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NINA Report

# The NINA Scale

## A New Approach to Measuring Environmental Attitiudes

Bjørn P. Kaltenborn
Line C. Wold
Rose Keller
Olve Krange
Øystein Aas

NINA

Norwegian Institute for Nature Research

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CONTACT DETAILS

**NINA head office**
P.O.Box 5685 Torgarden
NO-7485 Trondheim
Norway
P: +47 73 80 14 00

**NINA Oslo**
Sognsveien 68
0855 Oslo
Norway
P: +47 73 80 14 00

**NINA Tromsø**
P.O.Box 6606 Langnes
NO-9296 Tromsø
Norway
P: +47 77 75 04 00

**NINA Lillehammer**
Vormstuguvegen 40
NO-2624 Lillehammer
Norway
P: +47 73 80 14 00

**NINA Bergen:**
Thormøhlens gate 55
NO-5006 Bergen.
Norway
P: +47 73 80 14 00

www.nina.no

# Abstract

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The purpose of this project is to develop, test and implement a scale for measuring environmental attitudes among the public. Initially we identified a need for an improved instrument for surveying attitudes among Norwegians, but we soon realized that we could extend this to the international arena. A large portion of the current social science addressing environmental topics is organized as case studies with distinct limitations in time and space. This implies limitations in terms of extents and generalizations to wider contexts, as well as capturing changes over time. There is consensus that existing repertoire of environmental attitude scales insufficiently capture the contemporary public perceptions of 'environment', and the 'NINA-scale' presented in this report seeks to address this lacuna.

Knowledge about the public's attitudes toward the environment and natural resources is paramount for solving the environmental challenges we are facing on the local-, national-, and international levels. Knowledge about attitudes, values and beliefs associated with the environment are key components in the efforts toward improved involvement of the public in environmental policy decisions and the progression of interdisciplinary environmental research. Improved knowledge about the larger patterns of environmental attitudes directly targets the knowledge needs of public management agencies such as better insights into: drivers of environmental and climate change, prerequisites for engagement in more sustainable behavior and consumption, support for different policies and the green transition.

The NINA scale measures basic environmental attitudes on the level of world views or more general environmental orientations not dependent on specific contexts, as opposed to more object specific attitudes. In this theoretical framing, general environmental attitudes such as those that can be measured by the NINA scale are thought to influence the attitudes people have toward specific topics such as biodiversity, environmental conservation, climate change, wildlife management, outdoor recreation, renewable energy development, ecosystem services and a range of other issues. Our hope and intention is that the NINA scale will be used in a range of studies in the future on specific environmental challenges to improve understanding of how the public relate to their surroundings.

The NINA scale is a result of a development process that commenced in 2012. It has gone through several stages with intermittent breaks. Here we report the methodology and testing from the early literature study and conceptual framing to expert reviews, pilot testing and subsequent tests on larger samples. Finally, the report also presents English and Norwegian versions of the complete NINA scale with seven dimensions and fifty-two items, and the shorter version with seven dimensions and twenty-seven items. We consider the latter to have satisfactory content validity and reliability for most purposes, and expect that most future studies will employ the shorter scale version. Although the scale presented here is a result of considerable analysis and testing, we consider it essential that the testing and improvement of the instrument continues through the practical application in future studies in diverse settings and samples.

Bjørn P. Kaltenborn, NINA, Vormstuguveien 40, 2624 Lillehammer, bjorn.kaltenborn@nina.no
Line C. Wold, Vormstuguvegen 40, 2624 Lillehammer, line.wold@nina.no
Rose Keller, Vormstuguvegen 40, 2624 Lillehammer, rose.keller@nina.no
Olve Krange, Sognsveien 68, 0855 Oslo, olve.krange@nina.no
Øystein Aas, Vormstuguvegen 40, 2624 Lillehammer, oystein.aas@nina.no

# Sammendrag

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Formålet med dette prosjektet er å utvikle, teste og implementere en skala for måling av miljøholdninger i befolkningen. Opprinnelig så vi et behov for en ny og forbedret skala for å kartlegge holdninger blant nordmenn, men vi innså snart at vi kunne utvide dette til den internasjonale arenaen. En stor del av dagens samfunnsvitenskap som tar for seg miljøtemaer er organisert som casestudier. Dette innebærer begrensninger når det gjelder omfang og generaliseringer til bredere sammenhenger, samt reduserte muligheter for fange opp hvordan befolkningen endrer syn på store samfunnsmessige utviklingstrekk. Det er enighet om at det eksisterende repertoar av miljøholdningskalaer ikke i tilstrekkelig grad fanger den moderne oppfatningen av 'miljø'. 'NINA-skalaen' som presenteres i denne rapporten er utviklet og konstruert for å adressere disse manglene.

Kunnskap om befolkningens holdninger til miljøet og naturressursene er avgjørende for å løse de miljøutfordringene vi står overfor på lokalt, nasjonalt og internasjonalt nivå. Kjennskap til holdninger, verdier og tro knyttet til miljøet er nøkkelkomponenter i arbeidet med å bedre folks involvering i miljøpolitiske beslutninger og i utviklingen av tverrfaglig miljøforskning. Økt kunnskap om sammenhenger og utvikling i miljøholdninger retter seg direkte mot kunnskapsbehovene til offentlige forvaltningsetater, slik som bedre innsikt i: Drivere for miljø- og klimaendringer, forutsetninger for engasjement i mer bærekraftig atferd og forbruk og støtte til en rekke andre politiske beslutninger.

NINA-skalaen måler grunnleggende miljøholdninger eller det vi kan kalle generelle miljøorienteringer som ikke er avhengig av spesifikke sammenhenger, i motsetning til mer objekt-spesifikke holdninger. I denne teoretiske tilnærmingen er antagelsen at generelle miljøholdninger er med å påvirke holdningene folk har til konkrete temaer som biologisk mangfold, miljøvern, klimaendringer, naturforvaltning, friluftsliv, utvikling av fornybar energi, økosystem tjenester og en rekke andre problemer. Vårt håp og intensjon er at NINA-skalaen vil bli brukt i mange studier i fremtiden om spesifikke miljøutfordringer for å forbedre forståelsen av hvordan befolkningen forholder seg til omgivelsene.

NINA-skalaen er et resultat av en utviklingsprosess som startet i 2012. Prosjektet har beveget seg gjennom etapper med flere avbrekk underveis. Her rapporterer vi om metodikk og testing fra tidlig litteraturstudie og konseptuelt rammeverk til ekspertgjennomgang, pilottesting og påfølgende tester med større utvalg. Til slutt presenterer rapporten også engelske og norske versjoner av den komplette NINA-skalaen med syv dimensjoner og femtito ledd/påstander, og den kortere versjonen med syv dimensjoner og tjuesju ledd/påstander. Vi anser sistnevnte for å ha tilfredsstillende validitet og pålitelighet for de fleste formål, og forventer at det er denne versjonen som i hovedsak vil bli mest anvendt i fremtidige studier. Selv om skalaen som presenteres her er et resultat av omfattende analyse og testing, anser vi det som viktig at testing og forbedring fortsetter gjennom praktisk anvendelse i fremtidige studier, i ulike sammenhenger og med forskjellige utvalg.

Bjørn P. Kaltenborn, NINA, Vormstuguvegen 40, 2624 Lillehammer, bjorn.kaltenborn@nina.no
Line C. Wold, Vormstuguvegen 40, 2624 Lillehammer, line.wold@nina.no
Rose Keller, Vormstuguvegen 40, 2624 Lillehammer, rose.keller@nina.no
Olve Krange, Sognsveien 68, 0855 Oslo, olve.krange@nina.no
Øystein Aas, Vormstuguveien 40, 2624 Lillehammer, oystein.aas@nina.no

# Contents

# Foreword

This project has been motivated by the recognition that NINA should take responsibility for measuring and monitoring the environmental attitudes of the Norwegian public. Comprehensive knowledge about people's attitude, use of nature, responses to management interventions and adaptation to a changing society are critical factors in policy development and political actions.

A robust time series on environmental attitudes will strengthen NINA's social science expertise in the field of nature and society and expand our inter- and transdisciplinary research. NINA aims to be recognized nationally and internationally for interdisciplinary environmental research. Consequently, we believe that NINA should take lead in developing and operating a national data set that contains the best available information about the population's attitudes toward Norwegian nature. This project has evolved over time and has in its entirety been funded through internal sources, first by two internal strategic grants between 2012 and 2015, as well as funding for 2018 to 2021 as a strategic institute program. In addition to the core research team authoring this report, a number of NINA colleagues have assisted along the way, particularly in the expert panels in the early stages in the project reviewing the first drafts of dimensions and items. Professor Mehmet Mehmetoglu at NTNU has been instrumental in both research design and data analysis during the first stages of the scale development.

This report particularly targets researchers with an interest in quantitative social science, trends in public attitudes and human-environment interactions. It is written in a technical language for the purpose of serving as a starting point and manual for measurements and monitoring of environmental attitudes among the public. The report is in English to expand the readership and applicability. However, for the tables and the final versions of the scale we also include Norwegian language versions. We assume that in most cases, the NINA scale will complement other questions and instruments in surveys, and provide a picture of environmental world views that can be correlated with a range of specific topics. We consider this report the conclusion of the first important step in a – hopefully – continuing process of further refinement and improvement of the NINA scale, and that it will eventually finds its way into the international research field of human perceptions of the environment.

Lillehammer June 25, 2021

Bjørn P. Kaltenborn
Project leader

# 1 Introduction

## 1.1 What are environmental attitudes?

What creates or shapes environmental concern? Over the last few decades, the relationship between humans and the environment has become a growing topic in research since natural resources are being degraded or depleted faster than they can be restored. In the scientific literature, 'environmental concern' is typically used to refer to environmental attitudes (EA). During the past few decades numerous survey scales/instruments have been developed to measure EAs. However, only a few have been tested across multiple samples, in different cultural contexts and used repeatedly, so that we have reliable statistical knowledge about their properties. Moreover, society is constantly evolving, and the vernacular concepts of 'the environment' from the 1960's - 1990's may be outdated compared to how we think about the environment in the 2020's. EAs should reflect society, rather than trying to 'fit' contemporary society into past and potentially inaccurate constructs. Furthermore, the majority of scales measuring EAs were developed in North America, and not necessarily reflecting European conditions adequately. Therefore, we need an updated EAs scale which better reflects the society and times we are currently living in.

The objective of this technical report is to document the development of a new scale for measuring environmental attitudes. The current version of the scale reported here is the result of a comprehensive literature review, conceptual discussions among researchers, and empirical and statistical testing. Our intention is that this report can be used as a background and manual for further testing and improvement of the 'NINA-scale'.

Over the years, as social scientists in NINA, we have often used items from the New Ecological Paradigm Scale (NEP) (Dunlap & Van Liere 1978) assessing environmental attitudes and concern in the Norwegian population. We have observed that statistical variation has decreased over the same period. These days almost everyone agrees that the environment is highly important, as long as we speak about attitudes. But people can disagree strongly on concrete environmental issues – such as large development projects, practices within forestry, animal rights and nature conservation. This mismatch between attitudes as they appear in environmental attitude scales and opinions on concrete policies and management measures call for an attitude scale that captures the variance in what the public actually think about their surroundings and how it is being managed and utilized by contemporary society.

Environmental attitudes constitute a key construct in environmental psychology and studies of how humans relate to the environment. EAs are relatively stable expressions of how people evaluate the environment and are rooted in individual basic values, involving both emotions, beliefs and knowledge (Francis & Garling 1999, Schultz & Zeleny 1999, Milfont & Duckitt 2010). In most theoretical frameworks, attitudes are considered to be less stable and more susceptible to influence from a multitude of factors than basic values rooted deeper in the human psyche (e.g. Best & Mayerl 2013). Most theorists will agree that attitudes have three main components; cognition, affect and behavior, although there is a great deal of discussion over how these components interact, and their relative importance (Heberlein 2012, Milfont & Duckitt 2010, Heberlein 2008). A common, generic definition of environmental attitudes is the *psychological tendency expressed by evaluating the natural environment with some degree of favour or disfavour* (Milfont 2007, Milfont & Duckitt 2010). Attitudes are latent psychological or social constructs. They are always directed at *objects* (a species, an issue, a place, type of environment etc.), and they have a positive or negative direction – but they cannot be observed directly. Broadly speaking, the techniques of attitude measurement can be divided between direct self-report methods (e.g. interviews and surveys) and implicit methods (e.g. observation or techniques which prompt certain types of responses that can be ranked). The vast majority of studies use self-report techniques.

Within the social sciences, disciplines conceptualize and operationalize 'attitudes' differently. In psychology, attitudes are commonly understood as individual constructs that are influenced by fundamental values and which has some influence on preferences, behavioral intentions and

actual behavior (e.g. Heberlein 2012). When groups of individuals share attitudes (and less stable beliefs) norms can be formed which represents collective judgments or qualitative assessments ('ought-to' statements).

In sociology, attitudes are typically defined as prescriptive or evaluative constructs, not as individual predispositions to act in particular ways or view things as favorable or unfavorable. The two disciplines draw a distinction between personal preferences and social attitudes, and a sociological perspective will argue that attitudes may be more usefully regarded as observable characteristics than latent constructs (Voas 2014).

In our work with the 'NINA-scale' we follow a line of enquiry closest to the psychological perspective of environmental attitudes as latent constructs because the identification of latent constructs is crucial to scale development. We need to understand the 'shape' of an attitude rather than its implicit or observable characteristics. By 'shape' we mean that peoples' view of the of the environment can have both a vertical and horizontal structure. The horizontal structure refers to the dimensionality of peoples' evaluative assessment, i.e. do our perceptions and judgments of the environment rely on evaluations of several discrete aspects of the environment or are they grouped in one dimension. The vertical structure refers to whether environmental attitudes can be grouped into one overall, collective latent construct, or whether there exists a more complex higher order structure, ie. multiple specific latent constructs that can then be understood collectively by broader latent constructs (Milfont & Duckitt 2004, Xiao & Dunlap 2007) In the literature, the dominant view is that environmental attitudes can be grouped in a single higher order structure with closely co-varying domains, i.e. a single fundamental environmental orientation (Pierce & Lovrich 1980, Milfont & Duckitt 2010). However, the field is yet to reach consensus on this question. Some studies suggest a structure with two higher-order factors such as 'preservation' and 'utilisation' (Milfont & Duckitt 2004, 2006). In this report we also probe this question. We do not resolve the issue, but provide data and testing that can be used to further this investigation.

## 1.2 Background and need for developing a new environmental attitudes scale

Measurement of environmental attitudes goes back to the 1970's. Early efforts include the 'Ecology scale' ((Maloney & Ward 1973, Maloney et al. 1975) and the 'Environmental Concern Scale' (Maloney et al. 1975) and the 'New Environmental Paradigm Scale' (Dunlap & Van Liere 1978). These three scales are the only ones that have been used to any significant extent in the following years by other researchers. A large number of other scales measuring environmental attitudes in some form have been developed since the 1970's, (e.g. Weigel & Weigel 1978), but most of them have only been used once or twice, hence not allowing for rigorous testing and application on different samples or in different contexts.

Paramount in the history of mapping and understanding environmental attitudes is the work of Riley Dunlap and colleagues who pioneered the early conceptualization and scale development for measuring how people perceive and relate to their natural surroundings. Their ambition was to be able to measure people's environmental world views, i.e. basic attitudes toward the environment in general that were not location or context specific. The New Environmental Paradigm scale, usually abbreviated to the NEP scale have been applied in hundreds of studies, and has gone through several modifications by the original authors as well as other researchers (e.g. Dunlap & Van Liere 1978, Dunlap et al. 2000, Vikan et al. 2007, Dunlap 2008, Amburgey & Thoman 2011, Gangaas et al. 2014). The conceptual idea behind the early NEP scale was that an emerging environmental worldview was starting to challenge the dominant social paradigm of the 1970's of belief in progress, material wealth, confidence in science and technology, and not the least that nature could and should be subdued by humans in order to satisfy society's needs. Indeed, the idea grew forth that this paradigm was being countered and challenged by

another environmentally oriented paradigm, represented by particularly the younger generations who shared different value sets. Hence the NEP was developed to measure attitudes along an anthropocentric - ecocentric spectrum. The NEP scale was constructed to test a set of basic beliefs about humanity's relationship with nature, such as the idea that modern societies were disturbing the balance of nature, the reality of limits to growth, as well as the need to abolish a purely anthropocentric orientation towards nature. Measuring these beliefs led to seeing the shape of a general environmental attitude. Methodologically, this was construed along two dimensions; human exceptionalism, the notion that humans are superior to nature and has to right to exploit nature for its own needs – and conversely that humans are an integral part of nature and should act accordingly to preserve balance in nature. The NEP EA therefore presumes a unidimensional (horizontal), single level (vertical) shape.

Since its inception in the 1970's the NEP scale (in various forms) has been used in hundreds of studies across a number of cultures (Dunlap 2008). This has provided the benefit of a huge number of different samples and consequently diverse testing and experiences. One of the benefits has been the ability to critique the properties of the scale extensively (for a review see: Amburgey and Thoman 2012). In short, the NEP scale has been critiqued on psychometric grounds (e.g. Lalonde & Jackson 2002) suggesting that some of the items were too simplistic and outdated. Other criticisms have suggested that the scale is a poor predictor of environmental behaviour (e.g. Scott & Willis 1994), that the conceptualization of the scale is built on might not be applicable outside the Western World (e.g. Chatterjee 2008), and that the scale is not, in fact, unidimensional (voiced already in 1982 by Albrecht et al.). In line with more recent discussions and expansions of value concepts in environmental research, the NEP scale has been critiqued for an overly simplistic and polarized view of values of nature as being either instrumental or intrinsic, and not capturing the relational aspects of human-environment interactions (Kalin et al. 2017).

Society has evolved dramatically in most respects during the last few decades. Environmental awareness and environmental concern has also risen on the public and political agendas to an extent that the environmental discourse enters into most other political sectors one way or another. We therefore surmise that the current concept of 'environment' in most sectors and political orientations is different and more diverse than the original framings underlying the NEP scale and other earlier EA instruments. The 'NINA-scale' development reported here aims at capturing a more up to date, multi-dimensional understanding of environmental orientations or world views with some predictive power towards object specific attitudes, behavioral intentions and actual behavior.

## 1.3 Project goals

The overall objective of this project is to develop, test and implement systematic measurements of the Norwegian public's environmental attitudes.

This includes four sub-goals:

- Review the scientific literature on environmental attitudes
- Develop preliminary versions of a new scale
- Conduct pilot tests on independent samples
- Complete a long- and a short version of a new scale based on previous tests and make it available for Norwegian and international use.

# 2 Methods and process

## 2.1 Scale development

Developing a scale is a time-consuming process including numerous different steps and considerations along the way. DeVellis (2012) describes important aspects and assessments to consider in scale development. Even though large parts of his review concerns different issues in a somewhat general way, he also includes a more specific and practical eight-step guideline (see box). We based our process on this guideline, however we took some steps back and forth repeating some of the tasks. Below we briefly go through the process as described by DeVellis (2012).

**Steps in a scale development process**
(DeVellis 2012)

1. Clearly determine what to measure
2. Generate a large item pool
3. Determine the format of measurement
4. Have the item pool reviewed by experts
5. Include validation items
6. Administer items to a sample
7. Evaluate items – data analysis
8. Optimize scale length

**Clearly determine what to measure**
A first step described is consideration of relevant social science theories before starting the practical work of scale development. During this task it will become clear whether existing theory offers a baseline for the phenomenon of interest, or if it will be more suitable to move in a more innovative and new direction. Further, deciding on the level of generality vs. specificity is just as important – guided by the scope of relevance – and should match the research goals, e.g. is the scale supposed to measure a specific phenomenon or more general one? A third aspect is to work carefully in defining constructs/domains that need to be included to fully cover the issue while avoiding "cross-overs" in domains that are closely related, but not actually relevant to the issue at hand.

**Generate a large item pool**
When the job of defining what to measure is completed, it is time to start generating the pool of items that will give those answers. Items should obviously reflect the latent variable and the distinction between items belonging to the same category or to the same construct, should be kept in mind. The latter is what should be worked on. At the initial stage, coming up with a large item pool is necessary and redundancy is considered advantageous at this stage. DeVellis does not provide an exact number of initial items, rather suggests generating 3-4 times as many items as planned to constitute the final scale. Further DeVellis (ibid.) notes that there are many sufficient ways to start writing the items but gives some hints about what characterizes good (and bad) items. A good item should be specific and not ambiguous, measure one thing only and not be too lengthy. DeVellis (ibid.) also emphasise the importance of keeping the reading difficulty at a suitable level and refers to Fry (1977) wherein one takes into account the numbers of words and syllables in sentences. Avoid double-negative items, avoid conveying two messages at the same time and be wary of sentence structuring are among other useful tips. He further notes that using both is to avoid/eliminate "agreers", but the downside is that reversals may confuse respondents which yields greater uncertainty in the data DeVellis (2012).

**Determine the format for the measurement**
DeVellis discusses numerous different measurement scales that are possible to use in scale surveys – the most important aspect being a format that adequately capture variability. The Likert scale is often used in instruments measuring opinions and beliefs. The number of response categories should be tuned in to the specific scale, and depends on the respondents' ability to discriminate meaningfully between items, labels on answer options and whether the number of answer alternatives should be odd or even.

**Expert review**
An expert review means having people with competence in the specific field reviewing the item pool. Experts could be asked to review items to give insights into:

1. How relevant items are to what you intend to measure (the construct).
2. How clear and concise items are
3. If there are ways of tapping the phenomenon of interest that are not included, or even suggest possible new items.

At the same time DeVellis warns that the expert inputs should not uncritically be accepted, and that the scale developer must review inputs with caution as the experts may not be familiar with scale development.

**Inclusion of validation items**
Including validity items could be a convenient investment to assure that the scale is measuring according to the intention. Two types of validity is described; construct validity and validity in terms of social desirability. The latter is most emphasized by DeVellis. A social desirability index (SDI) can indicate whether respondents are answering items the way you intend them to or not. People that are highly motivated for presenting her/himself in a way appreciated/expected by society answer in what is expected, rather than what is felt. SDIs may indicate how strongly items are influenced by such desirability.

The downside of using SDIs is they are also scales – and when full versions (e.g. Marlowe-Crowne SDI) are researcher modified to shortened versions (to save survey space and reduce respondent fatigue) they may not capture what is socially desirable about answering issue specific (I.e. environment) questions. Complete SDIs are typically used in psychological research interested in generating personality scales; complex internal individual milieu (Perinelli et al. 2016).

**Administration of items to a test sample**
When a pilot version is developed it should be tested on a sample. The sample should be representative for the population you intend to use the final scale on, or at least one should be aware of possible non-representativeness. DeVellis refers to Nunnally (1978) – suggesting a sample size of 300 respondents, and even smaller for a small pool of items.

**Item evaluation**
When the scale has been tested and data gathered it is time to evaluate and analyse data to identify items to constitute the scale. Item evaluation includes checking for intercorrelation between items, examination of item-scale correlation, item variance and item means. All these factors will influence Cronbach Alpha (CA), but it is also important to keep in mind that high CAs do not guarantee that items really represent a scale, merely that items fit well together (high correlates). The next step is thus to perform factor analysis (exploratory) to check for unidimensional structure. If unidimensional structure is found, then it will make sense to compute CA to check for internal consistency.

**Optimizing scale length**
When the item pool has been evaluated and the final pool is derived it is time to consider scale length. The length of the scale is a trade-off between reliability and brevity. The more items the more reliable the scale is, but a longer scale is time-consuming and burdensome for respondents. Items with low communalities should be the ones to be excluded when shortening a scale.

## 2.2 Summary of the environmental attitude scale development procedure

As our job with the NINA scale was carried out over many years, we divide the scale development process into three different phases.

**Pilot phase**: Basic issues such as what to measure and format of measurement was decided upon. A pilot version of the scale was developed, scrutinized in an expert review and tested on a pilot sample.

**Test phase 1**: Analysis and item evaluation of pilot data was carried out. The first test version of the scale was designed, based on both analysed results from the pilot survey, a second mini literature review, numerous project group sessions and a second expert review. The refined scale was, together with validation items, administered to a panel of 400 respondents. Analysis and item evaluation of test 1 data was carried out.

**Test phase 2**: The item pool was improved to produce a second version of the scale based on analysed results and item evaluation from the first test version and project group sessions. The second version was tested on a full nationwide sample of 500 respondents, and data collected were analysed and items evaluated. Based on analysis from the second test data, the project group decided on model and a final scale was designed in two versions: a full scale and a short scale.

Figure 1 shows a timeline for the scale development process and the steps (DeVellis 2012) involved in each phase. The process will be more thoroughly described in the coming chapters.

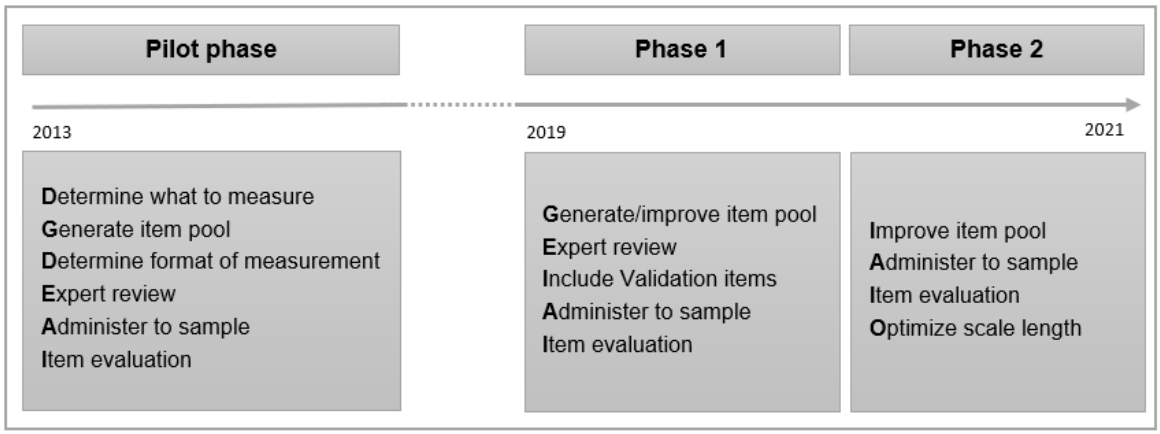


*Figure 1 Timeline showing phases and steps in the scale development process*

The test samples were launched through the data collection firm Norstat. Details of sample size and analyses are provided in subsequent chapters. Survey data from pilot sample *(Pilot phase)* was analysed in 2014 using SPSS. Survey data from the first full test sample (*Test phase 1*) was processed and analyzed through R in December 2019. Survey data was processed and analyzed through Stata MP v. 16.1 from Oct. – November 2020 (*Test phase 2*).

# 3 The scale development process

## 3.1 Pilot phase

### 3.1.1 Determine what to measure

The first step in developing a new environmental attitude scale (EAS) was a broad literature review of the field of environmental attitudes including a review of relevant theories in the social sciences and assessment of previously used scales. As commented on in chapter 1.2. we chose to define environmental attitudes as a latent construct expressing an individual's environmental world view, which follows a psychological approach to measuring attitudes. We also explicitly recognized that this should be an exploratory approach, since our basic assumption was that previous and existing environmental attitudes scales (published in the scientific literature and applied empirically at least once) insufficiently captured a current and comprehensive concept of 'environment'.

### 3.1.2 Generating an item pool

Following the initial literature review, a group of five NINA employees performed a qualitative assessment of what we thought would be the key dimensions in a multidimensional understanding of environmental attitudes. We based this first draft of dimensions on our review of the scientific literature and scrutiny of existing scales. We also conducted group discussions of what we considered to be the key tenets of perceptions of the environment across the spectrum of political orientations. We based this exercise on some of the major environmental topics in Norwegian media during the last couple of decades. From this we initially settled on six domains:

- Use/protection
- Vulnerability/robustness
- Speciesism
- Altruism
- Intrinsic values of nature
- Symbiosis/conflict

Following this, we drafted 83 items/statements to cover the six dimensions based on a combination of items partly selected from existing scales and new items formulated by us based either on concepts expressed in the scientific literature (but not directly captured in existing attitude scales) and/or statements we believed addressed salient issues in contemporary environmental debates.

### 3.1.3 Determinate scale of measurement

We found that a six-point Likert-type scale would be a good measurement for the EAS. Since the items were composed as statements, the response extremes were labelled *1 strongly disagree* and *6 strongly agree*, respectively – with the midpoints only labelled with numbers (2-5). Un-labelling the mid-alternatives was done to avoid unambiguity that may arise when labelling response options with words. In addition, having number labels (as opposed to worded) indicate equal intervals between response categories.

Six response possibilities was considered to be enough options to allow variables to co-vary, give a decent precision level in the coming analysis, and at the same time was considered to give respondents a possibility to discriminate their answers in a meaningful way without too many training response options. We chose an even number of response options, because we wanted people to make a commitment in the direction of either extremes.

### 3.1.4 Expert review of item pool

The item pool was administered to an expert group of 22 researchers working within the social science field at NINA and other institutions. Experts were asked to read the domain descriptions and then rate each item separately as to how well it corresponded to the respective domain to which it belonged. The rating scale ranged from *1 irrelevant* to *5 relevant*. 17 experts reviewed the scale item pool.

A factor analysis was subsequently carried out on the expert dataset. Items with factor loadings below 0.3 were excluded, meaning that all together 13 items were dropped. This gave us a pilot item pool consisting of 70 items. Domains and belonging items are shown in Table 1a and 1B.

*Table 1. Domains and items in the pilot version of the NINA scale following the factor analysis.*

| | |
|---|---|
| **ALTRUISM**<br>• I will be willing to pay more taxes earmarked to protect the environment.<br>• We as a rich nation should do more for the environment.<br>• I see environmental problems in other countries as my problem as well.<br>• If we do not solve environmental problems in poor countries, it will hardly have any long-term consequences for us here in Norway.<br>• I like to buy less and more consciously if this can prevent environmental problems.<br>• Rich countries have a special responsibility to help protect the environment in poor countries.<br>• I can imagine going to a poor country and working without pay on an environmentally friendly project.<br>• It is wrong to only be concerned about environmental problems here in Norway.<br>• I believe it is important that most people are willing to change their lifestyle to help protect the environment.<br>• I think it is important to give money to TV campaigns on environmentally friendly purposes.<br>• When a natural disaster occurs in a poor country, I feel it is my responsibility to help. | **SPECIESCISM**<br>• Animals must first and foremost satisfy human needs.<br>• Humans are no more important than any other animal species.<br>• Preventing animal suffering is a more morally superior goal than preserving species.<br>• All animals found in Norway have the right to live and feel well, regardless of whether they originally belong to Norway or not.<br>• Human needs and quality of life are more important than animals because humans are moral beings.<br>• It is reprehensible to kill animals from one species to protect another (for example, to kill red foxes to help arctic foxes).<br>We humans can use animals for our purposes as long as the animals have their needs met.<br>• Scientific experiments with animals are in principle and ethically reprehensible.<br>• It is worrying to keep pets such as dogs and cats, because the animals themselves have not chosen to live with us.<br>• Hunting involves a lack of respect for animal life.<br>• In Norway, it should be okay for people to kill animals that cause damage to private property. |
| **USE / PROTECT**<br>• National parks should be utilized to a greater extent for industry and economic development.<br>• The natural basis should be utilized to a greater extent than today to create economic growth.<br>• We need economic growth to protect the environment.<br>• Economic development is a more important issue than environmental considerations.<br>• People do not have the right to harm the environment just to create economic growth.<br>• Nature is best protected through use.<br>• The use and protection of nature are really incompatible objectives.<br>• Protection of large natural areas is a threat to the development of society.<br>• We must stop using nature as a resource for economic development.<br>In the long run, taking care of nature is more important than ensuring economic growth.<br>• There is no contradiction between a climate-friendly future and economic growth.<br>• We must stop using nature as a resource for economic development. | **VULNERABILITY / ROBUSTNESS**<br>• The interaction in nature is fragile and can easily be disturbed by human activities.<br>• I think our way of life has a big negative impact on nature.<br>• We tend to put more train on the natural environment than it can withstand.<br>• Major environmental changes can occur suddenly with major consequences for society if we do not act more carefully in relation to nature.<br>• Our future welfare depends on a good natural environment.<br>• Economic growth is the biggest threat to a sustainable environment.<br>• Economic growth does not really create any environmental problems.<br>• The idea that nature is vulnerable and easily destroyed is far too pessimistic.<br>• It is wrong to say that exploitation of nature has brought us close to an environmental catastrophe.<br>• The notion that we will experience an ecological disaster if we do not change course is meaningless.<br>• Alien species are a threat to the balance of Norwegian nature.<br>• Norwegian nature is very vulnerable to pollution from various human activities. |
| **VALUE OF NATURE**<br>• That nature has a so-called intrinsic value is a wrong idea.<br>• Animals and plants have as much right to live on earth as humans.<br>• Everything that lives in nature has the same moral right to life as humans.<br>• The value of nature is independent of the usefulness it can have for humans.<br>• Species that do not benefit humans have no obvious right to exist.<br>• Nature as a resource for humans is more important than nature's intrinsic value.<br>• The main reason for protecting nature is that we do not yet know how useful it can prove to be.<br>• Nature, with all its species and interactions, is an important framework around my life.<br>• I think it is right that Norwegian nature conservation legislation is based on the intrinsic value of nature.<br>Morally, all living things have the same status. For example, there is no difference between humans and animals.<br>• Humans are fundamentally different from all other species.<br>• Nature's intrinsic value is more important than nature's possible use and utility value.<br>• Nature gives me a sense of belonging in a larger context. | **SYMBIOSIS / CONFLICT**<br>• Utilization of natural resources can usually take place in ways that do not threaten the natural environment.<br>• Although we ensure that the risk of emissions is as low as possible, we must ensure that the business is limited to industries that operate with oil, gas or mining.<br>• Businesses based on extracting minerals can never be environmentally friendly.<br>• Oil and gas extraction can take place in ways that present a very low risk of uncontrolled emissions.<br>• Forestry can operate as intensively as it does today without threatening species diversity.<br>• When I look back on specific development issues where the environment has been a topic of discussion, I have usually been a supporter of the development.<br>• I am most often opposed to projects that involve encroachment on nature, even when the authorities guarantee that the environment is taken care of.<br>• The business community is fully capable of taking care of nature and the environment.<br>• Most environmental organizations are not very constructive when it comes to balancing environmental challenges against other societal problems.<br>• Economic growth in itself does not create any environmental problems.<br>• There is no contradiction between a climate-friendly future and economic growth. |

*Table 1 Domener og ledd i pilot versjonen av NINA skalaen basert på faktoranalysen.*

| | |
|---|---|
| **ALTRUISME**<br>• Jeg vil være villig til å betale mer skatt som er øremerket til å verne om miljøet<br>• Vi som en rik nasjon bør gjøre mer for miljøet<br>• Jeg ser på miljøproblemer i andre land som mitt problem også<br>• Om vi ikke løser miljøproblemer i fattige land, vil det neppe ha noen langsiktige konsekvenser for oss her i Norge<br>• Jeg kjøper gjerne mindre og mer bevisst dersom dette kan hindre miljøproblemer<br>• Rike land har et særskilt ansvar for å bidra til å verne om miljøet i fattige land<br>• Jeg kan tenke meg å dra til et fattig land og jobbe uten lønn på et miljøvennlig prosjekt<br>• Det er feil kun å være opptatt av miljøproblemer her i Norge<br>• Jeg mener det er viktig at folk flest er villig til å endre livsstil for å bidra til å verne om miljøet<br>• Jeg synes det er viktig å gi penger til TV-aksjoner om miljøvennlig formål<br>• Når det skjer en naturkatastrofe i et fattig land, føler jeg at det er mitt ansvar å hjelpe dem | **SPESIEISME**<br>• Dyr skal først og fremst tilfredsstille menneskers behov<br>• Mennesket er ikke viktigere enn noen annen dyreart<br>• Å forhindre at dyr lider er et mer moralsk høyverdig mål enn å bevare arter<br>• Alle dyr som finnes i Norge har rett til å leve og ha det godt, uansett om de opprinnelig hører hjemme i Norge eller ikke<br>• Menneskers behov og livskvalitet er viktigere enn dyrs fordi mennesker er moralske vesener<br>• Det er forkastelig å drepe dyr fra én art for å verne en annen (for eksempel drepe rødrev for å hjelpe fjellrev)<br>• Vi mennesker kan bruke dyr til våre formål så sant dyrene får tilfredsstilt sine behov<br>• Vitenskapelige forsøk med dyr er prinsipielt og etisk forkastelig<br>• Det er betenkelig å holde kjæledyr som hunder og katter, fordi dyrene ikke selv har valgt å leve sammen med oss<br>• Jakt innebærer mangel på respekt for dyrs liv<br>• I Norge bør det være greit at folk dreper dyr som forårsaker skade på privat eiendom |
| **BRUK/VERN**<br>• Nasjonalparker bør i større grad utnyttes til næring og økonomisk utvikling<br>• Naturgrunnlaget bør i sterkere grad enn i dag utnyttes til å skape økonomisk vekst<br>• Vi trenger økonomisk vekst for å verne om miljøet<br>• Økonomisk utvikling er et viktigere spørsmål enn miljøhensyn<br>• Mennesker har ikke rett til å skade miljøet bare for å skape økonomisk vekst<br>• Naturen vernes best gjennom bruk<br>• Bruk og vern av natur er egentlig uforenlige målsettinger<br>• Vern av store naturområder er en trussel mot samfunnsutviklingen<br>• Vi må slutte å bruke naturen som en ressurs for økonomisk utvikling<br>• I det lange løp er det å ta vare på naturen viktigere enn å sørge for økonomisk vekst<br>• Det er ikke noen motsetning mellom en klimavennlig framtid og økonomisk vekst<br>• Vi må slutte å bruke naturen som en ressurs for økonomisk utvikling | **SÅRBARHET/ROBUSTHET**<br>• Samspillet i naturen er skjør og kan lett forstyrres av menneskelige aktiviteter<br>• Jeg tror vår måte å leve på har stor negativ innvirkning på naturen<br>• Vi belaster i stor grad naturmiljøet mer enn det tåler<br>• Store miljøendringer kan inntre plutselig med store konsekvenser for samfunnet hvis vi ikke opptrer mer forsiktig i forhold til naturen<br>• Vår framtidige velferd er avhengig av et godt naturmiljø<br>• Økonomisk vekst er den største trusselen mot et bærekraftig miljø<br>• Økonomisk vekst skaper egentlig ingen miljøproblemer<br>• Ideen at naturen er sårbar og lett blir ødelagt er altfor pessimistisk<br>• Det er feil å påstå at utnyttelse av naturen har brakt oss nær en miljøkatastrofe<br>• Oppfatningen om at vi kommer til å oppleve en økologisk katastrofe hvis vi ikke skifter kurs er meningsløs<br>• Fremmede arter er en trussel mot balansen i norsk natur<br>• Norsk natur er svært sårbar overfor forurensnings fra ulike menneskelige aktiviteter |
| **NATURENS EGENVERDI**<br>• At naturen har en såkalt egenverdi, er en feilaktig idé<br>• Dyr og planter har like stor rett til å leve på jorda som mennesker<br>• Alt som lever i naturen, har samme moralske rett til liv som mennesker<br>• Naturens verdi er uavhengig av nytteverdien den kan ha for mennesker<br>• Arter som ikke har nytte for mennesker, har ingen selvfølgelig rett til å eksistere<br>• Naturens som ressurs for mennesker er viktigere enn naturens egenverdi<br>• Den viktigste grunnen til å verne natur er at vi ennå ikke vet hvor nyttig den kan vise seg å være<br>• Naturen med alle dens arter og samspill, er en viktig ramme rundt livet mitt<br>• Jeg syns det er riktig at norsk naturvernlovgivning har naturens egenverdi som utgangspunkt<br>• Moralsk sett har alt levende samme status. Det er for eksempel ingen forskjell på mennesker og dyr<br>• Mennesket er fundamentalt forskjellig fra alle andre arter<br>• Naturens egenverdi er viktigere enn naturens eventuelle bruks- og nytteverdi<br>• Naturen gir meg en følelse av å høre til i en større sammenheng | **SYMBIOSE/KONFLIKT**<br>• Utnyttelse av naturressursene kan som regel foregå på måter som ikke truer naturmiljøet<br>• Selv om man sørger for at risikoen for utslipp er så lav som overhodet mulig, må vi sørge for å begrense virksomheten til industri som driver med olje, gass eller gruvedrift<br>• Næringsvirksomhet som baserer seg på å utvinne mineraler kan aldri være miljøvennlig<br>• Olje- og gassutvinning kan foregå på måter som gir svært lav risiko for ukontrollerte utslipp<br>• SK5 Skogbruket kan drive like intenst som i dag uten at det truer artsmangfoldet<br>• Når jeg ser tilbake på konkrete utbyggingssaker hvor miljø har vært et diskusjonstema, har jeg som regel vært tilhenger av utbyggingen<br>• Jeg er som oftest mostander av prosjekter som innebærer naturinngrep, selv når myndighetene garanterer at miljøet blir ivaretatt<br>• Næringslivet er fullt ut i stand til å ta vare på naturen og miljøet<br>• De fleste miljøorganisasjonene er lite konstruktive når det gjelder å balansere miljøutfordringer mot andre samfunnsproblemer<br>• Økonomisk vekst skaper i seg selv ingen miljøproblemer<br>• Det er ikke noen motsetning mellom en klimavennlig framtid og økonomisk vekst |

### 3.1.5 Administration of items to a pilot sample

The pilot items were tested on a sample of 200 respondents in a telephone survey conducted by the data collection company Norstat. The sample size was within DeVellis' (2012) suggested size of 2-300 respondents. However, in the following analysis some respondents were excluded from the analysis because they had missing values on some items (the number of respondents included in the analysis were thus 157). The sample was representative in terms of gender, age and geography (persons above 18 years of age living in Norway).

### 3.1.6 Item evaluation

This step includes the following:

- see if the items are intercorrelated
- examine item-scale correlation
- examine item variance
- examine item means

Before the statistical analysis was conducted, four items were excluded because two items by a misunderstanding had been copied and included twice under two different domains respectively. They were thus excluded from both domains before analysis. Item evaluation was done by computing Exploratory Factor Analysis (EFA). Three different approaches were tried (see below).

**Approach 1: Checking the validity of the expected six-factor domain**
Factor analysis was computed for each domain separately, checking for dimensionality. Ideally each domain should be representing one single factor, unfortunately this was not the case as all domains were multi-dimensional. We then reduced the dataset by including the unidimensional items within each of the six domains. This gave us 36 items (reduced from 66). Factor analysis of these 36 resulted in only 16 of them being included in a satisfying factor analysis (Factor method: maximum likelihood, rotation: oblimin, factor loading cut-off: 0,4). With this solution three factors were kept.

**Approach 2 Exploratory Factor Analysis**
A factor analysis on all items, independent of the six expected domains, was performed (Factor method: maximum likelihood, rotation: oblimin, factor loading cut-off: 0,5). This analysis gave us five factors, but only 23 items were included.

**Approach 3 Qualitative review of items proposing new domains**
Based on conceptual similarities we redefined four new domains: preliminary named *Altruism*, *Ecocentrism*, *Utility* and *Animal Equality*. We then included 29 of the pilot items into these new domains and performed a factor analysis on the reduced dataset (factor model: maximum likelihood, rotation: oblimin, factor loading cut-off: 0,386). The analysis confirmed these new-proposed domains as they came out as four separate factors. Only two of the 29 items were excluded in this analysis (Tables 2a and 2b).

***Table 2a*** *Domains (with preliminary working names) and corresponding items derived from factor analysis approach III.*

| | |
|---|---|
| **Altruism** | • When there is a natural disaster in a poor country, I feel it is my responsibility to help them<br>• Rich countries have a special responsibility to help protect the environment in poor countries<br>• I think it is important to give money to TV campaigns on environmentally friendly purposes<br>• We as a rich nation should do more for the environment<br>• I would be willing to pay more taxes that are earmarked to protect the environment<br>• I see environmental problems in other countries as my problem as well |
| **Ecocentrism** | • The interaction in nature is fragile and can easily be disturbed by human activities<br>• I think our way of life has a big negative impact on nature<br>• Major environmental changes can occur suddenly with major consequences for society if we do not act more carefully in relation to nature<br>• Norwegian nature is very vulnerable to pollution from various human activities<br>• Our future welfare depends on a good natural environment<br>• The idea that nature is vulnerable and easily destroyed is far too pessimistic |
| **Utility** | • Economic development is a more important issue than environmental considerations<br>• Protection of large natural areas is a threat to the development of society<br>• Economic growth does not really create any environmental problems<br>• Species that do not benefit humans have no natural right to exist<br>• Animals must first and foremost satisfy human needs<br>• It is worrying to keep pets such as dogs and cats, because the animals themselves have not chosen to live with us<br>• Nature as a resource for humans is more important than nature's intrinsic value |
| **Animal rights** | • Everything that lives in nature has the same moral right to life as humans<br>• All animals found in Norway have the right to live and feel well, regardless of whether they originally belong to Norway or not<br>• Morally, all living things have the same status. For example, there is no difference between humans and animals<br>• Human needs and quality of life are more important than animals because humans are moral beings<br>• Man is no more important than any other animal species<br>• Humans are fundamentally different from all other species<br>• Animals and plants have as much right to live on earth as humans<br>• Hunting involves a lack of respect for animal life |

***Table 2b**. Domener (med foreløpige arbeidstitler) og korresponderende ledd fra faktor analyse i tilnærming 3.*

| | |
|---|---|
| **Altruisme** | • Når det skjer en naturkatastrofe i et fattig land, føler jeg at det er mitt ansvar å hjelpe dem<br>• Rike land har et særskilt ansvar for å bidra til å verne om miljøet i fattige land<br>• Jeg synes det er viktig å gi penger til TV-aksjoner om miljøvennlig formål<br>• Vi som en rik nasjon bør gjøre mer for miljøet<br>• Jeg vil være villig til å betale mer skatt som er øremerket til å verne om miljøet<br>• Jeg ser på miljøproblemer i andre land som mitt problem også |
| **Økosen-trisme** | • Samspillet i naturen er skjør og kan lett forstyrres av menneskelige aktiviteter<br>• Jeg tror vår måte å leve på har stor negativ innvirkning på naturen<br>• Store miljøendringer kan inntre plutselig med store konsekvenser for samfunnet hvis vi ikke opptrer mer forsiktig i forhold til naturen<br>• Norsk natur er svært sårbar overfor forurensnings fra ulike menneskelige aktiviteter<br>• Vår framtidige velferd er avhengig av et godt naturmiljø<br>• Ideen at naturen er sårbar og lett blir ødelagt er altfor pessimistisk |
| **Nytte** | • Økonomisk utvikling er et viktigere spørsmål enn miljøhensyn<br>• Vern av store naturområder er en trussel mot samfunnsutviklingen<br>• Økonomisk vekst skaper egentlig ingen miljøproblemer<br>• Arter som ikke har nytte for mennesker har ingen selvfølgelig rett til å eksistere<br>• Dyr skal først og fremst tilfredsstille menneskers behov<br>• Det er betenkelig å holde kjæledyr som hunder og katter, fordi dyrene ikke selv har valgt å leve sammen med oss<br>• Naturens som ressurs for mennesker er viktigere enn naturens egenverdi |
| **Ville dyrs rettigheter** | • Alt som lever i naturen har samme moralske rett til liv som mennesker<br>• Alle dyr som finnes i Norge har rett til å leve og ha det godt, uansett om de opprinnelig hører hjemme i Norge eller ikke<br>• Moralsk sett har alt levende samme status. Det er for eksempel ingen forskjell på mennesker og dyr<br>• Menneskers behov og livskvalitet er viktigere enn dyrs fordi mennesker er moralske vesener<br>• Mennesket er ikke viktigere enn noen annen dyreart<br>• Mennesket er fundamentalt forskjellig fra alle andre arter<br>• Dyr og planter har like stor rett til å leve på jorda som mennesker<br>• Jakt innebærer mangel på respekt for dyrs liv |

## 3.2 Test phase part 1

### 3.2.1 Generating/improve item pool

The results from the pilot analysis revealed the need for considerably more work to refine the scale. We found approach three (cfr. 3.1.6 qualitative review) to be the most suitable for furthering scale development, one reason being the very small pilot sample. The 27 items belonging to the four domains named Altruism, Ecocentric, Utility and Animal Equality (see Table 2 a,b) were thus kept in the new pool.

Even though we had decided on the 27 items in approach three during the pilot phase, we did not reject any of the pilot items yet, as we thought there were aspects covered in some of these that needed to be included. We thus decided to carefully go through all items again and revisited the scientific literature. We found Milfont and Duckitt's (2010) seminal review especially useful and inspired two new domains: *technology dependency* and *public regulations*. In addition, we y looked thoroughly into all wording/phrasing in all items we considered to include. Most items were refined and some items were again dropped. This work was done thoroughly over several

project group sessions. We then ended up with six domains and a corresponding 71 items (see attachment A).

One of the original domains was considered to be an important aspect to include in a survey related to environmental attitudes, but we were uncertain whether it actually measured an aspect of environmental attitudes, or if these beliefs point to a related, but distinct, attitude. This was a domain called *level of conflict between economic growth and protection*, and after revision consisting of eight items (see attachment B).

### 3.2.2 Expert review

In fall 2019 we decided to once more let the scale be scrutinized by an expert panel. The panel consisted of NINA researchers working in the social science field. All together 23 experts were invited to give their inputs in an internet-based survey tool. Nine experts gave their inputs. Experts were asked to:

1) Rate how well they considered an item to reflect the corresponding domain on a five-point scale ranging from *1 does not measure the domain at all* to *5 measure the domain very well.*
2) Comment on wording/phrasing for each item.
3) Make general comments to the domains and to the whole scale.

We then performed descriptive analysis on the review data. Since the number of experts were low, we looked only at mean scores for each item. 49 items had a mean score of 4 or above. Only one item had a mean score below 3, whereas the rest (21 items) had a mean score between 3 and 3.99. The project group then discussed the results from the expert review. No item was dropped only due to a lower mean score in the expert review, all items were considered thoroughly with subsequent comments. For instance some items had a lower score, but also comments on the wording. If an item was considered to cover an important aspect, in most cases they were re-worded and included. The result of this process was a scale consisting of six domains (the same as sent out to the experts) and 67 items (see attachment A), in addition we included the domain *level of conflict between economic growth and protection* (as described above) to test if it would be a meaningful part of the NINA scale.

### 3.2.3 Inclusion of validation items

In this round we included the Social Desirability Index items as suggested by DeVellis (2012). We included a short version (original is 33 items) of the Marlowe-Crowne Social Desirability Index (Rudmin 1999) consisting of 10 items (see box). In addition, we also included six items measuring pro-environmental behaviour intentions (Milton & Rose 1997, Table 3).

Table 3. Social desirability index and pro-environmental behaviours.

| MARLON-CROWN SOCIAL DESIRABILITY INDEX | PRO-ENVIRONMENTAL BEHAVIOUR INTENTIONS |
|---|---|
| • Jeg er en god lytter uansett hvem jeg snakker med. *No matter who I'm talking to, I'm always a good listener.*<br>• Det har hendt at jeg har utnyttet folk. *There have been occasions when I have taken advantage of someone*<br>• Noen ganger vil jeg heller ta igjen enn å tilgi og glemme. *I sometimes try to get even rather than forgive and forget.*<br>• Når det er noe jeg ikke vet, koster det meg ikke noe å innrømme det. *When I don't know something I don't mind at all admitting it.*<br>• Det har vært stunder da jeg har hatt lyst til å smadre ting. *There have been occasions when I felt like smashing things*<br>• Jeg har aldri noe imot å bli spurt om å gjengjelde en tjeneste. *I never resent being asked to return a favor.*<br>• Jeg har nesten aldri hatt lyst til å skjelle noen ut. *I have almost never felt the urge to tell someone off*.<br>• Av og til blir jeg irritert på folk som ber meg om tjenester. *I am sometimes irritated by people who ask favors of me.*<br>• Av og til når folk mislykkes synes jeg de får som fortjent. *I sometimes think when people have a misfortune they only got what they deserved*.<br>• Jeg har aldri sagt noe med den hensikt å såre. *I have never deliberately said something that hurt someone's feelings.* | • Jeg vil være villig til å signere et opprop for å gi støtte til en miljøsak. *I am willing to sign a petition to support an environmental cause*.<br>• Jeg vil vurdere å bli medlem av en gruppe eller et forbund som er opptatt av miljøspørsmål. *I will consider becoming a member of a group or association concerned with environmental issues*.<br>• Jeg vil være villig til å betale mer skatt for å støtte statens arbeid mot forurensning. *I would be willing to pay more tax to support public efforts against pollution*.<br>• Jeg vil være villig til å betale mer hver måned for strøm dersom det betyr renere luft. *I would be willing to pay more each month for electricity if it means cleaner air*.<br>• Jeg vil være villig til å slutte å kjøpe produkter fra bedrifter som forurenser miljøet selv om det er mer upraktisk for meg. *I am willing to stop buying products from producers polluting the environment, even if its impractical for me*.<br>• Jeg vil være villig til å aktivt bidra for å minske forurensing selv om det ikke gir umiddelbare merkbare resultater. *I am willing to actively contribute to reduce pollution, even if it doesn't leads to noticeable results*. |

### 3.2.4 Data sampling: test 1

A full internet-based survey with a nationwide sample of 400 respondents was carried out by Norstat in November 2019. The survey questionnaire consisted of:

- 67 items belonging to the six domains: responsibility, public regulations, nature's value, wild animals, use and protection and technology optimism
- Eight items measuring level of conflict between economic growth and protection
- Six items measuring pro-environmental behaviour
- 10 Social desirability items
- Background information about the respondent: gender, age, education, political orientation and county of residence.

Respondent representativity was sufficient in terms of gender, age and geographical distribution. The full survey is shown in attachment C.

### 3.2.5 Item evaluation and data analysis

A preliminary analysis of data from test 1 was carried out in December 2019. Data was imported to R. Negatively worded items were reversed before analysis. This included: Correlation checking 1) general correlation between items, 2) if reversed items work, and 3) if the Social desirability index correlated highly with item answers.

The results report of Phase 1 confirmatory factor analysis provided the basis for evaluation of items to develop a reduced form version of the environmental attitude scale. Factors were rotated using varimax. The results from Phase 1 were replicated, using the summary statistics input function in Stata MP (v.16). All of the items tested within the Phase 1 survey were assessed by the project team, where items with low factor loadings (<.40) and low item reliabilities (alphas < .60) were removed from consideration in the Phase 2 survey design. All items that performed well and were explicitly included within the confirmatory factor analysis (CFA) models of the analysis, though specific wording was altered in some items. For example, all items that were worded in a negative direction were transformed to a positive direction for item sets that had a predominately positive direction. The purpose was to have unidirectional items within each theoretical attitude dimension (determined from Pilot exploratory factor analysis (EFA) and Phase 1 CFA). Though the advice on this practice varies (DeVellis 2012; Klein 2016; Herche & Engelland 1996), the practice of combining different directional items in the development of scales is known to contribute to response bias and issues in researcher interpretation (Weijters et al. 2013; Suàrez-Alvarez et al. 2018).

## 3.3 Test phase part 2

### 3.3.1 Improve item pool

Decisions made in item rewording and dropping were guided by the findings and recommendations from test phase 1, dialogue within a project workshop held in June 2020, and collaborations among team members. Our aim was to produce a shorter survey to combat attrition and respondent fatigue, therefore, we dropped the item set regarding social desirability and the item set of environmental behaviour in addition to some attitude items. We took these actions due to: 1) the consistently non-significant correlations from the reduced social desirability index with environmental attitudes in Phase 1 (we knew our sampling frame would be the same) and, 2) the general and largely irrelevant environmental behaviours of the choice set of environmental behaviours used in Phase 1, and 3) the need to address potential cognitive changes in attitude responses due to the Covid-19 pandemic. We crafted an item set of 10 Covid-19 questions, unidirectional but mixed in their relevance to specific attitude items or overall environmental attitudes. Therefore, we decided to replace some survey questions with the Covid-19 specific set. Phase 1 used one technique to address response bias (social desirability) whereas Phase 2 employed two ways: the Covid-19 set and a single question of response certainty. The response certainty question asked respondents to rate how certain they were of their responses (1 – highly uncertain -> 7 – highly certain). This question directly followed the last attitude carousal, so this is a measure of respondents overall certainty to the items related to environmental attitudes, rather than certainty of each specific theoretical dimension. We reduced the total attitude items for the Phase 2 survey by 12, for a total of 54 attitude item questions tested in Phase 2. The overall survey length for Phase 2 was shorter but not substantially (71 questions total). An English language version of the survey was also produced but must be tested for consistency in terms and interpretation.

### 3.3.2 Data sampling test 2

The survey was launched through Norstat in a web based format on Sept. 14 2020. The online survey differed from the previous ones in that Norstat adopted a carousel based design for answering the questions related to environmental attitude dimensions. This change in survey delivery can be a source of unexplained variance in item variances, among other sources of error. We asked for a sample size of 500 because knew we would use the structural equation model function in Stata MP to assess the measurement model (Confirmatory factor analysis CFA), *and*

test the EA vertical structure (Klein 2016). The actual sample size was (N= 503). The sample exhibited no age, gender, nor regional bias. Norstat generated a frequency weight in the delivered data.

### 3.3.3 Item evaluation and data analysis

The single factor models tested in the Part 1 analysis did produce indications that some indicators would be best to drop in the test dimension scales to improve both reliability and explained variance of the remaining items. Standard procedure for setting up a factor analysis is to first investigate item correlations and alphas. The following correlations of items within each dimensions helped determine the multiple factor models.

1) **Responsibility for the environment** items have moderate to strong correlations. There is negative weak correlation with the items and the uncertainty question.
2) **Public regulations** items had moderate to strong correlations except for two items with weak correlations. All items were negatively weakly correlated with response certainty. All items were tested in the CFA models except for the weakest item correlates.
3) **Natures' value** items had moderate correlations. There was positive weak correlation with the items and response certainty.
4) **Relationship between humans and wild animals** items had strong correlations and weak positive correlation with response certainty.
5) **Use or protection** items had moderate to strong correlations. All had weak negative correlations with response certainty.
6) **Role of technology** items had weak to moderate correlations. Similar to Phase 1, technology items had the poorest on average interitem correlation. We considered some items within this dimension as possible complex indicators. All items were weakly correlated (negative) with response certainty.
7) **Conflict between growth and protection** items had moderate to strong correlations. All were positively weakly correlated with response certainty. As in Phase 1, this will be brought into a model to test for consistency, but brought in as a lower level factor to the Use or protection dimension.
8) **Covid-19** items had weak to moderate correlations, and weak negative correlations with response certainty. It appeared this set did not work well together. Nonetheless, we conducted a principal components analysis (PCA) to find out how many constructs would emerge from this item set. After an initial set of eigenvectors were derived, we rotated the matrix using varimax. Still, four constructs appeared to be the minimum number required to explain most of the variance of the Covid-19 items. After fitting, we correlated the PCA constructs to test if they were unidimensional. The constructs, though unidimensional, did not tell us anything about the item set that made theoretical sense, thus the item set was not used as a composite or index in the CFA analyses. Rather, individual Covid-19 items were drawn out to test specifically with dimensions that made theoretical sense (e.g. *covid-19 has made me wary of contact with wild animals* & wild animals dimension). Overall, weak correlations tend to bear out in the data.

**Alpha scores**

Cronbach's alphas – the most common test of item reliability, that is the ratio of shared variance of items to total variance – were good for all dimensions. The lowest was 'Role of technology'. Average inter-item correlation is a way of analyzing internal consistency reliability. It is a measure of if individual questions on a test or questionnaire give consistent, appropriate results; Inter-item correlations (iic) over .50 show the scale is saturated.

- Responsibility for the environment: α=.93 average iic=.61
- Public regulations: α=.83 average iic=.38
- Natures's values: α=.89 average iic=.45
- Rel. between humans and wild animals: α=.93 average iic=.64
- Use or protection: α=.91 average iic=.57
- Role of technology: α=.77 average icc=.36
- Conflict between growth and protection: α=.87 average icc=.52

Pairwise correlation and reliability results pointed to some items being complex indicators (explained by more than one factor or covariance with other items' error terms), one of which in the 'Role of technology' domain had high correlations with items in the 'Use and protection' domain. Only this item was brought into further analysis while the others were removed. In Phase 2 we wanted to model the environmental attitude dimension items within a single, multiple, and hierarchical factor structure to improve our understanding of attitude structure and provide fit indices that point to alternate relationships among items and the latent variables that describe them. Model goodness of fit tests indicated that the single factor models had moderate fit, though none (except for one single congeneric model of the dimension 'B') passed the $chi^2$ likelihood ratio tests (i.e. was not rejected). The last step in the analysis of Phase 2 was to build a structural equation model to represent the theoretical vertical structure of the EA, guided by the work of Milfont & Duckitt (2010) in theorizing and testing higher factor models. Goodness of fit (GOF) and modification indices were used to refine, rather than build, the models. We tested two second order factors along the theoretical axis of preservation and utility.

In Phase 2, the purpose of item reduction was to produce a final set of items, four per dimension, that garnered a reduced form general environmental attitude scale. Phase 2 therefore had a stricter cutoff point for factor loadings than in Phase 1; items were retained if loadings were above .70, alphas > .80 and the difference between the explained and total variance of items small. Furthermore, items were examined individually (equation level fit statistics) and kept if the squared multiple correlation coefficient was large relative to the residual variance of the fitted (model) and sample-predicted item variance. It was relatively easy to reduce the items to four for every dimension given these strict guidelines for item reduction. Those that were 'borderline' we examined in light of other retained items and determined which fit best in the item set (e.g. making sure a theoretical construct was adequately covered in the item set).

**Interpretation of estimates**

Parameter estimates in CFA are interpreted as follows:

1. Pattern coefficients (factor loadings) are regression coefficients in the unstandardized solution: a pattern coefficient of 4.0 means we expect a 4 point increase in the individual indicator given a 1 point increase in the factor. Coefficients fixed to zero have no standard error or significance (z) test.
2. Where all variables have unit variance (1) standardized pattern coefficients for simple indicators ( indicators that depend only on one factor) are estimated Pearson correlations. Squaring these result in proportion of variance explained by factor in each item (R2).
3. For complex indicators (indicators depend on more than one factor) standardized pattern coefficients are interpreted as standardized regression coefficients (beta weights) that control for correlated causes (factors). Because these are not correlations, we cannot square beta weights to produce proportion of explained variance.
4. The ratio of unstandardized error variance over the overserved variance of the corresponding indicator equals the proportion of unexplained variance (e.g. variance of an indicator is 25, and error variance is 9 in a CFA model. The unexplained variance = 25/9 = .36, and the proportion of explained variance is R2 = 1 - .36 = .64). Equation level (local level) statistics were assessed together with global (model) level statistics to make a final model selection. Interpretation of GOF stats can vary. $Chi^2$ likelihood tests the assumption that the predicted model and observed data match perfectly; rejecting the null in this case is not desirable. The $chi^2$ likelihood test is likely to fail with larger samples (n>=200) and results of $p<0.05$ are largely ignored in CFA and SEM procedures (Ferraro et al 2020). Instead other fit statistics are preferred. For comparative fit index and Tucker-Lewis Index (an incremental fit index) values should be >= 0.90 with >=.95 to indicate excellent fit (Hu & Bentler 1998), as these indices measure the departure from the baseline model to the researcher derived model (the larger the better). For Standardized Root Mean Square Residual (SRMR, an absolute measure of fit) R,

values <=0.08 are acceptable with values closer to 0 indicative of better fit (Hu & Bentler, 1999). The Root Mean Square Error of Approximation (RMSEA, values <=0.10 are considered sufficient, with values <=0.05 considered excellent (Klein 2016). SRMR and RMSEA measure the difference between a saturated model and the researcher derived model, therefore, smaller values are preferable. Collectively, these GOF statistics indicate whether the theoretical model accurately represents the relationships among the data. Finally, robust standard errors were used in all model estimations as our data do not fit the multi-variate normality assumption with full maximum likelihood procedures in CFA.

### 3.3.4 Optimize scale length

After testing multiple models, including single factor, multiple factor, and higher order (i.e. Preservation vs. Utility dimensions suggested by Milfont and Duckkitt 2010), we arrived at a final model. Our final model is a nested model (Figure 1), refined from examining local (equation level) and global (model level) GOF of simple congeneric and complex CFA model rounds and testing modifications. For example, constraining variance among items or adding estimation parameters such as measurement covariances or structural paths. The highest modification indices (i.e. the largest drop in model $chi^2$ if modification applied) guided the model refinement. The final model includes all seven theoretical attitude dimensions, but only items with the highest factor loadings from prior tests. $Chi^2$ likelihood test was not passed (i.e. null rejected) but the global and local GOF indicate the model fits the sample variance well (RMSEA_SB = .05 , CFI = .88 TFI = .87 SRMR = .18 CD =1). Moreover, the model was stable and made theoretical sense. The Technology (6) & Public regulation (2) domains did not stand up well as dimensions of their own. They appear to be nested or part of other dimensions. There is theoretically a higher level to this structure, as the final model depicts, but future research that incorporates this scale should further test this assumption.

# 4 The environmental attitude scale

## 4.1 Full version

Table 4. Complete English version of the NINA scale.

| Dimensions | Statements/Questions |
|---|---|
| Responsibility | • Rich countries have a particular responsibility for protecting the environment worldwide.<br>• It is important to contribute money to environmental causes.<br>• Rich countries should do more for the environment.<br>• We must contribute to solving global environmental problems because we will all reap the benefits.<br>• I would be willing to pay more taxes if I know it will be used towards environmental purposes.<br>• I would be willing to buy less if this can reduce environmental problems.<br>• I would be willing to reduce my consumption, if that can contribute to improving the environment other places in the world.<br>• It helps to implement environmental measures in Norway, even when other countries don't. |
| Public regulations | • Industry and business should be required by law to use environmentally friendly and recycled materials.<br>• I agree with actions to require industry to use environmentally friendly materials even if it makes the products more expensive.<br>• The authorities should enforce a transition to a carbon-free economy.<br>• People will not do what is necessary to ensure a sustainable future unless the authorities actively intervene.<br>• The Government should subsidize environmentally friendly products so that they become as common and inexpensive as other products.<br>• The authorities must act to reduce our dependency on the petroleum industry.<br>• Increased environmental awareness among the public will solve the environmental problems without the need for public regulations.<br>• Unless the authorities intervene, people will not do the changes that are necessary to secure a sustainable future. |
| Nature's values | • Nature has value in and of itself.<br>• The intrinsic value of nature is more important than the extracted resources for industry.<br>• It makes me sad to see large-scale development in nature.<br>• The quality of our local nature says a lot about who we are as a society and people.<br>• I have profound respect for all living things in nature.<br>• Nature in itself is not sufficiently valued by our society.<br>• The most important reason for protecting nature, is that we don't know what use it might have for us in the future.<br>• The current growth of society destroys too much nature.<br>• I feel strongly connected to nature. |
| Wild animal rights | • All animals in nature have the same rights to life as humans.<br>• Humans are no more important than any other species of animal.<br>• The needs of wild animals for good living conditions (food, habitat) are equally important as our needs.<br>• We should take as much care for the future of wild animals as for ourselves.<br>• Wild animals have equal rights as humans to life on Earth.<br>• Wild animals have the same basic rights to a good life as humans.<br>• |

| | |
|---|---|
| Economy | • Economic growth is more important than environmental concerns.<br>• It is more important to have the opportunity to use natural resources to produce goods and services then protect nature.<br>• It is more important to create economic growth than to protect nature.<br>• Our environment is not in such a critical condition that we need to limit the extraction of resources.<br>• As humans we have the right to exploit natural resources to increase our standard of living.<br>• It is less important to consider environmental concerns than economic development. |
| Technology | • Most environmental problems can be solved by using new and better technology.<br>• Technology will ensure a sustainable society in the future.<br>• Technological development solves more environmental problems than it creates.<br>• Technology will reduce the negative sides of human consumption so we can live in the future as we do now.<br>• The belief that future technology and knowledge will solve the environmental problems is a fallacy.<br>• In the future artificial intelligence will provide better solutions to the environmental problems than we as humans are capable of. |
| Use and protection | • Future environmental solutions will be created through economic growth.<br>• There is no contradiction between a climate friendly future and the consumption level we have today.<br>• Economic growth is a prerequisite for a successful green transition.<br>• Economic growth is not the largest threat against the environment.<br>• People who view increased consumption as a threat to the environment are overly pessimistic.<br>• The business community by and large make good environmental considerations. |

Table 5. Norsk fullversjon NINA skala.

| Dimensjon | Påstander/spørsmål |
|---|---|
| Ansvar | • Jeg kunne gjerne betalt mer skatt dersom jeg visste at det gikk til miljøformål.<br>• Rike land burde ta et særskilt ansvar for å bidra til å verne om miljøet.<br>• Jeg synes det er viktig å gi pengestøtte til miljøformål.<br>• Rike land bør gjøre mer for miljøet.<br>• Å løse globale miljøproblemer vil være gunstig for alle, derfor må Norge bidra.<br>• Jeg er villig til å kjøpe mindre dersom det kan redusere miljøproblemene.<br>• Rike land bør gi mer økonomisk bistand til miljøtiltak i andre land.<br>• Jeg er villig til å redusere mitt forbruk for miljøets skyld.<br>• Det hjelper å gjennomføre miljøtiltak i Norge selv om andre land ikke gjør det samme. |
| Offentlige reguleringer | • Myndigheten bør subsidiere miljøvennlige produkter slik at de blir vanlige og like billige som andre produkter.<br>• Industri og næringsliv må være lovpålagt å drive så miljøvennlig som mulig.<br>• Jeg er tilhenger av tiltak som pålegger næringslivet å bruke miljøvennlige materialer, selv om det betyr at jeg må betale mer.<br>• Strengere bil- og drivstoffavgifter enn i dag vil være god miljøpolitikk.<br>• Myndighetene må ta ansvar for at vi går over til en økonomi som i mindre grad er basert på fossil energi.<br>• Myndighetene må handle slik at vår avhengighet av petroleumsindustrien blir mindre.<br>• Økt miljøbevissthet blant folk vil løse miljøproblemene uten at vi trenger offentlige reguleringer.<br>• Uten at myndighetene griper aktivt inn kommer ikke folk til å gjøre de endringene som er nødvendig for å sikre en bærekraftig framtid. |
| Naturverdier | • Jeg har dyp respekt for alt levende i naturen.<br>• Naturen har en verdi uavhengig av hvilken nytte den kan ha for mennesker.<br>• Naturen i seg selv verdsettes for lite i vårt samfunn.<br>• Naturens egenverdi er viktigere enn bruks- og nytteverdien.<br>• Den viktigste grunnen til å verne nature, er at vi ikke vet hvilken nytte den kan ha for oss i framtiden.<br>• Naturen har en verdi i seg selv.<br>• Jeg blir ofte trist når jeg ser større naturinngrep.<br>• Dagens samfunnsutvikling ødelegger for mye natur.<br>• Jeg føler meg sterkt knyttet til naturen.<br>• Naturens tilstand sier noe om hvem vi er som samfunn og folk. |
| Ville dyrs rettigheter | • Alle dyr som lever i naturen har samme rett til liv som mennesker.<br>• Det er ingen fundamental forskjell mellom ville dyr og mennesker.<br>• Ville dyr har like stor rett til å leve på jorda som mennesker.<br>• Ville dyr har lik rett til et godt liv som mennesker.<br>• Mennesket er ikke viktigere enn noen annen dyreart.<br>• Ville dyrs behov for å ha gode livsvilkår (mat, levesteder etc.) er like viktige som våre behov.<br>• Vi mennesker bør ta like store hensyn til ville dyr som til oss selv.<br>• |

| | |
|---|---|
| Økonomi | • Økonomisk vekst er viktigere enn miljøhensyn.<br>• Vi mennesker har rett til å utnytte naturressursene for å øke levestandarden vår.<br>• Det er viktigere at vi har muligheter til å bruke naturressursene til å produsere varer/tjenester for konsum og forbruk, enn at vi verner naturen.<br>• Det er viktigere å skape økonomisk vekst enn å verne natur.<br>• Det er mindre viktig å ta hensyn til miljø enn til økonomisk utvikling.<br>• Naturen er ikke i en så kritisk tilstand at vi trenger å redusere uttaket av ressurser. |
| Teknologi | • De fleste miljøproblemene kan løses ved å ta i bruk ny og bedre teknologi.<br>• Troen på at framtidas teknologi og kunnskap vil kunne løse miljøproblemene er feilslått.<br>• I framtida vil tekknologiske framskritt bidra til at vi får et mer bærekraftig samfunn.<br>• Den teknologiske utviklingen løser flere miljøproblemer enn den skaper.<br>• I framtida vil kunstig intelligens finne bedre løsninger på miljøproblemene enn det vi mennesker er i stand til i dag.<br>• Teknologien vil redusere de negative konsekvensene av vårt forbruk, slik at vi kan fortsette å leve slik vi gjør i dag. |
| Bruk og vern | • Den største trusselen mot miljøet er ikke økonomisk vekst.<br>• Framtidas miljøløsninger blir bedre med fortsatt økonomisk vekst.<br>• Folk som ser på økt forbruk som en trussel mot miljøet er overdrevent pessimistiske.<br>• Næringslivet tar gjennomgående hensyn til natur og miljø på en god måte.<br>• Det er ikke noen motsetning mellom en klimavennlig framtid og forbruk tilsvarende det vi har i dag.<br>• Økonomisk vekst er en forutsetning for et vellykket grønt skifte. |

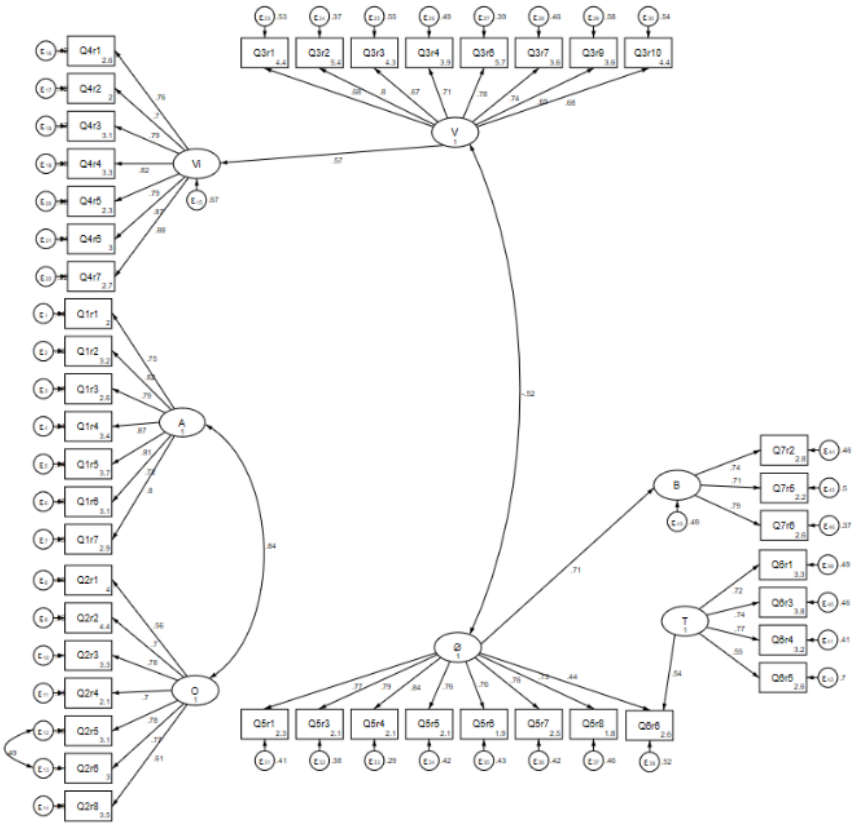


Figure 2. Final nested model

## 4.2. Short version

The CFA model depicted here guided our final selection of items for the reduced form environmental attitude scale as follows.

Table 6: English short version of the final NINA scale.

| Dimensions | Statements/Questions |
|---|---|
| Responsibility | • Rich countries have a particular responsibility for protecting the environment worldwide.<br>• It is important to contribute money to environmental causes.<br>• Rich countries should do more for the environment.<br>• We must contribute to solving global environmental problems because we will all reap the benefits. |
| Public regulations | • Industry and business should be required by law to use environmentally friendly and recycled materials.<br>• I agree with actions to require industry to use environmentally friendly materials even if it makes the products more expensive.<br>• The authorities should enforce a transition to a carbon-free economy.<br>• People will not do what is necessary to ensure a sustainable future unless the authorities actively intervene. |
| Nature's values | • Nature has value in and of itself.<br>• The intrinsic value of nature is more important than the extracted resources for industry.<br>• It makes me sad to see large-scale development in nature.<br>• The quality of our local nature says a lot about who we are as a society and people. |
| Wild animal rights | • All animals in nature have the same rights to life as humans.<br>• Humans are no more important than any other species of animal.<br>• The needs of wild animals for good living conditions (food, habitat) are equally important as our needs.<br>• We should take as much care for the future of wild animals as for ourselves. |
| Economy | • Economic growth is more important than environmental concerns.<br>• It is more important to have the opportunity to use natural resources to produce goods and services then protect nature.<br>• It is more important to create economic growth than to protect nature.<br>• Our environment is not in such a critical condition that we need to limit the extraction of resources. |
| Technology | • Most environmental problems can be solved by using new and better technology.<br>• Technology will ensure a sustainable society in the future.<br>• Technological development solves more environmental problems than it creates.<br>• Technology will reduce the negative sides of human consumption so we can live in the future as we do now. |
| Use and protection | • Future environmental solutions will be created through economic growth.<br>• There is no contradiction between a climate friendly future and the consumption level we have today.<br>• Economic growth is a prerequisite for a successful green transition. |

Table 7. Norsk kortversjon NINA skalaen.

| **Dimensjon** | • **Påstander/spørsmål** |
|---|---|
| Ansvar | • Rike land har et særskilt ansvar for å verne om miljøet på verdensbasis.<br>• Det er viktig å gi pengestøtte til gode miljøformål.<br>• Som rik nasjon bør vi mer økonomisk bistand til miljøvennlige formål i andre land.<br>• Å løse globale miljøproblemer vil være gunstig for alle, derfor må alle bidra. |
| Offentlige reguleringer | • Industri og næringsliv må være lovpålagt å bruke miljøvennlige og resirkulerte materialer.<br>• Jeg er enig i tiltak som pålegger næringslivet å bruke miljøvennlige materialer, selv om det gjør produktene dyrere.<br>• Uten at myndighetene griper aktivt inn, kommer ikke folk til å gjøre de endringene som er nødvendige for å sikre en bærekraftig framtid.<br>• Myndighetene må ta ansvar for at vi går over til en økonomi som er mindre grad er basert på at utnyttelse av fossil energi. |
| Naturverdier | • Naturen har en verdi i seg selv.<br>• Naturens egenverdi er viktigere enn bruks- og nytteverdien.<br>• Jeg blir ofte trist når jeg ser større naturinngrep.<br>• Naturens tilstand sier noe om hvem vi er som samfunn og folk. |
| Ville dyrs rettigheter | • Alle dyr som lever i naturen har samme rett til liv som mennesker.<br>• Mennesket er ikke viktigere enn noen annen dyreart.<br>• Ville dyrs behov for å ha gode livsvilkår er like viktige som våre behov.<br>• Ville dyr har lik rett til et godt liv som mennesker. |
| Økonomi | • Økonomisk vekst er viktigere enn miljøhensyn.<br>• Det er viktigere at vi har muligheter til å bruke naturressursene til å produsere varer og tjenester for konsum og forbruk, enn at vi verner naturen.<br>• Miljøet er ikke i en så kritisk tilstand at vi trenger å begrense uttaket av naturressurser.<br>• Det er viktigere å skape økonomisk vekst enn å vern natur. |
| Teknologi | • De fleste miljøproblemene kan løses ved å ta i bruk ny og bedre teknologi.<br>• I framtida vil ny og forbedret teknologi være det viktigste hjelpemiddelet for et bærekraftig samfunn.<br>• Den teknologiske utviklingen løser flere miljøproblemer enn den skaper.<br>• Teknologien vil redusere de negative konsekvensene av vårt forbruk, slik at vi kan fortsette å leve slik vi gjør i dag. |
| Bruk og vern | • Framtidas miljøløsninger vil skapes gjennom fortsatt økonomisk vekst.<br>• Det er ingen motsetning mellom en klimavennlig framtid og forbruk tilsvarende det vi har i dag.<br>• Økonomisk vekst er en forutsetning for et vellykket grønt skifte. |

# 5 Recommendations for future implementation

Although the scale presented here is a result of considerable analysis and testing, we consider it essential that the testing and improvement of the instrument continues through the practical application in future studies in diverse settings and samples. At this stage, the general environmental attitude scale we developed needs frequent and broad application in order to develop consistent construct validity, and convergent and discriminant validities. We have produced a draft English language version of the survey that will be refined for future application in other countries that (should) produce differences in national level environmental attitudes but not to any extreme degree. Future work should further examine the factor structure of environmental attitudes, as the models produced here were used to guide the final selection of items rather than a causal model as is typically the aim in research in environmental behaviour, values, individual preferences, and other work that employs structural equation modelling. Our environmental scale can be used all together, or separate dimensions pulled out depending on the theoretical frame or practical research needs (such as survey length limitations). Each dimension is a measurement model that can be brought into a theoretically sound structural model to investigate causality.

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# 7 Attachments

Attachment A: Scale domains and items in expert review test 1 – including min, max and mean score for each item (on a five-point scale where 1=does not fit into the domain at all and 5=fits very well into the domain

| | Min | Max | Mean | N |
|---|---|---|---|---|
| A1. Rike land har et særskilt ansvar for å bidra til å verne om miljøet på verdensbasis. | 3,00 | 5,00 | 4,44 | 9 |
| A2. Jeg synes det er viktig å gi penger til innsamlingsaksjoner til miljøformål. | 2,00 | 5,00 | 3,78 | 9 |
| A3. Vi som rik nasjon bør gjøre mer for miljøet. | 3,00 | 5,00 | 4,38 | 8 |
| A4. Jeg vil være villig til å betale mer skatt dersom det er øremerket til å verne om miljøet. | 2,00 | 5,00 | 4,00 | 9 |
| A5. Miljøproblemer i andre land er ikke mitt ansvar. | 1,00 | 5,00 | 4,44 | 9 |
| A6. Vi må bidra til å løse globale miljøproblemer, fordi det vil ha langsiktige konsekvenser for oss i Norge også. | 3,00 | 5,00 | 4,67 | 9 |
| A7. Jeg vil være villig til å kjøpe mindre dersom dette kan redusere miljøproblemene. | 3,00 | 5,00 | 4,00 | 9 |
| A8. Vi må være opptatt av miljøproblemene i andre land også, ikke bare her i Norge. | 2,00 | 5,00 | 4,44 | 9 |
| A9. Som rik nasjon bør vi gi mer økonomisk bistand til miljøvennlige formål i andre land. | 2,00 | 5,00 | 4,33 | 9 |
| A10. Jeg vil være villig til å endre min livsstil hvis det kan bidra til å bedre miljøet andre steder i verden | 1,00 | 5,00 | 4,00 | 9 |
| A11. Det hjelper lite om vi gjennomfører miljøtiltak i Norge når så mange andre land ikke gjør det samme. | 2,00 | 5,00 | 3,67 | 9 |
| A12.Jeg er ikke villig til å leve mer miljøvennlig, når så mange andre ikke gjør det. | 2,00 | 5,00 | 3,33 | 9 |
| A13. Vi har for lite medfølelse når folk i andre land får sine levekår ødelagt av naturkatastrofer | 1,00 | 5,00 | 3,33 | 9 |
| OR1. Industri og næringsliv må være lovpålagt å bruke miljøvennlige og resirkulerte materialer i størst mulig utstrekning, selv når kostnadene er høyere. | 4,00 | 5,00 | 4,75 | 8 |
| OR2. Myndighetene må få folk til å endre livsstil i mer miljøvennlig retning ved å innføre flere reguleringer og avgifter enn i dag. | 4,00 | 5,00 | 4,63 | 8 |
| - OR3. Myndighetene bør bruke betydelige midler på utvikling og utbygging av fornybare energikilder som f.eks. solenergi og vindkraft til havs. | 2,00 | 5,00 | 3,63 | 8 |
| OR4. Myndighetene i rike land må styre slik at folk må endre livsstilen sin i mer miljøvennlig retning. | 1,00 | 5,00 | 3,63 | 8 |
| OR5. Det er galt av myndighetene å tvinge industri og næringsliv til å sette natur- og miljøhensyn foran økonomisk fortjeneste. | 1,00 | 5,00 | 4,00 | 8 |
| OR6. Jeg er motstander av tiltak som tvinger næringslivet til å bruke miljøvennlig eller resirkulerte materier, hvis det gjør produktene dyrere. | 1,00 | 5,00 | 4,38 | 8 |
| OR7. Det er vel og bra at folk handler miljøvennlig, men det må være frivillig. | 1,00 | 5,00 | 3,13 | 8 |
| OR8. Bil- og drivstoffavgifter er god miljøpolitikk. | 1,00 | 5,00 | 3,50 | 8 |
| OR9. Myndighetene bør ikke legge seg opp i folks forbruk og livsstil, selv om det kan ha negative konsekvenser for miljøet. | 1,00 | 5,00 | 4,13 | 8 |
| OR10. Bil- og drivstoffavgifter er ikke god miljøpolitikk. | 1,00 | 5,00 | 3,50 | 8 |
| OR11. Med økt miljøbevissthet blant folk flest kommer markedet til å løse miljøproblemene. | 1,00 | 5,00 | 3,88 | 8 |
| OR12. Uten at myndighetene griper aktivt inn kommer ikke husholdningene til å gjøre de endringer som er nødvendig for å sikre en bærekraftig framtid. | 3,00 | 5,00 | 4,38 | 8 |
| Ø1. At naturen har en egenverdi er en feilaktig ide. | 1,00 | 5,00 | 3,75 | 8 |
| Ø2. Naturen har en verdi i seg selv. | 3,00 | 5,00 | 4,75 | 8 |
| Ø3. Naturen har ingen verdi i seg selv. | 1,00 | 5,00 | 3,50 | 8 |
| Ø4. Naturen har en verdi uavhengig av hvilken nytte den kan ha for mennesker. | 5,00 | 5,00 | 5,00 | 7 |
| Ø5. Jeg synes det er riktig at norsk naturvernlovgiving har naturens egenverdi som ett av sine utgangspunkt. | 1,00 | 5,00 | 4,00 | 8 |
| Ø6. Naturens egenverdi er viktigere enn bruks- og nytteverdien. | 3,00 | 5,00 | 4,38 | 8 |
| Ø7. Den viktigste grunnen til å verne natur, er at vi ikke vet hvilken nytte den kan ha for oss i framtiden. | 1,00 | 5,00 | 2,88 | 8 |

| | | | | |
|---|---|---|---|---|
| Ø8. Det viktigste med å ta vare på naturen er nytteverdien den har for oss mennesker. | 2,00 | 5,00 | 4,50 | 8 |
| Ø9. Jeg har dyp respekt for alt levende som inngår i naturens samspill. | 2,00 | 5,00 | 4,13 | 8 |
| Ø10. Jeg blir ofte trist når jeg ser større naturinngrep. | 1,00 | 5,00 | 3,25 | 8 |
| Ø11. Det tas for lite hensyn til naturen i utbyggingssaker. | 2,00 | 5,00 | 4,00 | 8 |
| Ø12. Mennesket misbruker i stor grad naturen. | 2,00 | 5,00 | 3,75 | 8 |
| VD1. Alle dyr som lever i naturen har samme rett til liv som mennesker | 3,00 | 5,00 | 4,25 | 8 |
| VD2. Ville dyr har like stor rett til å leve på jorda som mennesker. | 3,00 | 5,00 | 4,63 | 8 |
| VD3. Det er ingen forskjell på mennesker og dyr moralsk sett | 1,00 | 5,00 | 3,75 | 8 |
| VD4. Menneskenes behov og livskvalitet er viktigere enn dyrenes | 3,00 | 5,00 | 4,50 | 8 |
| VD5. Mennesket er ikke viktigere enn noen annen dyreart | 2,00 | 5,00 | 4,00 | 7 |
| VD6. Mennesket er fundamentalt forskjellig fra alle andre dyrearter | 3,00 | 5,00 | 4,71 | 7 |
| VD7. Ville dyrs behov for å ha gode livsvilkår (mat, levesteder etc.) er like viktig som våre behov. | 3,00 | 5,00 | 4,63 | 8 |
| VD8. Vi mennesker er pliktige til å ta like stort hensyn til ville dyr som til oss selv | 3,00 | 5,00 | 3,50 | 8 |
| VD9. Fordi vi er mennesker har vi rett til å bestemme over dyr i naturen | 2,00 | 5,00 | 3,63 | 8 |
| VD10. Mennesker bør føle samhørighet med dyrene som lever i naturen. | 3,00 | 5,00 | 4,00 | 6 |
| VD11. At vi mennesker innimellom ødelegger ville dyrs leveområder er en nødvendig konsekvens av samfunnsutviklingen. | 4,00 | 5,00 | 4,75 | 8 |
| VD12. Vi mennesker bør i større grad ta hensyn til ville dyr, f.eks når vi skal bygge ut nye områder eller veier. | 3,00 | 5,00 | 4,50 | 8 |
| UT1. Økonomisk vekst er viktigere enn miljøhensyn | 1,00 | 5,00 | 4,29 | 7 |
| UT2. Vi må kunne bruke naturens ressurser slik det gagner oss mennesker. | 2,00 | 5,00 | 4,29 | 7 |
| UT3. Vi mennesker har rett til å utnytte naturressursene dersom det er viktig for å øke levestandarden vår. | 2,00 | 5,00 | 4,29 | 7 |
| UT4. Det er greit at vi utnytter naturressursene til å lage produkter og tjenester som gjør hverdagen vår praktisk, enkel og komfortabel. | 2,00 | 5,00 | 3,43 | 7 |
| UT5. Det er viktigere at vi har muligheter til å bruke naturressursene til å produsere varer/tjenester for konsum og forbruk, enn at vi verner naturen. | 2,00 | 5,00 | 4,14 | 7 |
| UT6. Det er viktigere å verne naturressursene enn å fortsette å bruke dem til å produsere varer/tjenester til forbrukssamfunnet. | 3,00 | 5,00 | 4,43 | 7 |
| UT7. Det er viktigere å skape økonomisk vekst enn å verne natur | 2,00 | 5,00 | 4,17 | 6 |
| UT8. Hensynet til miljø bør være underordnet hensynet til økonomisk utvikling | 1,00 | 5,00 | 3,67 | 6 |
| UT9. Naturen er ikke i en så kritisk tilstand at vi trenger å redusere utnyttelsen av den. | 2,00 | 5,00 | 4,29 | 7 |
| UT10. Det er viktigere å skape arbeidsplasser enn å bevare miljøet | 1,00 | 5,00 | 3,86 | 7 |
| UT11. Utviklingen av det moderne samfunnet har skjedd med altfor store negative konsekvenser for natur og miljø | 3,00 | 5,00 | 4,71 | 7 |
| TO1. De fleste miljøproblemene kan løses ved å ta i bruk ny og bedre teknologi. | 2,00 | 5,00 | 4,57 | 7 |
| TO2. Troen på at framtidas teknologi og kunnskap vil kunne løse miljøproblemene er helt feilslått. | 2,00 | 5,00 | 4,14 | 7 |
| TO3. Vi kan ikke stole på at vitenskapelig framskritt og ny teknologi vil løse miljøproblemene. | 2,00 | 5,00 | 4,43 | 7 |
| TO4. I framtida vil ny og forbedret teknologi være det viktigste hjelpemiddelet for et bærekraftig samfunn. | 4,00 | 5,00 | 4,71 | 7 |
| TO5. Teknologiutvikling medfører i liten grad negative følger for natur og miljø. | 1,00 | 5,00 | 3,57 | 7 |
| TO6. I framtida vil vitenskapelige framskritt/ny kunnskap bidra til at vi får kontroll på miljøproblemene | 3,00 | 5,00 | 4,14 | 7 |
| TO7. Den teknologiske utviklingen løser flere miljøproblemer enn den skaper. | 3,00 | 5,00 | 4,57 | 7 |
| TO8. I framtida vil kunstig intelligens finne bedre løsninger på miljøproblemene enn det vi menneske er i stand til i dag. | 2,00 | 5,00 | 4,00 | 7 |
| TO9. Solceller, elbiler og tilsvarende teknologi vil bidra til å løse miljøproblemene. | 4,00 | 5,00 | 4,67 | 6 |
| TO10. I framtida vil ny teknologi bidra til at vi får miljøvennlige løsninger for all industriproduksjon. | 2,00 | 5,00 | 4,00 | 6 |
| TO11. Den teknologiske utviklingen skaper flere miljøproblemer enn den løser. | 3,00 | 5,00 | 4,50 | 6 |

Attachment B. Final Scale domains and items test 1

## 1. ANSVAR FOR IVARETAKELSE AV MILJØ

*(svarskala 1 helt uenig – 6 helt enig)*

**Hvor enig er du i påstandene under?**

- Jeg vil være villig til å betale mer skatt dersom det er øremerket til å verne om miljøet.
- Rike land har et særskilt ansvar for å bidra til å verne om miljøet på verdensbasis.
- Jeg synes det er viktig å gi pengestøtte til gode miljøformål.
- Vi som rik nasjon bør gjøre mer for miljøet.
- Miljøproblemer i andre land er ikke mitt ansvar.
- Vi må bidra til å løse globale miljøproblemer, fordi det vil være gunstig for oss i Norge på lang sikt.
- Jeg vil være villig til å kjøpe mindre dersom dette kan redusere miljøproblemene.
- Vi må være opptatt av miljøproblemene i andre land også, ikke bare her i Norge.
- Som rik nasjon bør vi gi mer økonomisk bistand til miljøvennlige formål i andre land.
- Jeg vil være villig til å redusere mitt forbruk, hvis det kan bidra til å bedre miljøet andre steder i verden
- Det hjelper lite om vi gjennomfører miljøtiltak i Norge når så mange andre land ikke gjør det samme.
- Jeg er ikke villig til å leve mer miljøvennlig, når så mange andre ikke gjør det.

## 2. OFFENTLIGE REGULERINGER

*(svarskala 1 helt uenig – 6 helt enig)*

**Hvor enig er du i påstandene under?**

- Det er fint at folk handler miljøvennlig, men det må være frivillig og ikke noe som er regulert av myndighetene.
- Industri og næringsliv må være lovpålagt å bruke miljøvennlige og resirkulerte materialer i størst mulig utstrekning, selv når kostnadene er høyere.
- Myndighetene må få folk til å endre livsstil i mer miljøvennlig retning ved å innføre andre reguleringer og avgifter enn i dag.
- Myndighetene bør bruke mye mer ressurser på utvikling og utbygging av fornybare energikilder som f.eks. solenergi og vindkraft til havs.
- Det vil være galt av myndighetene å pålegge industri og næringsliv til å sette natur- og miljøhensyn foran økonomisk fortjeneste.
- Jeg er motstander av tiltak som pålegger næringslivet å bruke miljøvennlig eller resirkulerte materier, hvis det gjør produktene dyrere.
- Strengere bil- og drivstoffavgifter enn i dag vil være god miljøpolitikk.
- Myndighetene bør ikke legge seg opp i folks forbruk og livsstil, selv om det kan ha negative konsekvenser for miljøet.
- Bil- og drivstoffavgifter er ikke god miljøpolitikk.
- Med økt miljøbevissthet blant folk flest kommer markedet til å løse miljøproblemene, derfor trenger vi ikke offentlige reguleringer.
- Uten at myndighetene griper aktivt inn kommer ikke folk til å gjøre de endringer som er nødvendig for å sikre en bærekraftig framtid.

## 3. NATURVERDI

*(svarskala 1 helt uenig – 6 helt enig)*

**Hvor enig er du i påstandene under?**

- Jeg har dyp respekt for alt levende i naturen.
- At naturen har en egenverdi er en feilaktig ide.
- Naturen har en verdi uavhengig av hvilken nytte den kan ha for mennesker.
- Jeg synes det er riktig at naturens egenverdi er en av grunnpilarene i norsk naturvernlovgivning
- Naturens egenverdi er viktigere enn bruks- og nytteverdien.
- Den viktigste grunnen til å verne natur, er at vi ikke vet hvilken nytte den kan ha for oss i framtiden.
- Naturen har en verdi i seg selv.
- Det viktigste med å ta vare på naturen er nytteverdien den har for oss mennesker.
- Jeg blir ofte trist når jeg ser større naturinngrep.
- Det tas for lite hensyn til naturen i utbyggingssaker.
- Naturen har ingen verdi i seg selv.
- Mennesket overforbruker i stor grad naturen.

## 4. FORHOLDET MELLOM MENNESKER OG VILLE DYR

*(svarskala 1 helt uenig – 6 helt enig)*

**Hvor enig er du i påstandene under?**

- Alle dyr som lever i naturen har samme rett til liv som mennesker
- Ville dyr har like stor rett til å leve på jorda som mennesker.
- Menneskenes behov og livskvalitet er viktigere enn dyrenes
- Mennesket er ikke viktigere enn noen annen dyreart
- Mennesket er fundamentalt forskjellig fra alle andre dyrearter
- Ville dyrs behov for å ha gode livsvilkår (mat, levesteder etc.) er like viktig som våre behov.
- Vi mennesker bør ta like store hensyn til ville dyr som til oss selv
- Fordi vi er mennesker har vi rett til å bestemme over dyr i naturen
- Mennesker bør føle samhørighet med dyrene som lever i naturen.
- Vi kan ikke stoppe utbygging og utvikling av samfunnet selv om dette ofte fører til at ville dyrs leveområder blir ødelagt.
- Vi mennesker bør i større grad ta hensyn til ville dyr, f.eks. når vi skal bygge ut nye områder eller veier.

## 5. BRUK OG VERN

*(svarskala 1 helt uenig – 6 helt enig)*

**Hvor enig er du i påstandene under?**

- Økonomisk vekst er viktigere enn miljøhensyn
- Vi må kunne bruke naturens ressurser slik det gagner oss mennesker.
- Vi mennesker har rett til å utnytte naturressursene dersom det er viktig for å øke levestandarden vår.
- Å bruke naturressursene til å lage produkter og tjenester som gjør hverdagen vår enkel og komfortabel er rett og rimelig
- Det er viktigere at vi har muligheter til å bruke naturressursene til å produsere varer/tjenester for konsum og forbruk, enn at vi verner naturen.
- Det er viktigere å verne naturressursene enn å fortsette å bruke dem til å produsere varer/tjenester til forbrukssamfunnet.
- Det er viktigere å skape økonomisk vekst enn å verne natur
- Det er mindre viktig å ta hensyn til miljø enn til økonomisk utvikling
- Naturen er ikke i en så kritisk tilstand at vi trenger å redusere uttaket av ressurser.

- Det er viktigere å skape arbeidsplasser enn å bevare miljøet
- Utviklingen av det moderne samfunnet har skjedd med altfor store negative konsekvenser for natur og miljø

## 6. TEKNOLOGIENS ROLLE

*(svarskala 1 helt uenig – 6 helt enig)*

**Hvor enig er du i påstandene under?**

- Å ta i bruk ny teknologi medfører altfor ofte ødeleggelse av natur og miljø.
- De fleste miljøproblemene kan løses ved å ta i bruk ny og bedre teknologi.
- Troen på at framtidas teknologi og kunnskap vil kunne løse miljøproblemene er feilslått.
- Vi kan ikke stole på at vitenskapelig framskritt og ny teknologi vil løse miljøproblemene.
- I framtida vil ny og forbedret teknologi være det viktigste hjelpemiddelet for et bærekraftig samfunn.
- I framtida vil vitenskapelige framskritt og ny kunnskap bidra til at vi får kontroll på miljøproblemene
- Den teknologiske utviklingen løser flere miljøproblemer enn den skaper.
- I framtida vil kunstig intelligens finne bedre løsninger på miljøproblemene enn det vi mennesker er i stand til i dag.
- Solceller, elbiler og annen fornybar teknologi vil bidra til å løse miljøproblemene.
- I framtida vil ny teknologi bidra til at vi får miljøvennlige løsninger for all industriproduksjon.
- Det er viktigere å senke energi- og ressursbruk enn å stole på at ny teknologi vil løse miljøproblemene

**Attachment C. Final survey (data collection by Norstat fall 2020).**

**Introtekst:**
Norsk institutt for naturforskning arbeider med å utvikle en undersøkelse for å kartlegge befolkningens miljøholdninger. I den sammenhengen har vi formulert en rekke med spørsmål som dreier seg om våre holdninger til miljøet, hva man synes om bruk av miljø og naturressurser og i hvilken grad vi forvalter naturen på en god eller mindre god måte. Vi ber deg ta stilling til hvert enkelt utsagn og angi i hvilken grad du er enig i disse på en skala fra 1 til 6, hvor 1 er 'helt uenig' og 6 betyr 'helt enig'.

## 7. ANSVAR FOR IVARETAKELSE AV MILJØ

*(svarskala 1 helt uenig – 6 helt enig)*

**Hvor enig eller uenig er du i påstandene under?**

- Jeg kunne gjerne betalt mer skatt dersom jeg visste at det gikk til miljøformål.
- Rike land burde ta et særskilt ansvar for å bidra til å verne om miljøet.
- Jeg syns det er viktig å gi pengestøtte til miljøformål.
- Rike land bør gjøre mer for miljøet.
- Å løse globale miljøproblemer vil være gunstig for alle, derfor må Norge bidra.
- Jeg er villig til å kjøpe mindre dersom det kan redusere miljøproblemene.
- Rike land bør gi mer økonomisk bistand til miljøtiltak i andre land.
- Jeg er villig til å redusere mitt forbruk for miljøets skyld.
- Det hjelper å gjennomføre miljøtiltak i Norge selv om andre land ikke gjør det samme.

## 8. OFFENTLIGE REGULERINGER

*(svarskala 1 helt uenig – 6 helt enig)*

**Hvor enig eller uenig er du i påstandene under?**

- Myndighetene bør subsidiere miljøvennlige produkter slik at de blir vanlige og like billige som andre produkter.
- Industri og næringsliv må være lovpålagt å drive så miljøvennlig som mulig.
- Jeg er tilhenger av tiltak som pålegger næringslivet å bruke miljøvennlige materialer, selv om det betyr at jeg må betale mer.
- Strengere bil- og drivstoffavgifter enn i dag vil være god miljøpolitikk.
- Myndighetene må ta ansvar for at vi går over til en økonomi som i mindre grad er basert på utnyttelse av fossil energi
- Myndighetene må handle slik at vår avhengighet av petroleumsindustrien blir mindre.
- Økt miljøbevissthet blant folk vil løse miljøproblemene uten at vi trenger offentlige reguleringer.
- Uten at myndighetene griper aktivt inn kommer ikke folk til å gjøre de endringer som er nødvendig for å sikre en bærekraftig framtid.

## 9. NATURVERDI

*(svarskala 1 helt uenig – 6 helt enig)*

**Hvor enig eller uenig er du i påstandene under?**

- Jeg har dyp respekt for alt levende i naturen.
- Naturen har en verdi uavhengig av hvilken nytte den kan ha for mennesker.
- Naturen i seg selv verdsettes for lite i vårt samfunn.
- Naturens egenverdi er viktigere enn bruks- og nytteverdien.
- Den viktigste grunnen til å verne natur, er at vi ikke vet hvilken nytte den kan ha for oss i framtiden.
- Naturen har en verdi i seg selv.
- Jeg blir ofte trist når jeg ser større naturinngrep.

- Dagens samfunnsutvikling ødelegger for mye natur
- Jeg føler meg sterkt knyttet til naturen
- Naturens tilstand sier noe om hvem vi er som samfunn og folk.

### 10. FORHOLDET MELLOM MENNESKER OG VILLE DYR

*(svarskala 1 helt uenig – 6 helt enig)*

**Hvor enig eller uenig er du i påstandene under?**

- Alle dyr som lever i naturen har samme rett til liv som mennesker
- Det er ingen fundamental forskjell mellom ville dyr og mennesker
- Ville dyr har like stor rett til å leve på jorda som mennesker.
- Ville dyr har lik rett til et godt liv som mennesker.
- Mennesket er ikke viktigere enn noen annen dyreart.
- Ville dyrs behov for å ha gode livsvilkår (mat, levesteder etc.) er like viktig som våre behov.
- Vi mennesker bør ta like store hensyn til ville dyr som til oss selv.

### 11. BRUK ELLER VERN

*(svarskala 1 helt uenig – 6 helt enig)*

**Hvor enig eller uenig er du i påstandene under?**

- Økonomisk vekst er viktigere enn miljøhensyn.
- Vi mennesker har rett til å utnytte naturressursene for å øke levestandarden vår.
- Det er viktigere at vi har muligheter til å bruke naturressursene til å produsere varer/tjenester for konsum og forbruk, enn at vi verner naturen.
- Det er viktigere å skape økonomisk vekst enn å verne natur.
- Det er mindre viktig å ta hensyn til miljø enn til økonomisk utvikling.
- Naturen er ikke i en så kritisk tilstand at vi trenger å redusere uttaket av ressurser.
- Det er viktigere å sikre arbeidsplasser enn å bevare miljøet.
- Vi mennesker overforbruker ikke naturen.

### 12. TEKNOLOGIENS ROLLE

*(svarskala 1 helt uenig – 6 helt enig)*

**Hvor enig eller uenig er du i påstandene under?**

- De fleste miljøproblemene kan løses ved å ta i bruk ny og bedre teknologi.
- Troen på at framtidas teknologi og kunnskap vil kunne løse miljøproblemene er feilslått.
- I framtida vil teknologiske framskritt bidra til at vi får et mer bærekraftig samfunn
- Den teknologiske utviklingen løser flere miljøproblemer enn den skaper.
- I framtida vil kunstig intelligens finne bedre løsninger på miljøproblemene enn det vi mennesker er i stand til i dag.
- Teknologien ville redusere de negative konsekvensene av vårt forbruk, slik at vi kan fortsette å leve slik vi gjør i dag.

### 13. KONFLIKTNIVÅ MELLOM VEKST OG VERN

*(svarskala 1 helt uenig – 6 helt enig)*

**Hvor enig eller uenig er du i påstandene under?**

- Den største trusselen mot miljøet er ikke Økonomisk vekst.
- Framtidas miljøløsninger blir bedre med fortsatt økonomisk vekst.
- Folk som ser på økt forbruk som en trussel mot miljøet er overdrevent pessimistiske.
- Næringslivet tar gjennomgående hensyn til natur og miljø på en god måte

- Det er ikke noen motsetning mellom en klimavennlig framtid og forbruk tilsvarende det vi har i dag.
- Økonomisk vekst er en forutsetning for et vellykket grønt skifte.

- **Spørsmål om samfunn og miljø kan være utfordrende å svare på. Vi vil gjerne at du vurderer nøye og svarer på følgende spørsmål: Samlet sett, hvor sikker er du på svarene du har gitt på de foregående spørsmålene?** *(svarskala: 1 veldig usikker – 6 Helt sikker)*

***Til slutt har vi noen spørsmål om deg***

- **Hvilket politisk parti stemte du ved det siste stortingsvalget?**
- Arbeiderpartiet (Ap)
- Fremskrittspartiet (Frp)
- Høyre (H)
- Kristelig Folkeparti (KrF)
- Miljøpartiet De Grønne (MDG)
- Rødt (R)
- Senterpartiet (Sp)
- Sosialistisk Venstreparti (SV)
- Venstre (V)
- Annet parti, hvilket? _____
- Jeg stemte ikke ved det siste stortingsvalget
- Ønsker ikke å svare

- **Hva er din høyeste utdanning?**
- Grunnskoleutdanning (10-årig grunnskole, 7-årig folkeskole eller lignende)
- Videregående utdanning (Allmennfag, yrkesskole eller annet)
- Fagutdanning/yrkesutdanning/fagbrev/videregående yrkesfaglig utdanning
- Universitets-/høgskoleutdanning med inntil 4 års varighet
- Universitets-/høgskoleutdanning med mer enn 4 års varighet
- Ønsker ikke å svare

- **Alder**

- **Hva er din inntekt (før skatt)?**
  Kategorier
  Ønsker ikke å svare
  Vet ikke

- **Hvor lenge har du bodd i Norge?**
  a. Jeg er født og oppvokst her
  b. Mindre enn 5 år
  c. 5 – 10 år
  d. 11 – 20 år
  e. Mer enn 20 år

- **Kjønn?**
- Kvinne
- Mann

**Mange har fått føle effektene av koronapandemien i sine hverdagsliv. Hvor enig eller uenig er du i følgende påstander?** *(svarskala 1 helt uenig – 6 helt enig)*

- COVID19-pandemien har gjort at jeg føler meg mer usikker på fremtiden.
- COVID19-pandemien er den største utfordringen samfunnet står overfor nå.
- Jeg tenker at i fremtiden vil pandemier bli et større problem enn finanskriser, kriger, klimaendringer og ekstrem fattigdom.
- COVID19-pandemien har gitt meg økt tillit til at det offentlige kan håndtere store kriser.
- Jeg tror ikke at samfunnet vil komme tilbake til normalen slik det var før COVID19-pandemien.
- COVID19-pandemien har påvirket hvordan jeg tenker og agerer.
- Jeg tenker oftere på jorda og menneskehetens framtid nå enn jeg gjorde før COVID19-pandemien.
- COVID19-pandemien har fått meg til å innse at jeg både kan reise og forbruke mindre.
- På grunn av COVID19 vil jeg nok være mer forsiktig med å komme i kontakt med ville dyr enn tidligere.
- Som følge av COVID19-pandemien synes jeg det er enda viktigere enn før å verne om naturen

**Tusen takk for at du tok deg tid til å svare på undersøkelsen!**

www.nina.no

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NINA Report

*The Norwegian Institute for Nature Research, NINA,* *is as an independent foundation focusing on environmental research, emphasizing the interaction between human society, natural resources and biodiversity.*

*NINA was established in 1988. The headquarters are located in Trondheim, with branches in Tromsø, Lillehammer, Bergen and Oslo. In addition, NINA owns and runs the aquatic research station for wild fish at Ims in Rogaland and the arctic fox breeding center at Oppdal.*

*NINA's activities include research, environmental impact assessments, environmental monitoring, counselling and evaluation. NINA's scientists come from a wide range of disciplinary backgrounds that include biologists, geographers, geneticists, social scientists, sociologists and more. We have a broad-based expertise on the genetic, population, species, ecosystem and landscape level, in terrestrial, freshwater and coastal marine ecosystems.*

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**Norwegian Institute for Nature Research**
NINA head office
Postal address: P.O. Box 5685 Torgarden,
NO-7485 Trondheim, NORWAY
Visiting address: Høgskoleringen 9, 7034 Trondheim
Phone: +47 73 80 14 00
E-mail: firmapost@nina.no
Organization Number: 9500 37 687
http://www.nina.no

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