

PROPOSAL APPLICATION

BiodivClim: Call for transnational research projects on "Biodiversity and Climate change"

Project title : **Future Arctic livelihoods and biodiversity in a changing climate**

Short name / Acronym : **FutureArcticLives**

Proposal number : BiodivClim-403

Keywords : Arctic indigenous people, Inuit, Sami, traditional hunting, small-scale coastal fisheries, reindeer husbandry, future scenario simulations, policy analysis, stakeholder involvement, climate adaptation.

Duration of the project : 2021-01-01 - 2024-01-01

Project description : [FutureArcticLives phase two FINAL.pdf](#) 

Administrative details

Coordinator - Partner 1

Researcher in charge

Researcher ORCID id : <https://orcid.org/0000-0002-8941-6031>

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First name : **Martin**

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Research organisation / Company : **University of Copenhagen**

Status: Private or public? : **public**

Division / Department : **Department of Food and Resource Economics**

Street name and number : **Rolighedsvej 25**

PO Box :

Postal code : **1958**

Cedex :

Town : **Frederiksberg C**

Country : **Denmark**

Employment status information : on permanent position

Time to be dedicated to the project : **5.0 months**

Other team members involved in the project, time dedicated to the project in person month

Team member 1 : Meilby , Henrik , M , Professor , +45 35331740 , heme@ifro.ku.dk , **2.0 months** , ORCID: <https://orcid.org/0000-0002-3770-3880>

Team member 2 : N/A , N/A , F , Postdoc , N/A , mrni@ifro.ku.dk , **22.0 months** , ORCID: N/A

Partner 2

Researcher in charge

Researcher ORCID id : <https://orcid.org/0000-0002-6540-743X>

Family name : **Bostedt**

First name : **Göran**

Title : **Professor - Leader WP2**

Gender : **M**

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Research organisation / Company : **Swedish University of Agricultural Sciences**

Status: Private or public? : **public**

Division / Department : **Department of forest economics**

Street name and number : **Skogsmarksgränd 1**

PO Box :

Postal code : **S-90183**

Cedex :

Town : **Umeå**

Country : **Sweden**

Employment status information : on permanent position

Time to be dedicated to the project : **14.0 months**

Partner 3

Researcher in charge

Researcher ORCID id : <https://orcid.org/0000-0001-5083-4482>

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First name : **Kåre**

Title : **WP4 participant**

Gender : **M**

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Research organisation / Company : **Technical University of Denmark**

Status: Private or public? : **public**

Division / Department : **Department of Civil Engineering**

Street name and number : **Building 118**

PO Box :

Postal code : **2800**

Cedex :

Town : **Lyngby**

Country : **Denmark**

Employment status information : on permanent position

Time to be dedicated to the project : **5.0 months**

Other team members involved in the project, time dedicated to the project in person month

Team member 1 : N/A , N/A , F , Post Doc , N/A , krhe@byg.dtu.dk , **2.0 months** , ORCID: N/A

Partner 3a (Subcontracted)

Researcher in charge

Researcher ORCID id : <https://orcid.org/0000-0002-2526-3494>

Family name : **Poppel**

First name : **Birger**

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Research organisation / Company : **Ilisimatusarfik - University of Greenland**

Status: Private or public? : **public**

Division / Department : **Institute of Learning**

Street name and number : **C E Jansensvej 2**

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Postal code : **3900**

Cedex :

Town : **Nuuk**

Country : **Denmark**

Time to be dedicated to the project : **2.5 months**

Other team members involved in the project, time dedicated to the project in person month

Partner 4

Researcher in charge

Researcher ORCID id : <https://orcid.org/0000-0001-9372-6940>

Family name : **Johannesen**

First name : **Anne Borge**

Title : **Head of Department**

Gender : **F**

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Web site : **<https://www.ntnu.no/ansatte/anne.borge.johannesen>**

Research organisation / Company : **Norwegian University of Science and Technology**

Status: Private or public? : **public**

Division / Department : **Department of Economics**

Street name and number : **Edvard Bulls veg 1**

PO Box :

Postal code : **7491**

Cedex :

Town : **Trondheim**

Country : **Norway**

Employment status information : on permanent position

Time to be dedicated to the project : **3.0 months**

Other team members involved in the project, time dedicated to the project in person month

Team member 1 : NA , NA , F , Research assistant , NA , anne.borge.johannesen@ntnu.no, **3.0 months** ,
ORCID: NA

Partner 5

Researcher in charge

Researcher ORCID id : <https://orcid.org/0000-0003-3244-7272>

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First name : **Carina**

Title : **Professor - Leader WP4**

Gender : **F**

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Web site : **www.umu.se**

Research organisation / Company : **Umeå University**

Status: Private or public? : **public**

Division / Department : **Department of Geography**

Street name and number : **Umeå Campus Area**

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Cedex :

Town : **Umeå**

Country : **Sweden**

Employment status information : on permanent position

Time to be dedicated to the project : **4.0 months**

Other team members involved in the project, time dedicated to the project in person month

Partner 6

Researcher in charge

Researcher ORCID id : <https://orcid.org/0000-0003-3120-1625>

Family name : **Pettersson**

First name : **Maria**

Title : **Professor**

Gender : **F**

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Web site : **https://www.ltu.se/staff/m/mariap-1.81111**

Research organisation / Company : **Luleå University of Technology**

Status: Private or public? : **public**

Division / Department : **Department of Business Administration, Technology and Social Sciences**

Street name and number : **Studentorget: 0920-492000**

PO Box : Postal code : **97187**

Cedex :

Town : **Luleå**

Country : **Sweden**

Employment status information : on permanent position

Time to be dedicated to the project : **4.0 months**

Other team members involved in the project, time dedicated to the project in person month

Partner 7

Researcher in charge

Researcher ORCID id : <https://orcid.org/0000-0001-8222-4988>

Family name : **Hoffmann**

First name : **Birgitte**

Title : **Associate professor, PhD**

Gender : **F**

Phone : **+45 2617 9694**

E-mail : **bhof@plan.aau.dk**

Web site : www.aau.dk

Research organisation / Company : **University of AAU**

Status: Private or public? : **public**

Division / Department : **Sustainable Design and Transition, Department of Planning**

Street name and number : **A.C. Meyers Vænge 15**

PO Box :

Postal code : **DK 2450**

Cedex :

Town : **Copenhagen**

Country : **Denmark**

Employment status information : on permanent position

Time to be dedicated to the project : **5.0 months**

Other team members involved in the project, time dedicated to the project in person month

Partner 8

Researcher in charge

Researcher ORCID id : <https://orcid.org/0000-0001-5059-7288>

Family name : **Bente**

First name : **Sundsvold**

Title : **Senior scientist**

Gender : **F**

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Web site : https://uit.no/om/enhet/ansatte/person?p_document_id=43507&p_dimension_id=88153

Research organisation / Company : **The Arctic University of Norway**

Status: Private or public? : **public**

Division / Department : **Department of Social Sciences**

Street name and number : **Hansine Hansens veg 18 Tromsø**

Postboks

PO Box : **6050**

Postal code : **9037**

Cedex :

Langnes

Town : **Tromsø**

Country : **Norway**

Employment status information : on fixed-term position, duration of contract: until 2021,
funding body: UiT - the Arctic University of Norway

Time to be dedicated to the project : **8.0 months**

Other team members involved in the project, time dedicated to the project in person month

Team member 1 : Brattland , Camilla , F , Associate Professor , +47 77646909 , camilla.brattland@uit.no, **3.0 months** , ORCID: <https://orcid.org/0000-0002-0308-4524>

Team member 2 : Eide , Arne , M , Professor , +47 47279493 , arne.eide@uit.no, **3.0 months** , ORCID: <https://orcid.org/0000-0002-9413-3108>

Partner 9

Researcher in charge

Researcher ORCID id : <https://orcid.org/0000-0003-2877-3868>

Family name : **Byråten**

First name : **Stine**

Title : **Researcher 2**

Gender : **F**

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Web site : <https://nina.no/english/Contact/Employees/Employee-info/employees/employees/Ekspertlister/Ansatte/Ansattinformasjon?AnsattID=17165>

Research organisation / Company : **Norwegian Institute for Nature Research**

Status: Private or public? : **public**

Division / Department : **Norwegian Institute for Nature Research**

Street name and number : **Høgskoleringen 9**

PO Box : **5685**

Postal code : **NO-7485**

Cedex :

Town : **Trondheim**

Country : **Norway**

Time to be dedicated to the project : **2.5 months****Other team members involved in the project, time dedicated to the project in person month****Project summary**

Climate change is occurring faster in the Arctic than any other region, with tremendous consequences for Arctic biodiversity and rural and indigenous people that depend on it. Recent years have seen exceptional decline of sea ice and increasingly unpredictable weather on land causing rapid large-scale ecological and biodiversity changes undermining established production patterns of hunting, fishing, gathering and herding by rural and indigenous communities. These changes occur in a context of far-ranging economic, cultural and political change and commercial interests focusing on the same areas. Limited scientific monitoring data prevents prediction of trends for some species and locations. Quantitative information about the welfare or well-being consequences of likely changes in biodiversity for local communities is scarce or lacking, particularly where use is mainly for subsistence. Policies favoring large-scale operations and other sectors may furthermore constrain adaptation possibilities. Scenario assessments are needed to determine impacts of climate and biodiversity change on Arctic communities and explore management options. This proposal is, therefore, guided by the overall question - what are the likely future impacts and adaptation possibilities for small-scale primary resource users in Greenland and Northern Sweden and Norway in the face of climate and biodiversity change? Focus is on traditional Inuit hunters and small-scale fishers in Greenland, Saami reindeer herders in northern Sweden and Norway and the coastal Saami in the Porsanger Fjord in Norway, but in the context of broader interests and commercial operations. Hence, the project will mainly address theme 1 evaluating biodiversity change as a consequence of climate change and the implications for rural and indigenous populations relying on nature's contribution from terrestrial and marine hunting and whaling and small scale coastal fishing to reindeer husbandry in boreal forest and taiga. The project will also address theme 3 and 4 through policy and legal studies at the international, EU, and national legal and policy context. To this end, the project will conduct key stakeholder interviews and do questionnaire surveys to collect new data and combine this with existing register data in ways not previously attempted to produce new data sets. The analysis will assess and attempt to validate resource user observations and local knowledge as a means to enable predictions of biodiversity trends and develop a community-based monitoring system. Time-space models and future scenario simulations will be developed to evaluate welfare consequences in scenarios of future biodiversity change and new income sources. The project involves ten partner institutions in five work packages working under advisory boards in each country to fulfill 18 scientific objectives. Members of the advisory boards are selected from key-stakeholders to provide direct pathways to impact for exploitable results

Theme(s) addressed by the project

Theme 1:	Consequences of climate change on biodiversity and nature's contributions to people	70 %
Theme 3:	Potential of nature-based solutions for mitigating and adapting to climate change	15 %
Theme 4:	Synergies and trade-offs between policies on biodiversity, climate and other relevant sectors, and the role of agents of change	15 %

Environment(s) studied if relevant

Terrestrial	50 %
Coastal	50 %

Socio-economic sector(s) studied if relevant

Artisinal fisheries, commercial fisheries, hunting and trapping, whaling, reindeer husbandry, housing development, mining, tourism, marine transport, infrastructure

Scientific disciplines involved

Animal Husbandry ; Conservation Biology ; Economics ; Fisheries Science and Technology ; Forestry and forest sciences ; Law ; Livestock Systems ; Political sciences ; Population Biology ; Sociology of the Environment

Study areas / countries covered by the project

Greenland (national and case studies), Sweden (Northern regions - Nordboten, Västerboten and Jämtland), and Norway (Finmark and Troms county).

Work packages

No	Responsible partner(s)	Title
1.	Partner 1 : University of	WP.01

Copenhagen

2. Partner 2 : Swedish University of Agricultural Sciences WP.02
3. Partner 8 : The Arctic University of Norway WP.03
4. Partner 5 : Umeå University WP.04
5. Partner 1 : University of Copenhagen WP.05

Estimated working time (in person months) per work package

WP No.	Project partner No.										Months per WP
	1	2	3	3a	4	5	6	7	8	9	
1.	24	-	2	1.5	-	-	-	-	-	-	27.5
2.	-	11	-	-	6	-	-	-	-	-	17
3.	-	-	-	-	-	-	-	-	11	-	11
4.	-	-	5	1	-	2	4	5	-	2.5	19.5
5.	5	3	-	-	-	2	-	-	3	-	13
Total :	29	14	7	2.5	6	4	4	5	14	2.5	88

Deliverables

No	Title	Related workpackage(s)	Delivery date
1.	D.5.1. Project homepage	WP.05	month 2
2.	D.5.2. Ethical Requirement Report	WP.05	month 4
3.	D.5.2. Ethical clearances and research permits obtained	WP.05	month 6
4.	D.5.3. Data management plan (1st version)	WP.05	month 6
5.	D.5.4. Dissemination Strategy (1st version)	WP.05	month 10
6.	D.1.1. Comparison of traditional hunter catch statistics and scientific monitoring in Greenland	WP.01	month 12
7.	D.2.1. Comparison of climate factors and reindeer production trends across Norwegian and Swedish Saami villages	WP.02	month 12
8.	D.2.2. Forecasts of the effect of climate change on viability of reindeer herding	WP.02	month 12
9.	D.5.5. Exploitation Plan (1st version)	WP.05	month 12
10.	D.3.1. Assessment of marine ecosystem contributions to coastal Sami culture and livelihoods	WP.03	month 18
11.	D.1.2. Comparison and evaluation of the determinants of reliance on hunting and small-scale fisheries catch yield in Greenland	WP.01	month 24
12.	D.2.3. Importance of cultural and intrinsic values of reindeer herding in Saami livelihoods	WP.02	month 24
13.	D.3.2. Description and depiction of the concept and content of coastal Saami wellbeing	WP.03	month 24
14.	D.4.1. Comparison of legal protection for resource users under the Finmark Act in Norway with the situation in Sweden	WP.04	month 24
15.	D.4.2. Assessment of relationships between policies and regulations at the local and national level in Greenland	WP.04	month 24
16.	D.2.4. Evaluation of Saami reindeer herder adaption strategies	WP.02	month 30
17.	D.3.3. Guidelines for development and implementation of local harvest control rules in the Porsanger fjord	WP.03	month 30
18.	D.1.3. Future scenario analysis and comparison of group climate vulnerability in Greenland	WP.01	month 36
19.	D.2.5. Simulation of climate welfare consequences for Saami herders	WP.02	month 36
20.	D.3.4. Guidelines for development and implementation of local harvest control rules in the Porsanger fjord	WP.03	month 36
21.	D.3.5. Adaptive management plan for the Porsanger fjord	WP.03	month 36
22.	D.4.3. Description of the potential for Nature Based Solutions across cases	WP.04	month 36

Milestones

No	Title	Related workpackage(s)	Date
1.	M.1.1. Data from LULI, Piniarneq and DMI acquired and processed	WP.01	month 6

2.	M.2.1. Existing biophysical data acquired and processed	WP.02	month 6
3.	M.3.1. Methods designed and existing databases reviewed	WP.03	month 6
4.	M.5.1. Password projected internal data repository made	WP.05	month 6
5.	M.5.2. Ethical clearances and research permits obtained	WP.05	month 6
6.	M.5.3. National Steering Groups formed in each WP (cross-cutting in WP4)	WP.05	month 6
7.	M.1.2. Analysis in Task 1.1 finalized	WP.01	month 10
8.	M.1.3. Data from the Tax Agency, Greenland Statistics and MFGH acquired and processed	WP.01	month 12
9.	M.3.2. Ecosystem assessment in Task 3.1 completed	WP.03	month 12
10.	M.4.1. Cases identified, interview design and selection of interviewees finalized	WP.04	month 12
11.	M.5.4. Permanent data repository selected	WP.05	month 12
12.	M.2.2. Survey of reindeer herders completed	WP.02	month 18
13.	M.4.2. Data on Norwegian and Swedish cases accumulated and compared	WP.04	month 18
14.	M.4.3. Data on Greenland accumulated and compared	WP.04	month 18
15.	M.1.4. Reliance analysis in Task 1.2 and 1.3 finalized	WP.01	month 20
16.	M.3.3. Stakeholder workshop in Task 3.2 completed	WP.03	month 20
17.	M.1.5. Future scenarios developed and tested with National Steering Group	WP.01	month 24
18.	M.4.4. All stakeholder interviews undertaken	WP.04	month 24
19.	M.1.6. Future scenario and group vulnerability analysis in Task 1.4 and 1.5 completed	WP.01	month 30
20.	M.2.3. Analysis of importance of reindeer in Task 2.2 completed	WP.02	month 30
21.	M.2.4. Bioeconomic model in Task 2.2 analyzed	WP.02	month 30
22.	M.3.4. Adaptive management strategy discussed with policymakers	WP.03	month 30
23.	M.4.5. Joint WP lessons learned described	WP.04	month 34
24.	M.2.5. Optimal adaption strategies identified in Task 2.3	WP.02	month 36
25.	M.2.6. Analysis of future scenarios and welfare predictions for Saami reindeer herders in Task 2.4 finalized	WP.02	month 36
26.	M.5.5. Summary of exploitable results published on homepage	WP.05	month 36

Top 5 recent scientific publications of the researchers in charge relevant to the application

Partner 1

University of Copenhagen

Denmark

Nielsen, M.R., Meilby, H., Smith-Hall, C., Pouliot, M., Treue, T. 2018. The importance of wild meat in the global south. *Ecological Economics* 146: 696-705.

Nielsen, M.R., Theilade, I., Meilby, H., Nui, N.Hai., Lam, N.T. 2018. Can PES and REDD+ match Willingness To Accept payments in contracts for reforestation and avoided forest degradation? The case of farmers in upland Bac Kan, Vietnam. *Land Use Policy* 79: 822-833.

Holen, D., Gerkey, D., Høydal, E., Natcher, D., Nielsen, M.R., Poppel, B., Severeide, P.I., Snyder, H.T., Stapelton, M., Turi, E.I. an Aslaksen, L. 2017. Interdependency of subsistence and market economies in the Arctic. *The Economy of the North 2015*. (eds.), Solveig Glomsrød; Gérard Duhaime; Iulie Aslaksen. Statistics Norway, 2017. p. 118-119 (Statistical Analyses; No. 151).

Nielsen, M.P., Pouliot, M., Meilby, H., Smith-Hall, C., Angelsen, A. 2017. Global patterns and determinants of the economic importance of bushmeat. *Biological Conservation* 215: 277-287.

Nielsen, M.R., Meilby, H., Poppel, B., Lyster, P., Andresen, J.G., Hendriksen, K., Snyder, H.T., Hertz, O. 2017. The importance of hunting and smallscale fishing in Greenland. *The Economy of the North 2015*. (eds.), Solveig Glomsrød; Gérard Duhaime; Iulie Aslaksen. Statistics Norway, 2017. p. 118-119 (Statistical Analyses; No. 151).

Partner 2

Swedish University of Agricultural Sciences

Sweden

Bostedt, G., Zabel, A. and Ekvall, H. 2019: Planning on a wider scale: Swedish forest owners' preferences for landscape policy attributes. *Forest Policy and Economics* 104: 170-181.

Michanek, G., Bostedt, G., Ekvall, H., Forsberg, M., Hof, A.R., de Jong, J., Rudolphi, J. and Zabel, A. 2018. Landscape planning: Paving the way for effective conservation of forest

biodiversity and a diverse forestry? *Forests* 9: 523.

Zabel, A., Bostedt, G. and Ekvall, H. 2018. Policies for forest landscape management: A conceptual approach with an empirical application for Swedish conditions. *Forest Policy and Economics* 86: 13-21.

Bostedt, G., Mustonen, M. and Gong, P. 2016: Increasing forest biomass supply in Northern Europe: Countrywide estimates and economic perspectives. *Scandinavian Journal of Forest Research* 31: 314-322.

Bostedt, G., Widmark, C., Andersson, M. and Sandström, C. 2015. Measuring transaction costs incurred by pastoralist users in multiple land-use situations: The case of reindeer husbandry in northern Sweden. *Land Economics* 91(4): 704-722.

Partner 3

Technical University of Denmark

Denmark

Hendriksen, K. and Hoffmann, B. 2018. Bæredygtig fiskeri og ræklingeproduktion i Qeqertat - analyse af investeringer i et helhedsorienteret perspektiv, DTU Civil Engineering, Technical University of Denmark.

Hendriksen, K. and Hoffmann, B. 2017. Greenlandic water and sanitation: A context oriented analysis of system challenges towards local sustainable development. *Water, Sanitation, Pollution and Health in the Arctic*, Springer.

Hendriksen, K. and Hoffmann, B. 2017. Greenlandic water and sanitation systems: Identifying system constellation and challenges. *Water, Sanitation, Pollution and Health in the Arctic*, Springer.

Hendriksen, K. and Hoffmann, B. 2016. Settlement patterns: Challenges and opportunities. Chapter in Knudsen R. (eds.) *Perspectives on skills - an anthology on informally acquired skills in Greenland*. A Greenland Perspective Publication, University of Copenhagen.

Hendriksen, K. and Jørgensen, U. 2015. Hunting and fishing settlements in Upernavik district of Northern Greenland: Challenged by climate, centralization and globalization. *Polar Geography* 38: 123 – 145.

Partner 3a

Ilisimatusarfik - University of Greenland

Denmark

Poppel, B. 2018. Sustainable Development and Sustainability in Arctic Political Discourses. In: *The Routledge Handbook of the Polar Regions: Maritime preparedness systems in the Arctic – institutional arrangements and potential for collaboration*, Ingvill Elgsaas and Kristine Offerdal (eds.), Nord University. ISBN: 978-82-7456-787-0.

Poppel, B. 2017. Well-being of Circumpolar Arctic Peoples: The Quest for Continuity. In: *Pursuit of Well-Being: The Untold Global History*, R.J. Estes and M.J. Sirgy (eds.), Springer International Publishing, Switzerland. ISBN: 978-3-319-39100-7.

Holen, D., Gerkey, D., Høydahl, E., Natcher, D., Nielsen, M.R., Poppel, B., Severeide, P.I., Snyder, H.T., Stapleton, M., Turi, E.I. and Aslaksen, I. 2015. Interdependency of subsistence and market economies in the Arctic. In: *The Economy of the North*, Solveig Glomsrød, Gérard Duhaime and Iulie Aslaksen (eds.). Statistics Norway, p 170.

Poppel, B. (ed.). 2015. SLICA: Arctic living conditions. Living conditions and quality of life among Inuit, Sami and indigenous peoples of Chukotka and the Kola Peninsula. Nordic Council of Ministers, p. 426. DOI: 10.6027/TN2015-501.

Poppel, B., Fægteborg, M., Siegstad, M.O. and Snyder, H.T. 2015. The Arctic as a 'hotspot' for natural resource extraction and global warming. In *The Economy of the North*. Solveig Glomsrød, Gérard Duhaime and Iulie Aslaksen (eds.). Statistics Norway, p 170.

Partner 4

Norwegian University of Science and Technology

Norway

Johannesen, A.B. and Y. Liu (2019). Non-use values and cooperation in local common property exploitation. In Olaussen, J.O. (ed), *Contributions in natural resource economics*, Fagbokforlaget, Bergen.

Johannesen, A.B., J.O. Olaussen, and A. Skonhøft (2019). Livestock and Carnivores: Economic and Ecological Interactions. *Environmental and Resource Economics*, 7, 295-317.

Skonhøft, A., A.B. Johannesen, and J.O. Olaussen (2017). On the tragedy of the commons: When predation and livestock loss may improve the economic lot of herders. *Ambio*, 46, 644-654.

Partner 5

Umeå University

Sweden

Keskitalo, E. C. H. and B. L. Preston (2019, eds). Research Handbook on Climate Change Adaptation Policy. Edward Elgar, Cheltenham.

Keskitalo, E. C. H., and M. Pettersson (2016). Can Adaptation to Climate Change at All Be Mainstreamed in Complex Multi-level Governance Systems? A Case Study of Forest-Relevant Policies at the EU and Swedish Levels. In: Leal Filho, W., Adamson, K., Dunk, R.M., Azeiteiro, U.M., Illingworth, S., Alves, F. (eds) Implementing Climate Change Adaptation in Cities and Communities. Integrating Strategies and Educational Approaches. Springer, Dordrecht. Pp. 53-74.

Keskitalo, E. C. H; M. Pettersson, E. Laszlo Ambjörnsson, E. J. Davies (2016) "Agenda-setting and framing of policy solutions for forest pests in Canada and Sweden: Avoiding beetle outbreaks?" Forest Policy and Economics 65: 59–68

Klapwijk, M. J., A. J. M. Hopkins, L. Eriksson, M. Pettersson, M. Schroeder, Å. Lindelöv, J. Rönnerberg, E. C. H. Keskitalo, M. Kenis (2016) "Reducing the risk of invasive forest pests and pathogens: Combining legislation, targeted management and public awareness". *Ambio* 45 (2): 223-234

Pettersson, M., C. Strömberg, E. C. H. Keskitalo (2016) Possibility to implement invasive species control in Swedish forests. *Ambio* 45 (2): 214-222.

Partner 6

Luleå University of Technology

Sweden

Solbär, L., Marciano, P. and Pettersson, M. 2019. Land-use Planning and Designated National Interests in Sweden – Arctic Perspectives on Landscape Multifunctionality. *Journal of Environmental Planning and Management*. DOI: 10.1080/09640568.2018.1535430.

Pettersson, M., Stjernström, O. and Keskitalo, E.C.H. 2017. The role of participation in the planning process: examples from Sweden. *Local Environment*. <http://dx.doi.org/10.1080/13549839.2017.1319805>

Keskitalo, E.C.H. and Pettersson, M. 2016. Can adaptation to climate change at all be mainstreamed in complex multi-level governance systems? A case study of forest-relevant policies at the EU and Swedish levels. In: Leal, W., Adamson, K., Dunk, R., Azeiteiro, U.M., Illingworth, S., Alves, F. (eds.), *Implementing Climate Change Adaptation in Cities and Communities. Integrating Strategies and Educational Approaches. Climate Change Management Series*, Palgrave Macmillan, Cham. ISBN 978-3-319-28591-7. DOI: 10.1007/978-3-319-28591-7.

Pettersson, M. and Goytia, S. 2016. The role of the precautionary principle and property rights in the governance of natural resources in Sweden. *Nordic Environmental Law Journal* 1: 107-121.

Pettersson, M., Strömberg, C. and Keskitalo, E.C.H. 2016. Possibility to implement invasive species control in Swedish forests. *Ambio* 45: 214-222. DOI: 10.1007/s13280-015-0754-5.

Partner 7

University of AAU

Denmark

Hoffmann, B. & Rix, T. (2020): Scenarios for a mining town – the ruby mine in Qeqertarsuaq. Chapter accepted for book on Greenland in Engineering and Indigenous Societies collection. Morgan and Claypool

Hendriksen K. & Hoffmann, B (2018): Greenlandic water and sanitation—a context oriented analysis of system challenges towards local sustainable development. In *Journal of Environmental Science and Pollution Research*

Hendriksen K. & Hoffmann, B (2018): Greenlandic water and sanitation systems—identifying system constellation and challenges. In *Journal of Environmental Science and Pollution Research*

Hendriksen, K. & Hoffmann, B. (2016): Qaanaaq – infrastructure and businesses – resume on pilot project on local sustainable development. Report (in Danish) BYG, Technical University of Denmark.

Hoffmann, B. & Jørgensen U. (2016): The Power of Knowledge in the Modernisation of Greenland. Chapter in Knudsen R. (eds.), *Perspectives on skills - an anthology on informally acquired skills in Greenland*. A Greenland Perspective publication, University of Copenhagen June 2016.

Partner 8**The Arctic University of Norway**

Norway

Sundsvold, B & Armstrong, C (2019): "Found in translation: identifying ecosystem services through public consultation statements in a marine spatial planning process" *Ecosystems and people* vol.15 issue 1.
<https://www.tandfonline.com/doi/full/10.1080/26395916.2019.1596982>

Sundsvold Bente (2018): «Å tenkje som en faule. Med videokamera som verktøy i utforskning av relasjonsbygging og meningsdannelse mellom menneske og fugl» i *Norsk Antropologisk Tidsskrift* 3-4/ 2018 s. 179-198 Publisert 19.12.2019 DOI: 10.18261/issn.1504-2898-2018-03-04-06

Sundsvold (2017) "To think like a bird" Ethnographic film in *Journal of Anthropological Films*, Vol.1.1.

Sundsvold 2010 "Stedets herligheter"- the amenities of place: Eider down harvesting through changing time" in *Acta Borealia* 27:1, p.91-115

Partner 9**Norwegian Institute for Nature Research**

Norway

Bjørkan, M. & Rybråten, S. 2019. The potential impact of sea lice agents on coastal shrimp in Norway: Risk perception among different stakeholders. *Maritime Studies*. DOI: 10.1007/s40152-019-00141-6

Harrison, H., Rybråten, S. and Aas, Ø. 2018. Hatching knowledge: a case study on the hybridization of local ecological knowledge and scientific knowledge in Norwegian small-scale Atlantic salmon (*Salmo salar*) cultivation. *Human Ecology* 46(4): 449-459. DOI: 10.1007/s10745-018-9996-8

Rybråten, S., Bjørkan, M., Hovelsrud, G. K. & Kaltenborn, B. 2018. Sustainable coasts? Perceptions of change and livelihood vulnerability in Nordland, Norway. *Local Environment* 23(12): 1156-1171. DOI: 10.1080/13549839.2018.1533931

Rybråten, S., Skår, M. & Nordh, H. 2017. The Phenomenon of Walking: Diverse and dynamic. *Landscape Research* 44(1): 1-13. DOI: 10.1080/01426397.2017.1400527

Rybråten, S. & Gómez-Baggethun, E. Lokal og tradisjonell økologisk kunnskap i forskning og forvaltning av laks - En forstudie. NINA Rapport 1290. Norsk institutt for naturforskning [Local and traditional ecological knowledge in salmon research and management – A preliminary study. NINA Report] ISBN: 978-82-426-2957-9

Other relevant publications by the applying research group**Declaration of parallel submissions of this proposal (whole or parts) to other funding programmes or to the same programme**

None.

Budget tables**Table 1 : Costs per partner and requested funding budget**

Partner / funding organisation	A - Total costs/expenses	B - Requested funding budget	C - Requested funding budget	Funding rate (B/A)	Other funding
	Incl. subcontracts (in EURO, incl. of VAT depending on funding organisation rules)	Incl. subcontracts (in EURO, incl. of VAT depending on funding organisation rules)	Incl. subcontracts (in national currency-when other than EURO)	%	(co-funding, self funding)
Coordinator - partner 1 University of Copenhagen, Denmark	300000	300000	2238240 DKK	100%	30000

Source of self funding: UCPH contributes 10% of the requested budget (30,000 euro) in own-contribution. This will go towards additional person-months for the coordinator and the Post Doc. In addition UCPH provides considerable own-contributes primarily through non-requested non-quantified key participant person months. There is furthermore synergies with the existing project CAPARDUS, a coordination and support action under EU Horizon 2020 (LC-CLA-07-2019, grant number: 869673) in which UCPH participates with 3 person months. Offered own and co-funding tends to change in times of financial hardship such as is likely to follow in the wake of the Covid-19 pandemic. The project is therefore designed to be feasible without such. The total costs and requested funding is therefore identical in the table above.

Partner 2

	145000	145000	1574380 SEK	100%	31000
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Source of self funding: SLU contributes co-fundin equal to 1 month per year all three years of the project. Offered own and co-funding tends to change in times of financial hardship such as is likely to follow in the wake of the Covid-19 pandemic. The project is therefore designed to be feasible without such. The total costs and requested funding is therefore identical in the table above

Partner 3

Technical University of Denmark, Denmark	125000	125000	1009080 DKK	100%	7488
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Source of self funding: The co-funding provided by DTU in-kind, goes towards additional person-months for permanent staff members. Offered own and co-funding tends to change in times of financial hardship such as is likely to follow in the wake of the Covid-19 pandemic. The project is therefore designed to be feasible without such. The total costs and requested funding is therefore identical in the table above

Subcontracted partner 3a

Ilisimatusarfik - University of Greenland, Denmark	30000	-	-	-	-
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Partner 4

Norwegian University of Science and Technology, Norway	90000	90000	1026070 NOK	100%	92000
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Source of self funding: NTNU provides co-funding including person months (12,000 euro) and 80000 euros for data collection. However, offered own and co-funding tends to change in times of financial hardship such as is likely to follow in the wake of the Covid-19 pandemic. The project is therefore designed to be feasible without such. The total costs and requested funding is therefore identical in the table above

Partner 5

Umeå University, Sweden	75000	75000	817985 SEK	100%	-
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Source of self funding: The co-funding is provided in-kind by UMU and goes towards additional person-months for permanent staff members. Offered own and co-funding tends to change in times of financial hardship such as is likely to follow in the wake of the Covid-19 pandemic. The project is therefore designed to be feasible without such. The total costs and requested funding is therefore identical in the table above

Partner 6

Luleå University of Technology, Sweden	75000	75000	817985 SEK	100%	-
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Source of self funding: The co-funding is provided in-kind by LTU and goes towards additional person-months for permanent staff members. Offered own and co-funding tends to change in times of financial hardship such as is likely to follow in the wake of the Covid-19 pandemic. The project is therefore designed to be feasible without such. The total costs and requested funding is therefore identical in the table above

Partner 7

University of AAU, Denmark	75000	75000	56160 DKK	100%	7488
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Source of self funding: The co-funding provided by AAU in-kind, goes towards additional person-months for permanent staff members. Offered own and co-funding tends to change in times of financial hardship such as is likely to follow in the wake of the Covid-19 pandemic. The project is therefore designed to be feasible without such. The total costs and requested funding is therefore identical in the table above

Partner 8

The Arctic University of Norway, Norway	175726	149591	1699350 NOK	85%	26135
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Source of self funding: Camilla Brattland will contribute 3 person months self-funding for WP3 out of her research time provided for by the Department for Social Sciences, UiT - the Arctic University of Norway (included in the budget's total costs but not requested). In addition a MSc student will work on the project with no additional costs.

Partner 9

Norwegian Institute for Nature Research, Norway	60000	60000	60000 NOK	100%	5000
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Source of self funding: The co-funding provided by NINA in-kind, goes towards additional person-months for permanent staff members. Offered own and co-funding tends to change in times of financial hardship such as is likely to follow in the wake of the Covid-19 pandemic. The project is therefore designed to be feasible without such. The total costs and requested funding is therefore identical in the table above

Total	1120726	1094591			199111
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Table 2a : Breakdown of total costs per partner per calendar year (in Euro, incl. VAT depending on funding organisation rules)**Coordinator - partner 1 : University of Copenhagen, Denmark**

	2020	2021	2022	2023	2024	Total cost	Funding request
Salaries permanent	0	23400	7178	23422	0	54000	54000
Salaries temporary	0	23080	69240	34680	0	127000	127000
Fellowships	0	0	0	0	0	0	0
Salaries total	0	46480	76418	58102	0	181000	181000
Travel	0	5000	5717	4283	0	15000	15000
Participation to joint activities of the Call	0	3000	0	0	0	3000	3000
Consumables	0	0	0	1000	0	1000	1000
Equipment	0	0	0	0	0	0	0
Other costs	0	3000	3000	3000	0	9000	9000
Overheads	0	30835	37459	22706	0	91000	91000
Subcontract	0	0	0	0	0	0	0
Total	0	88315	122594	89091	0	300000	300000

Partner 2 : Swedish University of Agricultural Sciences, Sweden

	2020	2021	2022	2023	2024	Total cost	Funding request
Salaries permanent	0	23328	23700	24500	0	71528	71528
Salaries temporary	0	0	0	0	0	0	0
Fellowships	0	0	0	0	0	0	0
Salaries total	0	23328	23700	24500	0	71528	71528
Travel	0	9472	22000	2500	0	33972	33972
Consumables	0	0	0	1000	0	1000	1000
Equipment	0	0	0	0	0	0	0
Other costs	0	1000	1000	1000	0	3000	3000
Overheads	0	11600	11832	12068	0	35500	35500
Subcontract	0	0	0	0	0	0	0
Total	0	45400	58532	41068	0	145000	145000

Partner 3 : Technical University of Denmark, Denmark

	2020	2021	2022	2023	2024	Total cost	Funding request
Salaries permanent	0	14000	10000	10000	0	34000	34000
Salaries temporary	0	14000	0	0	0	14000	14000
Fellowships	0	0	0	0	0	0	0
Salaries total	0	28000	10000	10000	0	48000	48000
Travel	0	7000	4000	2000	0	13000	13000
Consumables	0	0	0	1000	0	1000	1000
Equipment	0	1000	0	0	0	1000	1000
Other costs	0	1000	1000	1000	0	3000	3000
Overheads	0	16280	6600	6120	0	29000	29000
Subcontract	0	15000	10000	5000	0	30000	30000
Total	0	68280	31600	25120	0	125000	125000

Subcontracted partner 3a : Ilisimatusarfik - University of Greenland, Denmark

	2020	2021	2022	2023	2024	Total cost	Funding request
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Salaries permanent		21250	0
Salaries temporary		0	0
Fellowships		0	0
Salaries total		21250	0
Travel		4000	0
Consumables		0	0
Equipment		0	0
Other costs		3000	0
Overheads		1750	0
Total		30000	0

Partner 4 : Norwegian University of Science and Technology, Norway

	2020	2021	2022	2023	2024	Total cost	Funding request
Salaries permanent	0	17409	17932	17686	0	53027	53027
Salaries temporary	0	3128	3222	3065	0	9415	9415
Fellowships	0	0	0	0	0	0	0
Salaries total	0	20537	21154	20751	0	62442	62442
Travel	0	0	7900	0	0	7900	7900
Consumables	0	0	0	1000	0	1000	1000
Equipment	0	0	0	0	0	0	0
Other costs	0	1666	1667	1667	0	5000	5000
Overheads	0	4484	4619	4555	0	13658	13658
Subcontract	0	0	0	0	0	0	0
Total	0	26687	35340	27973	0	90000	90000

Partner 5 : Umeå University, Sweden

	2020	2021	2022	2023	2024	Total cost	Funding request
Salaries permanent	0	14846	15197	15557	0	45600	45600
Salaries temporary	0	0	0	0	0	0	0
Fellowships	0	0	0	0	0	0	0
Salaries total	0	14846	15197	15557	0	45600	45600
Travel	0	1000	2000	2000	0	5000	5000
Consumables	0	0	0	1000	0	1000	1000
Equipment	0	0	0	0	0	0	0
Other costs	0	1000	1000	1000	0	3000	3000
Overheads	0	5992	8123	6285	0	20400	20400
Subcontract	0	0	0	0	0	0	0
Total	0	22838	26320	25842	0	75000	75000

Partner 6 : Luleå University of Technology, Sweden

	2020	2021	2022	2023	2024	Total cost	Funding request
Salaries permanent	0	15700	16150	16634	0	48484	48484
Salaries temporary	0	0	0	0	0	0	0
Fellowships	0	0	0	0	0	0	0
Salaries total	0	15700	16150	16634	0	48484	48484
Travel	0	1000	1000	1000	0	3000	3000
Consumables	0	0	0	1000	0	1000	1000
Equipment	0	350	365	377	0	1092	1092
Other costs	0	1000	1000	1000	0	3000	3000

Overheads	0	5966	6137	6321	0	18424	18424
Subcontract	0	0	0	0	0	0	0
Total	0	24016	24652	26332	0	75000	75000

Partner 7 : University of AAU, Denmark

	2020	2021	2022	2023	2024	Total cost	Funding request
Salaries permanent	0	14000	10000	10000	0	34000	34000
Salaries temporary	0	0	0	0	0	0	0
Fellowships	0	0	0	0	0	0	0
Salaries total	0	14000	10000	10000	0	34000	34000
Travel	0	7000	4000	2000	0	13000	13000
Consumables	0	0	1000	0	0	1000	1000
Equipment	0	1000	0	0	0	1000	1000
Other costs	0	1000	1000	1000	0	3000	3000
Overheads	0	10120	6600	6280	0	23000	23000
Subcontract	0	0	0	0	0	0	0
Total	0	33120	22600	19280	0	75000	75000

Partner 8 : The Arctic University of Norway, Norway

	2020	2021	2022	2023	2024	Total cost	Funding request
Salaries permanent	0	12720	13060	13424	0	39204	19602
Salaries temporary	0	19080	19590	13424	0	52094	52094
Fellowships	0	0	0	0	0	0	0
Salaries total	0	31800	32650	26848	0	91298	71696
Travel	0	6000	12000	12000	0	30000	30000
Consumables	0	0	0	1000	0	1000	1000
Equipment	0	0	0	0	0	0	0
Other costs	0	8000	8000	7000	0	23000	23000
Overheads	0	10600	10880	8948	0	30428	23895
Subcontract	0	0	0	0	0	0	0
Total	0	56400	63530	55796	0	175726	149591

Partner 9 : Norwegian Institute for Nature Research, Norway

	2020	2021	2022	2023	2024	Total cost	Funding request
Salaries permanent	0	16000	12600	12500	0	41100	41100
Salaries temporary	0	0	0	0	0	0	0
Fellowships	0	0	0	0	0	0	0
Salaries total	0	16000	12600	12500	0	41100	41100
Travel	0	2600	0	2000	0	4600	4600
Consumables	0	0	0	1000	0	1000	1000
Equipment	0	0	0	0	0	0	0
Other costs	0	1000	1000	1000	0	3000	3000
Overheads	0	4000	3150	3150	0	10300	10300
Subcontract	0	0	0	0	0	0	0
Total	0	23600	16750	19650	0	60000	60000

Total **1120726** **1094591**

Table 2b : Total amount for the project

	Salaries				Travel	Joint activ.	Consumables	Equip-ment	Other costs	Over-heads	Sub-contract
	perm.	temp.	fellow.	Total							
Total amount of project	442193	202509	0	644702	129472	3000	9000	3092	58000	273460	30000
Total Funding request	401341	202509	0	603850	125472	3000	9000	3092	55000	265177	30000

Explanation and/or remarks concerning the proposed budget (tables 1 and 2)

Partner 1 University of Copenhagen Denmark	Seven person-months are included for permanent staff - 5 months for the coordinator (Martin R. Nielsen) in WP5 and 2 months for Henrik Meilby in WP1 supervising the Post Doc. The budget includes 22 months for a Post Doc employed at the UCPH. Three additional person months for the Post Doc are included in the budget of DTU for visiting scholarship. Combined costs for travel, including flights, per diem and accommodation is limited to 15,000 euro as fieldwork consists of meetings and workshops. 3,000 euro are allocated to joint activities the first year. An additional 1000 euro per participant (3) is allocated in the same budget line for participation in consortium meetings per year. 2,000 euro are allocated to each participant for dissemination activities (i.e. conferences etc.). 1,000 euro is assigned for open access publication. Overheads are calculated as 44% of the total in accordance with Innovation Fund guidelines.
Partner 2 Swedish University of Agricultural Sciences Sweden	The budget of the Swedish University of Agricultural Sciences (SLU) includes 11 person months for permanent staff working on WP2 and 3 months for management in WP5. Data collection in WP2 will consist of a combination of a survey (aiming at about 600 respondents, 300 from Sweden and Norway respectively) and existing climate and environmental data, and 27,472 euro has been allocated for fieldwork and data collection (i.e. flights, per diem and accommodation) in year one and two. 1,000 euro has been allocated to consortium meetings per participant per year under the budget line other costs. 2,000 euro has been allocated for dissemination activities under the budget line travel. In addition, 3000 euro has been allocated for participation in dissemination activities (i.e. conferences, workshops and meetings) per year. Furthermore, 1000 euro has been included for open access publication under consumables. Overhead is calculated as 32% of total.
Partner 3 Technical University of Denmark Denmark	The budget of Danish Technical University/ARTEK (DTU) includes 5 person months for permanent staff going towards work in WP4. In addition the budget includes 2 person months for Post Doc otherwise employed at UCPH. DTU fieldwork in WP4 includes collecting new data through interviews and stakeholder engagement in the form of local workshops in Greenland. Hence, 11,000 euro are included for flights, per diem and accommodation in the budget line travel. This work will be undertaken in collaboration with partners from the University of Aalborg and University of Greenland (UoG). The budget line travel also includes 2,000 euro for dissemination activities (i.e. conferences, workshops and meetings). 1,000 euro is included for open access publication in the budget line consumables. 3,000 are included for consortium meetings under other costs. Finally, 30,000 euro are included for sub-contracting of Greenlandic partners - i.e. UoG to cover salaries and other costs. Overhead is 44% of total.
Partner 3a Ilisimatusarfik - University of Greenland Denmark	The budget of the University of Greenland (UoG) includes 2½ person months for permanent staff going towards work in WP1 and WP4. UoG fieldwork in WP1 and 4 includes participating in interviews and stakeholder engagement in the form of local workshops in the outer districts of Greenland. Hence, 4,500 euro are included for flights, per diem and accommodation in the budget line travel. In addition 3,000 euro are included for joint activities including consortium meetings in the budget line other costs. The Danish Technical University/ARTEK (DTU) manages the sub-contracting of UoG. However, overheads to UoG are included in this budget. Overhead is calculated as 25% of the total in accordance with UoG requirements.
Partner 4 Norwegian University of Science and Technology Norway	The budget of the Norwegian University of Science and Technology (NTNU) includes 6 person months for permanent staff and a research assistant (temporary staff) for data collection and preparation. Data collection will be done in cooperation with the Swedish University of Agricultural Sciences (SLU), and consists of a combination of survey and climate and environmental data. 7,900 euro of the total budget has been placed in year two for fieldwork and data collection under the budget line travel. 3,000 euro has been allocated to consortium meetings listed under other costs. In addition, 2,000 euro has been allocated for participation in dissemination activities (i.e. conferences and meetings). Furthermore,

1000 euro has been included for open access publication. Overhead is calculated as 18% of total in accordance with NTNU requirements.

<p>Partner 5</p> <p>Umeå University</p> <p>Sweden</p>	<p>The budget of Umeå University (UMU) includes 2 person-months for permanent staff going towards work in WP4 as well as 2 person month for participation in management activities in WP5. UMU fieldwork is conducted in collaboration with Luleå University of Technology (LTU) in WP4 and includes data collection, legal analysis and comparative analyses. 3,000 euro are allocated for data collection for the comparative analysis under the budget line travel. 2,000 euro are included for dissemination activities (conferences, workshops and meetings) also under the budget line travel. 1,000 are included for open access publication under the budget line consumables. 3,000 euro are allocated for participation in consortium meetings. Overheads are 37% of the total based on the model employed by Umeå university.</p>
<p>Partner 6</p> <p>Luleå University of Technology</p> <p>Sweden</p>	<p>The budget of Luleå University of Technology (LTU) includes 4 person-months for permanent staff going towards work in WP4. LTU fieldwork is conducted in collaboration with Umeå University in WP4 includes data collection, legal analysis and comparative analyses. 3,000 euro are allocated for data collection for the comparative analysis, including dissemination activities (conferences, workshops and meetings) under the budget line travel. 1,092 euro are allocated for ICT costs (computers and IT support) under the budget line equipment. 1,000 are included for open access publication under the budget line consumables. 3,000 euro are allocated for participation in consortium meetings. 18,424 euro, equaling 38% of the salary costs (incl. social fees) based on the full cost model employed by LTU.</p>
<p>Partner 7</p> <p>University of AAU</p> <p>Denmark</p>	<p>The budget of Aalborg University (AAU) includes 4 person months for permanent staff going towards work in WP4. AAU fieldwork in WP4 includes collecting new data through interviews and stakeholder engagement in the form of local workshops in the outer districts of Greenland. Hence, 11,000 euro are included for flights, per diem and accommodation in the budget line travel. This work will be undertaken in collaboration with partners from the Danish Technological University (DTU) and the University of Greenland (UoG). The budget line travel also includes 2,000 euro for dissemination activities (i.e. conferences, workshops and meetings). 1,000 euro is included for open access publication. Overhead is calculated as 44% of total in accordance with Innovation Fund guidelines.</p>
<p>Partner 8</p> <p>The Arctic University of Norway</p> <p>Norway</p>	<p>The budget for UiT includes 11 person months for permanent and temporary staff in WP3 and 3 person months for Executive Committee work in WP5.</p> <p>Travel expenses cover fieldwork and data collection related to fieldwork (interviews and workshops) in communities in Finnmark as well as the collation of other data sources. 21,000 euro are allocated for travel, stakeholder workshops and other forms of fieldwork. In addition, 2,000 euro are included per participant for dissemination activities (6,000 euro) and 1,000 euro per participant for participation in consortium meetings each year under the budget line travel (in total 9,000 euro).</p> <p>Other costs cover 15,000 euro for producing the Porsanger fjord ecosystem management plan, including 8,000 euro for indigenous and community involvement and travelling expenses.</p> <p>Finally 1,000 euro are included for open access publication under the budget line consumables. Hence, the budget includes self-funding from Brattland's research time of 26.135.</p>
<p>Partner 9</p> <p>Norwegian Institute for Nature Research</p> <p>Norway</p>	<p>The budget of NINA includes 2½ person-months for permanent staff in WP4. Fieldwork is conducted in collaboration with Umeå University (UMU) and Luleå University of Technology (LTU) in WP4 and includes qualitative interviews and document studies as well as dissemination trips with travels to Finnmark County. 2,600 euro are allocated for fieldwork under the budget line travel. In addition 2,000 euro are allocated for dissemination activities (i.e. conferences, workshops and seminars) also under the budget line travel. 3,000 euro are allocated for participation in consortium meetings under the budget line other costs. Overhead is calculated as 25% of salary costs as required by NINA.</p>

Ethics self-assessment

1. HUMAN EMBRYOS/FOETUSES	YES / NO	If yes, please detail and indicate how you plan to deal with this ethic issue
Does your research involve Human Embryonic Stem Cells (hESCs)?	NO	
Does your research involve the use of human embryos?	NO	

Does your research involve the use of human foetal tissues / cells?	NO	
2. HUMANS		
Does your research involve human participants?	YES	An Ethical Requirement Report (ERR) is included as the first delivery of the project describing any national, regional or local research clearances that needs to be obtained prior to fieldwork. It will also describe ethical reviews processes at National and University level to ensure that these are passed before fieldwork begins. Information sheets describing the project activities to respondents and informed consent forms will be developed and included in the (ERR). Inclusion and exclusion criteria will also be developed describing who will be selected for focus groups, interviews and surveys. These criteria will differ between Work Packages (WPs) depending on objectives including which sector or institution is the focus of the WP. Free prior informed consent will be obtained from each participant highlighting the right to withdraw from the interview at any point. Anonymity will be ensured by appropriate aggregation of household data and by only referring to institutions/organisations.
Does your research involve physical interventions on the study participants?	NO	
3. HUMAN CELLS / TISSUES		
Does your research involve human cells or tissues (other than from Human Embryos/Foetuses, i.e. section 1)?	NO	
4. PERSONAL DATA		
Does your research involve personal data collection and/or processing?	YES	Register data and personal data will be processed in accordance with EU code of conduct on research integrity and the directive on data protection. In practice national statistical bureaus demands that any processing and use of data is conducted on their servers in accordance with applicable national law.
Does it involve the collection and/or processing of sensitive personal data (e.g.: health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)?	NO	
Does it involve processing of genetic information?	NO	
Does it involve tracking or observation of participants?	NO	
Does your research involve further processing of previously collected personal data (secondary use)?	NO	
5. ANIMALS		
Does your research involve animals?	NO	
6. THIRD COUNTRIES		
In case non-EU countries are involved, do the research related activities undertaken in these countries raise potential ethics issues?	NO	
Do you plan to use local resources (e.g. animal and/or human tissue samples, genetic material, live animals, human remains, materials of historical value, endangered fauna or flora samples, etc.)?	NO	
Do you plan to import any material - including personal data - from non-EU countries into the EU?	NO	
Do you plan to export any material - including personal data - from the EU to non-EU countries?	NO	
In case your research involves low and/or lower middle-income countries, are any benefits-sharing actions planned?	NO	
Could the situation in the country put the individuals taking part in the research at risk?	NO	

7. ENVIRONMENT & HEALTH and SAFETY

Does your research involve the use of elements that may cause harm to the environment, to animals or plants? NO

Does your research deal with endangered fauna and/or flora and/or protected areas? NO

Does your research involve the use of elements that may cause harm to humans, including research staff? NO

8. DUAL USE

Does your research involve dual-use items in the sense of Regulation 428/2009, or other items for which an authorisation is required? NO

9. EXCLUSIVE FOCUS ON CIVIL APPLICATIONS

Could your research raise concerns regarding the exclusive focus on civil applications? NO

10. MISUSE

Does your research have the potential for misuse of research results? NO

11. OTHER ETHICS ISSUES

Are there any other ethics issues that should be taken into consideration? NO

Declaration of changes between pre-proposals and full proposals

Was there any change made in your proposal between the pre-proposal and full proposal stage? YES

Details and rationale of the change: No change of partners has been made. However, if the project is funded we would like to change work package leader in WP3 from dr. Sundsvold to dr. Brattland to ensure continuity and institutional anchoring of the project at the unit for societal planning and Cultural understanding, Department for Social Sciences, UiT. This also because the methodology applied by WP 3 is based on Dr. Brattland's work and recent publications (Brattland et al. 2019. Social-ecological timelines for human adaptation to biodiversity and climate change, *Ambio* 2019, and Brattland 2014. A cybernetic future for small-scale fisheries, *Maritime Studies*). In WP2 it has been detailed that an unnamed research assistant will work 3 months on the project. Furthermore, some reformulation of objective statements has taken place but without changing the overall objectives of the project or individual work packages.

Brief CVs for the principal investigator of each research team involved in the project

Participation status : Coordinator

Name : **Martin Nielsen**

Nationality : Danish

Institution, City, Country : University of Copenhagen, Frederiksberg C, Denmark

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Web site : [https://ifro.ku.dk/english/staff/?pure=en%2Fpersons%2Fmartin-reinhardt-nielsen\(c723a39f-eb05-4fba-9493-2b18ba7b5a43\).html](https://ifro.ku.dk/english/staff/?pure=en%2Fpersons%2Fmartin-reinhardt-nielsen(c723a39f-eb05-4fba-9493-2b18ba7b5a43).html)

Professional status : Associate professor

Education : 1998 - 2004 Cand scient Biology, University of Copenhagen, Denmark

2007 - 2011 PhD - Decentralised natural resource management, University of Copenhagen, Denmark

Academic positions : 2017 - Associate Professor - Human dimensions of wildlife and conservation management, University of Copenhagen - Department of Food and Resource Economics, Denmark

2013 - 2017 Assistant Professor, University of Copenhagen - Department of Food

2010 - 2013 Postdoc, University of Copenhagen - Center for Macro Ecology, Evolution and Climate, Denmark

2007 - 2010 PhD fellow, University of Copenhagen - Center for Forest and Landscape, University of Copenhagen

2006 - 2007 Project manager and scientific case worker, Greenland Home Rule Government - Directorate for Fishing, Hunting and Agriculture, Greenland

Awards received / other responsibilities : 1st place in the "ES in practice award 2019" of the 10th Ecosystem Services World conference for the project and board game "Savannah Life" (<https://savanna-life.webflow.io/>).
Work Package Leader in the 9,891,770 euro EU Horizon 2020 funded project "AfricanBioServices" project (grant no. 641918) (www.africanbioservices.eu) running from 2015 to 2019.
Task leader in the 2,003,009 euro EU Horizon 2020 funded "CAPARDUS" research project (grant no. 869673).
Initiator of the project "Household economic importance of hunting in Greenland" receiving 109,520 DKK from the Greenland Research Council in 2014 (<https://uk.uni.gl/research/hunting-household-economic-importance.aspx>).
December 2010: 120,000 DKK from the National Research Foundation for the project "Building knowledge on the economics of the trade and the choice of hunting for regulating illegal bushmeat trade in Tanzania".

General expertise and its relevance for the project : Working with the human dimensions of wildlife my research addresses the ecological, economic and governance aspects of wildlife management focusing on hunting and its role in rural household welfare through its dietary and economic contribution. This range from studying drivers of poaching and the the illegal bushmeat trade in Africa to the implications of climate change for subsistence whaling and traditional culture in the Arctic. I aim to assist designing economic instruments and informed management strategies that balance the objectives of economic development with sustainable use and conservation. I have worked as an academic case worker in the Greenland Self Rule Government overseeing an inter-ministerial working group collecting information on problems in natural resource management procedures through public meetings and meetings with municipal councils and industry and through a nationwide survey to develop an action plan and strategy for managing Greenland's living resources.

Up to 5 most important publications relevant to the proposal :
Nielsen, M.R., Meilby, H., Smith-Hall, C., Pouliot, M., Treue, T. 2018. The importance of wild meat in the global south. *Ecological Economics* 146: 696-705.
Nielsen, M.R., Theilade, I., Meilby, H., Nui, N.Hai., Lam, N.T. 2018. Can PES and REDD+ match Willingness To Accept payments in contracts for reforestation and avoided forest degradation? The case of farmers in upland Bac Kan, Vietnam. *Land Use Policy* 79: 822-833.
Holen, D., Gerkey, D., Høydal, E., Natcher, D., Nielsen, M.R., Poppel, B., Severeide, P.I., Snyder, H.T., Stapelton, M., Turi, E.I. an Aslaksen, L. 2017. Interdependency of subsistence and market economies in the Arctic. *The Economy of the North 2015*. (eds.), Solveig Glomsrød; Gérard Duhaime; Iulie Aslaksen. Statistics Norway, 2017. p. 118-119 (Statistical Analyses; No. 151).
Nielsen, M.P., Pouliot, M., Meilby, H., Smith-Hall, C., Angelsen, A. 2017. Global patterns and determinants of the economic importance of bushmeat. *Biological Conservation* 215: 277-287.
Nielsen, M.R., Meilby, H., Poppel, B., Lyster, P., Andresen, J.G., Hendriksen, K., Snyder, H.T., Hertz, O. 2017. The importance of hunting and smallscale fishing in Greenland. *The Economy of the North 2015*. (eds.), Solveig Glomsrød; Gérard Duhaime; Iulie Aslaksen. Statistics Norway, 2017. p. 118-119 (Statistical Analyses; No. 151).

Participation status : Participant, WP leader

Name : **Göran Bostedt**

Nationality : Swedish

Institution, City, Country : Swedish University of Agricultural Sciences, Umeå, Sweden

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Web site : <http://www.cere.se/se/personal.html#article-id-152>

Professional status : Professor

Education : 1991 - 1995 Ph.Lic. in Forest Economics, Swedish University of Agricultural Sciences, Sweden

1995 - 1997 Ph.D. in Forest Economics, Swedish University of Agricultural Sciences, Sweden

Academic positions : 2012 - Senior lecturer in economics, Umeå University, Umeå School of Business and Economics, Sweden
1997 - Researcher in natural resource economics, Swedish University of Agricultural Sciences, Department. of Forest Economics, Sweden

Awards received / other responsibilities : Research leader at Vaartoe, Center for Sami Research in 2019. Researcher on the Commission on Resource Efficiency. Scientific secretary, CERE. Director of graduate studies at SLU. Member of the International Committee and Member of the Equal Opportunities Committee, at SLU. Member of the Committee for Sustainable Development at Umeå University. Editorial Board member, Journal of Forest Economics. Project leader and WP leader on cost-benefit analysis of forest liming, 2007; "New policy mechanisms to mitigate carnivore-related conflicts" 2008-2010; "PlusMinus", 2008-2012; "Conflict over natural resource management: forestry and reindeer husbandry in an economic perspective", 2009-2013; "Landscape Planning for Forest Biodiversity and Diverse Forestry", 2016-2018; "Escaping the pastoralist paradox in the face of climate change: A comparative analysis of different tenure systems and their implications for climate vulnerability in semi-arid Sub-Saharan African", 2018-2020.

General expertise and its relevance for the project : My research interests include natural resource conflicts in arctic environments, with special focus on the conflict between industrial forestry and the Sami. Other strains of research include the conflicts arising from growing carnivore populations in northern Europe and the Swedish system for compensations for carnivore damages, transaction costs in the mandatory consultations between the pastoral Sami and the forestry representatives, and spatial planning of forest landscapes.

Up to 5 most important publications relevant to the proposal : Bostedt, G., Zabel, A. and Ekvall, H. 2019: Planning on a wider scale: Swedish forest owners' preferences for landscape policy attributes. *Forest Policy and Economics* 104: 170-181.
Michanek, G., Bostedt, G., Ekvall, H., Forsberg, M., Hof, A.R., de Jong, J., Rudolphi, J. and Zabel, A. 2018. Landscape planning: Paving the way for effective conservation of forest biodiversity and a diverse forestry? *Forests* 9: 523.
Zabel, A., Bostedt, G. and Ekvall, H. 2018. Policies for forest landscape management: A conceptual approach with an empirical application for Swedish conditions. *Forest Policy and Economics* 86: 13-21.
Bostedt, G., Mustonen, M. and Gong, P. 2016: Increasing forest biomass supply in Northern Europe: Countrywide estimates and economic perspectives. *Scandinavian Journal of Forest Research* 31: 314-322.
Bostedt, G., Widmark, C., Andersson, M. and Sandström, C. 2015. Measuring transaction costs incurred by pastoralist users in multiple land-use situations: The case of reindeer husbandry in northern Sweden. *Land Economics* 91(4): 704-722.

Participation status : Participant

Name : **Kåre Hendriksen**

Nationality : Danish

Institution, City, Country : Technical University of Denmark, Lyngby, Denmark

E-mail : krhe@byg.dtu.dk

Web site : [https://orbit.dtu.dk/en/persons/kaare-hendriksen\(848587de-79a7-47a2-9917-177be78d46c4\).html](https://orbit.dtu.dk/en/persons/kaare-hendriksen(848587de-79a7-47a2-9917-177be78d46c4).html)

Professional status : Associate professor

Education : 1998 - 2001 MSc Environmental Management, Technical University of Denmark, Denmark

2009 - 2013 Ph.D. Engineering, Technical University of Denmark, Denmark

Academic positions : 2013 - Associate Professor, Technical University of Denmark, Denmark

Awards received / other responsibilities : Selected research projects with Kåre Hendriksen as project manager from 2015:
– Nordic Council 2015: Water supply in Arctic island operations. 172.265 €
– Ministry of Education and Research, Government of Greenland (GG) 2015: Drivers and barriers to business development in outer districts. 16.200 €
– Ministry of Housing and Infrastructure, GG 2016: Geophysical studies in Qaanaaq. 361.400 €
– Nukissiorfiit: Water supply in Qaanaaq 2016. 200.775 €

- Ministry of Housing and Infrastructure, GG 2017: Assessment of urban renewal needs in Qaanaaq. 67.000 €
- Ministry of Business, Labor, Trade and Energy 2017 Sustainable fishing and production in Qeqertat. 31.500 €
- Avannaata Kommunia 2018: Socio-economic consequences of a fish production plant in Qeqerta. 40.000 €
- Avannaata Kommunia 2018: Socio-economic potentials of marketing of halibut from Qaanaaq through storytelling. 26.770 €
- Avannaata Kommunia 2019: Sea ice fishing of halibut in Qaanaaq. 20.000 €

General expertise and its relevance for the project : Kåre Hendriksen has worked and researched in Greenland since 1981. Among other things, head of local vocational schools in the 1990'th; Consultant in the engineering company Ramboll 1998-2005; PL for Nordic Council research project Environment and Tourism in Arctic 2001-04 and Nordic Council strategy Towards a Sustainable Arctic Tourism 2003; Ph.D. thesis Greenland's settlements - economy and development dynamics 2008-13. Since 2008 KH has conducted research and teaching Arctic Engineering within the field of Greenlandic infrastructure, business development, sustainability and climate change. The research has included collaborations with municipalities, national government and local organisations and businesses, as well as field studies in more than 90% of Greenland's settlements.

Up to 5 most important publications relevant to the proposal :

Hendriksen, K. and Hoffmann, B. 2018. Bæredygtig fiskeri og ræklingeproduktion i Qeqertat - analyse af investeringer i et helhedsorienteret perspektiv, DTU Civil Engineering, Technical University of Denmark.

Hendriksen, K. and Hoffmann, B. 2017. Greenlandic water and sanitation: A context oriented analysis of system challenges towards local sustainable development. Water, Sanitation, Pollution and Health in the Arctic, Springer.

Hendriksen, K. and Hoffmann, B. 2017. Greenlandic water and sanitation systems: Identifying system constellation and challenges. Water, Sanitation, Pollution and Health in the Arctic, Springer.

Hendriksen, K. and Hoffmann, B. 2016. Settlement patterns: Challenges and opportunities. Chapter in Knudsen R. (eds.) Perspectives on skills - an anthology on informally acquired skills in Greenland. A Greenland Perspective Publication, University of Copenhagen.

Hendriksen, K. and Jørgensen, U. 2015. Hunting and fishing settlements in Upernavik district of Northern Greenland: Challenged by climate, centralization and globalization. Polar Geography 38: 123 – 145.

Participation status : Participant

Name : **Birger Poppel**

Nationality : Danish

Institution, City, Country : Ilisimatusarfik - University of Greenland, Nuuk, Denmark

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Web site : <https://uk.uni.gl/find-employee/institute-of-learning/birger-poppel.aspx>

Professional status : Professor

Education : 1773 - 1978 Cand.polit. economics, University of Copenhagen, Denmark

Academic positions :

- 2016 - Project Chief emeritus - Survey of Living Conditions in the Arctic (SLiCA), Ilisimatusarfik - University of Greenland, Denmark
- 2004 - 2016 /Project Chief - Survey of Living Conditions in the Arctic (SLiCA), Ilisimatusarfik - University of Greenland, Denmark
- 1989 - 2004 Chief Statistician, The Greenland Home Rule Government, Denmark
- 1988 - 1989 Clerk, Department of Economic Affairs, division for economic planning, Denmark
- 1987 - 1988 Clerk, Department of Housing, Technology and Environment, Denmark
- 1984 - 1986 Consultant, Department of Social Affairs, Denmark
- 1980 - 1984 Consultant, Socialpædagogernes Landsforbund - The union of social workers, Denmark

Awards received / other responsibilities : 1997 - present: Project Chief of the Survey of Living Conditions in the Arctic, SLiCA & International research team coordinator.
1997 - 2004: member of the Greenland Health Research Board appointed by the Greenland Home Rule Government.

1997 - 1998: member of an expert-group developing an Arctic Social Science Plan - invited by Arctic Consortium of the United States, ARCUS.
1997 - 1998: member of an expert-group (Nordic Council of Ministers) developing a Nordic Arctic Science Plan: NARP.
2006 - 2010: Member of the Arctic Social Indicator/ASI Working Group.
2009, May-2011: Member of the SWIPA-IT (Snow, Water, Ice, Permafrost in the Arctic Integration Team (representing the social sciences).
2012, September 21-22: Co-convener of the Icelandic Greenlandic Arctic Science Days.
Ilisimatusarfik, Nuuk, September 21-22.

General expertise and its relevance for the project : More than 40 years experience working in various institutions in the Greenland administration and university. Currently Professor emeritus but previous chief statistician in Greenland statistics. Project chief of the Survey of Living Conditions in the Arctic (SLiCA) coordinating the international research team. Coordinating the project "Importance of hunting and small-scale fishin in Greenland" (<https://uk.uni.gl/research/hunting-household-economic-importance.aspx>). Has been part of most larger socioeconomic research projects undertaken in Greenland including the SWIPA, ASI and ECONOR reports as well as convener of conferences and member of working groups incl. ICARP II and the National, Greenland and Danish International Polar Year (IPY) Committees.

Up to 5 most important publications relevant to the proposal :

Poppel, B. 2018. Sustainable Development and Sustainability in Arctic Political Discourses. In: The Routledge Handbook of the Polar Regions: Maritime preparedness systems in the Arctic – institutional arrangements and potential for collaboration, Ingvill Elgsaas and Kristine Offerdal (eds.), Nord University. ISBN: 978-82-7456-787-0.

Poppel, B. 2017. Well-being of Circumpolar Arctic Peoples: The Quest for Continuity. In: Pursuit of Well-Being: The Untold Global History, R.J. Estes and M.J. Sirgy (eds.), Springer International Publishing, Switzerland. ISBN: 978-3-319-39100-7.

Holen, D., Gerkey, D., Høydahl, E., Natcher, D., Nielsen, M.R., Poppel, B., Severeide, P.I., Snyder, H.T., Stapleton, M., Turi, E.I. and Aslaksen, I. 2015. Interdependency of subsistence and market economies in the Arctic. In: The Economy of the North, Solveig Glomsrød, Gérard Duhaime and Iulie Aslaksen (eds.). Statistics Norway, p 170.

Poppel, B. (ed.). 2015. SLiCA: Arctic living conditions. Living conditions and quality of life among Inuit, Sami and indigenous peoples of Chukotka and the Kola Peninsula. Nordic Council of Ministers, p. 426. DOI: 10.6027/TN2015-501.

Poppel, B., Fægteborg, M., Siegstad, M.O. and Snyder, H.T. 2015. The Arctic as a 'hotspot' for natural resource extraction and global warming. In The Economy of the North. Solveig Glomsrød, Gérard Duhaime and Iulie Aslaksen (eds.). Statistics Norway, p 170.

Participation status : Participant

Name : **Anne Borge Johannesen**

Nationality : Norwegian

Institution, City, Country : Norwegian University of Science and Technology, Trondheim, Norway

E-mail : anne.borge.johannesen@ntnu.no

Web site : <https://www.ntnu.no/ansatte/anne.borge.johannesen>

Professional status : Associate professor

Education : 1990 - 1996 Master in Economics, Norwegian University of Science and Technology, Norway

1998 - 2003 Phd in Economics, Norwegian University of Science and Technology, Norway

Academic positions : 2016 - 2019 Head of Department, Norwegian University of Science and Technology, Department of Economics, Norway

2010 - 2016 Associate Professor, Norwegian University of Science and Technology, Department of Economics, Norway

2006 - 2010 Researcher, Center for Economic Research at NTNU, Norway

2003 - 2006 Post doc, Norwegian University of Science and Technology, Norway

Awards received / other responsibilities : 2016-present: Research leader, Department of Economics, Faculty of Economics and Management, NTNU- Norwegian University of Science and Technology

2016-present: Member of four hiring committees for associate professor and phd positions, Department of Economics, Faculty of Economics and Management, NTNU-Norwegian University of Science and Technology

2016-present: Leader of the National Council in Economics.

2011-present: Member of the scientific committee congress for Environmental and Resource Economists

2008-present: Reviewer for Land Economics, Ecological Economics, Environmental and Resource Economics, Resource and Energy Economics, Conservation Biology, Oryx, Journal of Nature Conservation, and Journal of Environmental Management.

2016-2016: Leader of the local organizing committee and Co-Chair of the scientific program committee for the 38th Annual Meeting of the Norwegian Association of Economists to be held at NTNU in Trondheim, Norway, 4-5 January 2016.

General expertise and its relevance for the project : Anne Borge Johannesen is specialized in natural resource economics and bioeconomic modelling. She has several publications on conflicts in natural resource utilization, including i) conflicts involving human-wildlife conflicts in Sami reindeer herding in Norway and ii) conflicts related to common property utilization. She has also published research on the impact of climate change in Norwegian sheep farming, with a particular focus on spatial impacts. She has designed and conducted several surveys, covering conflicts in natural resource use in Norway and Tanzania. Her research on reindeer herding in Norway is highly relevant for this project, and her modelling expertise is useful for modelling and simulating the welfare effects of possible climate changes on Sami communities. Her experience from previous surveys on Sami communities, and her cross-disciplinary network of Norwegian researchers, is a strength when the project is to conduct new surveys in the same areas.

Up to 5 most important publications relevant to the proposal : Johannesen, A.B. and Y. Liu (2019). Non-use values and cooperation in local common property exploitation. In Olaussen, J.O. (ed), Contributions in natural resource economics, Fagbokforlaget, Bergen.

Johannesen, A.B., J.O. Olaussen, and A. Skonhøft (2019). Livestock and Carnivores: Economic and Ecological Interactions. Environmental and Resource Economics, 7, 295-317.

Skonhøft, A., A.B. Johannesen, and J.O. Olaussen (2017). On the tragedy of the commons: When predation and livestock loss may improve the economic lot of herders. Ambio, 46, 644-654.

Participation status : Participant, WP leader

Name : **Carina Keskitalo**

Nationality : Swedish

Institution, City, Country : Umeå University, Umeå, Sweden

E-mail : carina.keskitalo@umu.se

Web site : www.umu.se

Professional status : Professor

Education : 1997 - 2002 PhD in International Relations, University of Lapland, Finland

Academic positions : 2005 - Senior Lecturer/Associate Professor/from 2011 Professor, Umeå University, Sweden

Awards received / other responsibilities : Nils Klim Award 2007

Academic leader of the Mistra Arctic Sustainable Development research programme (the first large Swedish social sciences and humanities research programme on the Arctic), about 40 MSEK

Academic leader of the PLURAL research programme funded by FORMAS, about 25 MSEK

PI for numerous smaller grants

General expertise and its relevance for the project : Focus on adaptation to climate change in primary resource sectors (reindeer husbandry, forestry) in northernmost Europe.

Multi-level governance studies of adaptation to climate change.

IPCC contributing author for 2014 and forthcoming general assessment report, on adaptation.

Close to 20 year publication record on the Arctic region (region-building, regional construction etc).

Up to 5 most important publications relevant to the proposal :

Keskitalo, E. C. H. and B. L. Preston (2019, eds). Research Handbook on Climate Change Adaptation Policy. Edward Elgar, Cheltenham.

Keskitalo, E. C. H., and M. Pettersson (2016). Can Adaptation to Climate Change at All Be Mainstreamed in Complex Multi-level Governance Systems? A Case Study of Forest-Relevant Policies at the EU and Swedish Levels. In: Leal Filho, W., Adamson, K., Dunk, R.M., Azeiteiro, U.M., Illingworth, S., Alves, F. (eds) Implementing Climate Change Adaptation in Cities and Communities. Integrating Strategies and Educational Approaches. Springer, Dordrecht. Pp. 53-74.

Keskitalo, E. C. H.; M. Pettersson, E. Laszlo Ambjörnsson, E. J. Davies (2016) "Agenda-setting and framing of policy solutions for forest pests in Canada and Sweden: Avoiding beetle outbreaks?" Forest Policy and Economics 65: 59–68

Klapwijk, M. J., A. J. M. Hopkins, L. Eriksson, M. Pettersson, M. Schroeder, Å. Lindelöw, J. Rönnerberg, E. C. H. Keskitalo, M. Kenis (2016) "Reducing the risk of invasive forest pests and pathogens: Combining legislation, targeted management and public awareness". Ambio 45 (2): 223-234

Pettersson, M., C. Strömberg, E. C. H. Keskitalo (2016) Possibility to implement invasive species control in Swedish forests. Ambio 45 (2): 214-222.

Participation status : Participant

Name : **Maria Pettersson**

Nationality : Swedish

Institution, City, Country : Luleå University of Technology, Luleå, Sweden

E-mail : maria.pettersson@ltu.se

Web site : <https://www.ltu.se/staff/m/mariap-1.81111>

Professional status : Professor

Education : 1996 - 2001 Master of Science in Economics, Luleå University of Technology, Sweden

1999 - 2003 Master of Arts in Law, Luleå University of Technology, Sweden

2003 - 2008 Doctoral studies, Luleå University of Technology, Sweden

Academic positions : 2017 - Chair professor, Luleå University of Technology, Sweden

2017 - Professor, Luleå University of Technology, Sweden

2014 - 2016 Associate professor, Luleå University of Technology, Sweden

2012 - 2014 Guest researcher, Umeå University, Sweden

2009 - 2014 Assistant professor, Luleå University of Technology, Sweden

2009 - 2012 Postdoc 50%, Umeå University, Sweden

2008 - 2009 Assistant lecturer, Luleå University of Technology, Sweden

2003 - 2008 Doctoral student, Luleå University of Technology, Sweden

Awards received / other responsibilities : Chair professor of the Law Unit at LTU (2017-ongoing)

Teacher of the year LTU 2017/18 (2018)

Acting chair of the Law Unit at LTU (2016-2017)

Academic Advisor (student exchange programme) LTU (2018-2010)

General expertise and its relevance for the project : Professor Maria Pettersson, LL.D. and M.Sc in Economics, is specialised in environmental and natural resources law. Her research is primarily focused on the function of law in relation to the management and utilization of natural resources, often considering climate change. Examples of Dr. Pettersson's research areas include: renewable energy development, including wind- and hydropower; resource planning and permitting processes; mining; forest governance, including water issues; and biodiversity protection. Methodologically Dr. Pettersson's studies often include comparative law and law & economics. She has participated in several large interdisciplinary research programmes/-projects, including EU FP7, Kolarctic and MISTRA projects/programmes. Dr. Pettersson is also responsible for the master's programme in Environmental and Natural Resources law at Luleå University of Technology and has extensive teaching experience.

Up to 5 most important publications relevant to the proposal :

Solbär, L., Marciano, P. and Pettersson, M. 2019. Land-use Planning and Designated National Interests in Sweden – Arctic Perspectives on Landscape Multifunctionality. *Journal of Environmental Planning and Management*. DOI: 10.1080/09640568.2018.1535430.

Pettersson, M., Stjernström, O. and Keskitalo, E.C.H. 2017. The role of participation in the planning process: examples from Sweden. *Local Environment*. <http://dx.doi.org/10.1080/13549839.2017.1319805>

Keskitalo, E.C.H. and Pettersson, M. 2016. Can adaptation to climate change at all be mainstreamed in complex multi-level governance systems? A case study of forest-relevant policies at the EU and Swedish levels. In: Leal, W., Adamson, K., Dunk, R., Azeiteiro, U.M., Illingworth, S., Alves, F. (eds.), *Implementing Climate Change Adaptation in Cities and Communities. Integrating Strategies and Educational Approaches*. Climate Change Management Series, Palgrave Macmillan, Cham. ISBN 978-3-319-28591-7. DOI: 10.1007/978-3-319-28591-7.

Pettersson, M. and Goytia, S. 2016. The role of the precautionary principle and property rights in the governance of natural resources in Sweden. *Nordic Environmental Law Journal* 1: 107-121.

Pettersson, M., Strömberg, C. and Keskitalo, E.C.H. 2016. Possibility to implement invasive species control in Swedish forests. *Ambio* 45: 214-222. DOI: 10.1007/s13280-015-0754-5.

Participation status : Participant

Name : **Birgitte Hoffmann**

Nationality : Danish

Institution, City, Country : University of AAU, Copenhagen, Denmark

E-mail : bhof@plan.aau.dk

Web site : www.aau.dk

Professional status : Associate professor

Education : 1981 - 1990 MSc Urban Planning, Technical University of Denmark, Denmark
1991 - 1996 PhD Sustainable Urban Development, Technical University of Denmark, Denmark

Academic positions : 2012 - Associate Professor, University of Aalborg, Department of Planning, Denmark
1996 - 2012 Associate Professor, Technical University of Denmark, Dept. of Management Engineering, Denmark

Awards received / other responsibilities : Birgitte Hoffmann was appointed as one of two National Danish Expert from 2014-2018. She was also part of the Danish expert group for the Horizon 2020 Societal Challenges on Climate action, Environment Resource Efficiency and Raw Materials. Further she part of the management group of a national innovation network on climate adaption.

She is leading an interdisciplinary research field on Climate Adaption at Aalborg University

During her career she has got a series of research grants.

BH is part of the knowledge committee of Coast to Coast Climate Challenge (www.C2CCC.dk)

Birgitte Hoffman has been part of the development of the curriculum and the didactic of the Arctic Engineering Education in Sissimiut since the beginning in 2001, and are teaching on strategic planning and business development in Arctic.

General expertise and its relevance for the project : Sustainable Arctic development
Birgitte Hoffmann has for 20 years been engaged in teaching and research in Greenland in relation to strategic planning, local sustainability and development of businesses potentials. A key issue is the sustainable development of businesses in the special contextual conditions such as the extreme and changing climate conditions, the diverse settlements in the huge and disparate geography and the on-going encounter between indigenous and modern cultures and practices. She has large networks in Arctic research and public and private organizations.

Project management and process facilitation

BH has been project manager for several projects, successfully integrating diverse institutions and organizing complex participatory research cases. She is an experienced facilitator of processes of dialogue and learning in relation to

technological transition, bringing together different groups and cultures: lay people, professionals, politicians, businesses, etc.

Up to 5 most important publications relevant to the proposal :

Hoffmann, B. & Rix, T. (2020): Scenarios for a mining town – the ruby mine in Qeqertarsuaat. Chapter accepted for book on Greenland in Engineering and Indigenous Societies collection. Morgan and Claypool

Hendriksen K. & Hoffmann, B (2018): Greenlandic water and sanitation—a context oriented analysis of system challenges towards local sustainable development. In Journal of Environmental Science and Pollution Research

Hendriksen K. & Hoffmann, B (2018): Greenlandic water and sanitation systems—identifying system constellation and challenges. In Journal of Environmental Science and Pollution Research

Hendriksen, K. & Hoffmann, B. (2016): Qaanaaq – infrastructure and businesses – resume on pilot project on local sustainable development. Report (in Danish) BYG, Technical University of Denmark.

Hoffmann, B. & Jørgensen U. (2016): The Power of Knowledge in the Modernisation of Greenland. Chapter in Knudsen R. (eds.), Perspectives on skills - an anthology on informally acquired skills in Greenland. A Greenland Perspective publication, University of Copenhagen June 2016.

Participation status : Participant, WP leader

Name : **Sundsvold Bente**

Nationality : Norwegian

Institution, City, Country : The Arctic University of Norway, Tromsø, Norway

E-mail : bente.sundsvold@uit.no

Web site : https://uit.no/om/enhet/ansatte/person?p_document_id=43507&p_dimension_id=88153

Professional status : Senior scientist

Education : 2006 - 2010 PhD - social and visual anthropology, University of Tromsø, Norway

Academic positions : 2019 - Assistant Professor - Department of Social Sciences, UiT - the Arctic University of Tromsø, Norway
2016 - 2018 Post Doc The Norwegian College of Fishery Science, UiT - the Arctic University of Tromsø, Norway
2010 - 2016 Assistant Professor - teaching obligations, UiT- The Arctic University of Tromsø, Norway

Awards received / other responsibilities : Work package leader: FOODCOAST – Coastal Foodscapes: a place-based perspective on heritage rooted in coastal ecosystems lead by NIVA,Oslo. Funded by Norwegian Research Council (2019-2022)

WP- leader COASTCHANGE – planning for coastal climate change led by Prof Claire Armstrong, The Norwegian College of Fishery Science, financed by FRAM – Flagship Fjord and Coast, 2019-2021

General expertise and its relevance for the project : Main field of competence relates to ethnographic approaches to human-environmental relations & multi-species entanglement, framed within approaches of national and global paradigms of nature resource and conservation management. During PhD my focus was on eider down harvesting practices in the process of a World Heritage inscription. During postdoc position, I joined a NRC funded project on potentials for incorporation ecosystem services in coastal resource management and planning (2016-2018). "The nature contribution to human"- approach is also part of ongoing research I am involved in, related to coastal resource management and local livelihoods and potentials for co-production of knowledge. As a visual anthropologist, I have worked extensively with audio-visual tools, as research tools, dissemination and collaborative approaches, as well as in teaching and supervision, in Northern Norway and in West-Africa.

Up to 5 most important publications relevant to the proposal :

Sundsvold, B & Armstrong, C (2019): "Found in translation: identifying ecosystem services through public consultation statements in a marine spatial planning process" Ecosystems and people vol.15 issue 1.
<https://www.tandfonline.com/doi/full/10.1080/26395916.2019.1596982>

Sundsvold Bente (2018): «Å tenkje som en faule. Med videokamera som verktøy i utforskning av relasjonsbygging og meningsdannelse mellom menneske og fugl» i Norsk Antropologisk Tidsskrift 3-4/ 2018 s. 179-198 Publisert 19.12.2019 DOI: 10.18261/issn.1504-2898-2018-03-04-06

Participation status : Participant

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Professional status : Assistant professor

Education : 2004 - 2006 Master, Social Anthropology, Faculty of Social Science, University of Oslo, NO

2007 - 2012 PhD, Social Anthropology, CICERO and Faculty of Social Science, University of Oslo, NO

Academic positions : 2015 - Researcher, Norwegian Institute for Nature Research, NO

2012 - 2015 Project leader, Mortensnes Cultural Heritage Site, Varanger Sámi Museum, NO

2007 - 2012 Researcher, CICERO - Center for International Climate and Environmental Research, NO

Awards received / other responsibilities : NRC-Project 294893: Bridging diverse knowledges for improved salmon management: Linking cultural and biophysical dimensions (SALCUL). Project period: 2019-2021. Role: Project manager.

NRF-Project 287754: Making knowledges visible: Relational gathering practices and their linguistic and narrative expressions in coastal Sápmi. Project period: 2019-2021. Role: Work package leader.

Local and traditional ecological knowledge in salmon research and management – A preliminary study. Funded by the Norwegian Environment Agency. Project period: 2015-2016. Role: Project manager

2010: Visiting researcher, Global Environmental Change Group, Department of Geography, University of Guelph, Canada (3,5 months)

General expertise and its relevance for the project : I am a social anthropologist specialized in natural resource issues, with particular experience in harvesting activities in northern regions and the Arctic. In my Research, I focus on every-day nature practices, perceptions of nature and environmental risks, natural resource utilization, knowledge production and climate change adaptation. I have carried out fieldwork in Svalbard, western Greenland and Northern Norway, and hold extensive expertise in qualitative methods and fieldwork techniques.

Up to 5 most important publications relevant to the proposal : Bjørkan, M. & Rybråten, S. 2019. The potential impact of sea lice agents on coastal shrimp in Norway: Risk perception among different stakeholders. *Maritime Studies*. DOI: 10.1007/s40152-019-00141-6

Harrison, H., Rybråten, S. and Aas, Ø. 2018. Hatching knowledge: a case study on the hybridization of local ecological knowledge and scientific knowledge in Norwegian small-scale Atlantic salmon (*Salmo salar*) cultivation. *Human Ecology* 46(4): 449-459. DOI: 10.1007/s10745-018-9996-8

Rybråten, S., Bjørkan, M., Hovelsrud, G. K. & Kaltenborn, B. 2018. Sustainable coasts? Perceptions of change and livelihood vulnerability in Nordland, Norway. *Local Environment* 23(12): 1156-1171. DOI: 10.1080/13549839.2018.1533931

Rybråten, S., Skår, M. & Nordh, H. 2017. The Phenomenon of Walking: Diverse and dynamic. *Landscape Research* 44(1): 1-13. DOI: 10.1080/01426397.2017.1400527

Rybråten, S. & Gómez-Baggethun, E. Lokal og tradisjonell økologisk kunnskap i forskning og forvaltning av laks - En forstudie. NINA Rapport 1290. Norsk institutt for naturforskning [Local and traditional ecological knowledge in salmon research and management – A preliminary study. NINA Report] ISBN: 978-82-426-2957-9

