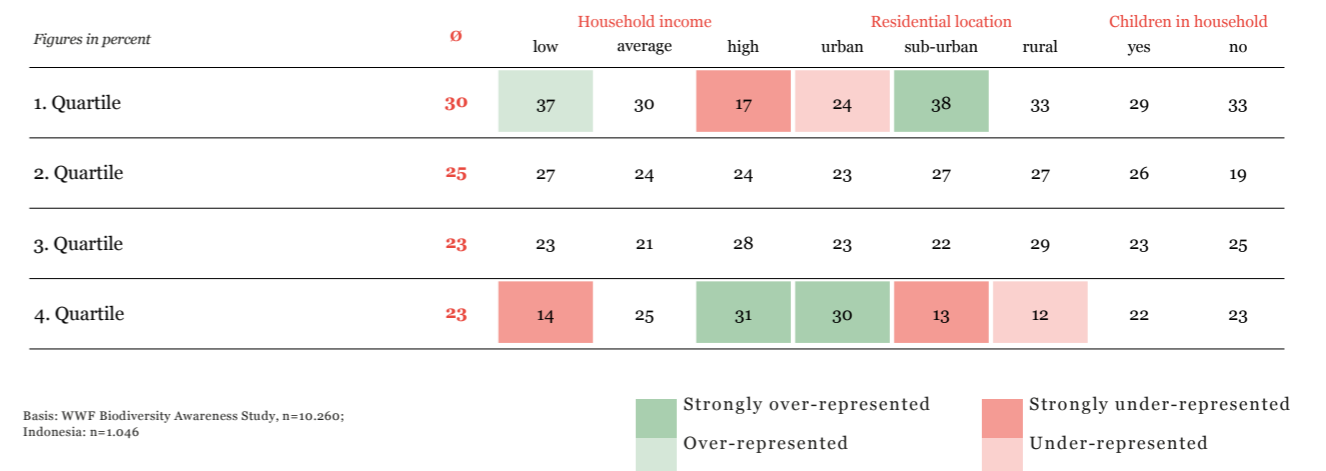


Figure 8: Societal Biodiversity Indicator in Indonesia by household income, residential location, and children



The Societal Biodiversity Indicator allows the assessment of biodiversity awareness across different countries.



Only people who do not have a generally negative attitude towards nature and environmental issues were interviewed.

Limitations and interpretation guidelines

As with any empirical study, this study also has its limitations, which must be taken into account when interpreting the results. In order to critically reflect on the significance of the findings, the most important limitations are described below.

The representational nature of the random survey

- In all these countries, only people who do not have a generally negative attitude towards nature and environmental issues were interviewed. This makes it difficult to compare countries, as it is not known to what extent a country's population has a negative or positive attitude toward these nature and environmental issues.
- Important socio-demographic characteristics of the random survey (e.g. education, income, age) do not correspond to the actual socio-demographic distributions within the respective countries. This is especially true for education: On average, 69% of the respondents have a high level of formal education, 19% have an average level of formal education and only 12% have a low level of formal education (see Figure 2 regarding the random survey composition). Since, as shown in the findings, the level of the Societal Biodiversity Indicator varies greatly with the educational background of the respondents, greater distortions ("upwards") can be assumed to exist here.
- It should also be noted that (1) only a few of the respondents live in rural areas (5% on average) and (2) no information is available about regional differences. For example, the population in Brazil differs greatly from region to region (rich South vs. poor Northeast. The region most affected by declining biodiversity, and therefore presumably more willing to contribute to biodiversity conservation, is the population of the Amazon region and the Pantanal).

Methodology of the study

In contrast to the surveys conducted in Germany, no personal interviews were conducted here, but rather, online surveys. This means that the total number of people surveyed is not representative of the total population of a country, but "only" of the online population. Furthermore, it must be taken into account (when comparing countries) that the online penetration within the various countries varies greatly.

Cultural differences

- When conducting surveys in different countries, cultural differences or country-specific characteristics must be taken into account. This already begins with the language. A purely formal translation of the questionnaire into the national language is not sufficient; in order to compare countries, a cultural translation is necessary (especially for the term “biodiversity”).
- In addition, there are a number of other cultural differences that can have a direct or indirect bearing on the response behaviour of the interviewees - such as values, religions, norms, world views, etc. This applies, for example, to tendencies towards acquiescence/approval: The more strongly respondents are oriented toward subjectively perceived norms, the more they tend to give socially desirable answers (approval tendency).

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To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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