



Time	9:00–12:00, 17 May 2019
Place	Room Galaxen, Department of Mechanics, KTH Royal Institute of Technology
Attending board members	<i>Cynthia de Wit, Chair</i> <i>Magnus Breitholtz, Dep. of Environmental Science and Analytical Chemistry, SU</i> <i>Sara Broomé, Student representative, Stockholm University</i> <i>Rodrigo Caballero, Dep. of Meteorology, Stockholm University</i> <i>Gia Destouni, Dep. of Physical Geography, Stockholm University</i> <i>Dan Henningson, KTH Royal Institute of Technology</i> <i>Bengt Karlsson, Dep. of Zoology, Stockholm University</i>
Other participants	<i>Nina Kirchner, Co-Director of the Bolin Centre</i> <i>Alasdair Skelton, Co-Director of the Bolin Centre</i> <i>Annika Granebeck, Bolin Centre Coordinator & Communicator</i> <i>Karin Jonsell, Bolin Centre Coordinator & Communicator</i> <i>Viktoria Arwinge, Head of Administration for Dep. of Geological Sciences</i>
Absent	<i>Ove Eriksson, Dep. of Ecology, Environment and Plant Sciences, SU</i> <i>Erik Kjellström, Rossby Centre, Swedish Meteorological & Hydrological Institute</i> <i>Johannes Morfeldt, Swedish Environmental Protection Agency</i> <i>Magnus Mörth, Dep. of Geological Sciences, Stockholm University</i>
Secretary	<i>Karin Jonsell</i>

§ 1	Meeting opens The Chair welcomed everyone.
§ 2	Appointment of protocol writer Karin Jonsell was appointed as protocol writer.
§ 3	Appointment of protocol checker Bengt Karlsson was appointed as attester.
§ 4	Approval of the agenda The agenda was approved.
§ 5	Protocol from the previous meeting The protocol from the previous meeting (Appendix 1) was approved.
§ 6	Discussion: The strategy for the Bolin Centre Climate Research School (CRS) Viktoria Arwinge presented the draft strategy for the Bolin Centre Climate Research School (see Appendix 2a and b). The Board made the following suggestions: <ul style="list-style-type: none">• It should be stated that “Föreståndaren för Bolincentrets klimatforskarskola” should be one of the Directors of the Bolin Centre.

	<ul style="list-style-type: none"> “Kursutbud” should be replaced with “utbud av kurser på forskarnivå” in the list of decisions to be made by the Board. “Institutionerna” should be included in the list of communication channels. In the framework for courses, the point “Kursinnehållet ska vara aktuellt och relevant för forskarstuderande och vara förankrad i forskningen som bedrivs inom de institutioner som ingår i Bolincentret” should be extended with “samt av Bolincentrets partners vid SMHI och KTH”. The Board will take a decision on the Climate Research School strategy at its next meeting in September. The Board asked the Directors to start preparing a work plan for the Climate Research School with the current version of the strategy as a starting point with the ambition of presenting this plan together with the revised strategy in September. AS informed the Board that Viktoria Arwinge would be asked to assist the Directorate with this task. •
§ 7	<p>Decision: Bolin Centre support and further development of the MSc Program in Climate Science</p> <p>The Board tabled this decision until its next meeting.</p>
§ 8	<p>Discussion: Nominations of experts for the IPCC AR6 Synthesis Report Scoping Meeting</p> <p>There is an opportunity to name experts to the scoping meeting of the IPCC AR6 synthesis report and the Swedish Meteorological and Hydrological Institute (SMHI) is the Swedish focus point handling nominations. The Directors declared that they are willing to buy out scientists who would like to take on this task.</p> <ul style="list-style-type: none"> The Board asked the Directors to make a call for nominations within the Bolin Centre and send suggestions to SMHI.
§ 9	<p>Decision: Proposal by the Directors that the Bolin Centre endorses e.g. Fridays for Future in a manner identical to Hagedorn et al. (2019) (Appendix 3) by stating that “the concerns of young protestors are justified”.</p> <ul style="list-style-type: none"> The Bolin Centre Board approved the proposal.
§ 10	<p>Information</p> <p>a. Protocol for the Science Advisory Group (SAG) meeting The protocol from the previous SAG meeting was presented in Appendix 4.</p> <p>b. Luca Brandt, KTH Royal Institute of Technology, has been named alternate member of the Bolin Centre Board See Appendix 5 for the protocol from Stockholm University naming Luca Brandt from KTH as alternate member in the Bolin Centre Board.</p> <p>c. Bolin Centre administration of the Arctic Avenue initiative The Faculty of Science has asked the Bolin Centre to administrate the Arctic Avenue initiative financially. The budget of 1 million SEK per year will be kept separate from the Bolin Centre budget, and the Board has no mandate over these funds.</p> <p>d. The Bolin Centre Climate Festival The Bolin Centre Climate Festival was a huge success. Some numbers: 9 popular science lectures, 4 role plays with climate negotiations, 4 climate walks, 6 Climate quizzes, 6 future city simulations in Minecraft, 12 climate packages, 1 wood anemone walk, 74 school classes amounting to 2014 participating students ranging 10–18 years old. The Vice-Chancellor visited</p>

	<p>and among the media response was 6 minutes in “Vetenskapsradions veckomagasin” 20190517 and on the Science News the same day. Preliminary cost is estimated to 200 000 SEK.</p> <ul style="list-style-type: none"> e. The draft agenda for the Science Advisory Group retreat This item was removed f. The Bolin Centre is currently contributing to a MISTRA application There has been a hearing about the Stockholm Resilience Centre MISTRA application. g. The Formas Communication application The Bolin Centre has applied for funds to a Climate Arena amounting to 1,8 MSEK over 3 years. Decision is expected in September. h. There will be no Belmont application from the Bolin Centre The Bolin Centre will not participate in a Belmont application based on the scope of the call which focuses on resilience.
§ 10	<p>Other business</p> <p>There was no other business.</p>
§ 11	<p>Next meetings</p> <p>Monday 2019-09-09, Preliminary time 9–12 at SMHI. More details later Monday 2019-10-07, 13–16 at the Tarfala room (T433), Stockholm University Friday 2019-11-22, 13–16 at the Tarfala room (T433), Stockholm University Monday 2019-12-16, 13–16 at the Tarfala room (T433), Stockholm University</p>

Karin Jonsell
Secretary

Bengt Karlsson
Attester

Cynthia de Wit
Chair of the Board



Time	9:00–12:00, 2 April 2019
Place	Tarfala room (T433), Geoscience Building, Stockholm University
Attending board members	<i>Cynthia de Wit, Chair</i> <i>Magnus Breitholtz, Dep. of Environmental Science and Analytical Chemistry, SU</i> <i>Sara Broomé, Student representative, Stockholm University</i> <i>Rodrigo Caballero, Dep. of Meteorology, Stockholm University</i> <i>Ove Eriksson, Dep. of Ecology, Environment and Plant Sciences, SU</i> <i>Dan Henningson, KTH Royal Institute of Technology</i> <i>Bengt Karlsson, Dep. of Zoology, Stockholm University</i> <i>Erik Kjellström, Rossby Centre, Swedish Meteorological & Hydrological Institute</i> <i>Johannes Morfeldt, Swedish Environmental Protection Agency</i> <i>Magnus Mörth, Dep. of Geological Sciences, Stockholm University</i>
Other participants	<i>Nina Kirchner, Co-Director of the Bolin Centre</i> <i>Alasdair Skelton, Co-Director of the Bolin Centre</i> <i>Annika Granebeck, Bolin Centre Coordinator & Communicator</i> <i>Karin Jonsell, Bolin Centre Coordinator & Communicator</i> <i>Agatha de Boer, Study Director for the MSc Program in Climate Science, during § 8</i>
Absent	<i>Gia Destouni, Dep. of Physical Geography, Stockholm University</i>
Secretary	<i>Karin Jonsell</i>

§ 1	Meeting opens The Chair welcomed everyone.
§ 2	Appointment of protocol writer Karin Jonsell was appointed as protocol writer.
§ 3	Appointment of protocol checker Magnus Mörth was appointed as attester.
§ 4	Approval of the agenda The agenda was approved with the addition of items 9e-f.
§ 5	Protocol from the previous meeting The protocol from the previous meeting as seen in Appendix 1 was approved.
§ 6	Decision: The ProMemoria of the future role of the External Science Advisory Group • The Board approved the ProMemoria of the future role of the External Science Advisory Group (ESAG), see Appendix 2.

§ 7	<p>Decision: Formal mandate for the project group <i>Climate answers by scientists</i> to provide answers on behalf of the Bolin Centre</p> <p>The Board discussed the proposal in Appendix 3.</p> <ul style="list-style-type: none"> • The Board Centre Board grants the project group <i>Climate answers by scientists</i> permission to provide answers for the Bolin Centre provided that its members (1) sign answers with their own name/s followed by “Bolin Centre for Climate Research” and (2) contact experts outside the group if necessary.
§ 8	<p>Discussion: Eventual Bolin Centre support and further development of the MSc Program in Climate Science</p> <p>The Study Director Agatha de Boer presented the MSc Program in Climate Science as seen in Appendix 4a, b.</p> <ul style="list-style-type: none"> • The Board asks the Bolin Centre Directors to investigate the issue together with Study Director Agatha de Boer and Magnus Mörth, Head of Department at the Department of Geological Sciences, and prepare for a decision at the next Board meeting.
§ 9	<p>Information</p> <p>a. Protocols for the Science Advisory Group (SAG) and the Climate Research School (CRS) meetings The protocols from the previous SAG and CRS meetings are presented in Appendix 5a, b.</p> <p>b. The Directors have summarised the principles behind the distribution of the Strategic funding (SFO-money) to the Departments for future use The summary can be seen in Appendix 6.</p> <p>c. The Bolin Centre has sent in a MISTRA application The Bolin Centre has contributed to a MISTRA application in partnership with SRC (lead), the Baltic Sea Centre and the Human Science Faculty. If successful, the Bolin Centre would host a research school in environmental communication.</p> <p>d. Report from the Bolin Centre supported Geoscience & Society Summit 18–21 March The Bolin Centre has been a sponsor and a local host to the American Geophysical Union’s Geoscience & Society Summit in Stockholm 18–21 March. There were 79 participants (scientists, NGO:s, companies and organisations) from 14 different countries.</p> <p>e. The Bolin Centre Vinnova application The Vinnova application sent in by the Bolin Centre has not been selected for a phase two application.</p> <p>f. Arctic Avenue The Arctic Avenue had a well-attended kick off meeting in Helsinki 27–28 March. There will be a fundraising event in Finland in May.</p>
§ 10	<p>Other business</p> <p>There were no other businesses.</p>

§ 11	Next meetings Date for the last Board meeting during spring 2019: Friday 2019-05-17, 9–12 at the KTH Royal Institute of Technology
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Karin Jonsell
Secretary

Magnus Mörth
Attester

Cynthia de Wit
Chair of the Board

UTKAST

STRATEGI FÖR BOLINCENTRETS KLIMATFORSKARSKOLA

Viktoria Arwinge
2019-05-08

Bakgrund

Denna strategi avser Bolincentrets klimatforskarskola och den löper under perioden 2019–2021. Strategin inkluderar övergripande målsättningar, ramar för kursutbudet, organisation, kommunikation, ekonomi och den anger inriktningen för verksamheten på en övergripande nivå. Det är styrelsen vid Bolincentret för klimatforskning som beslutar om strategin.

Bolincentrets klimatforskarskola är en forskarskola inom klimatområdet, som spänner över institutionsgränser och olika ämnesområden. Forskarskolan startade sin verksamhet 2005, som ett resultat av ett medvetet arbete inom fakulteten för att åstadkomma en gemensam plattform för naturvetenskaplig klimatforskning. Klimatforskarskolan ingår i Bolincentret för klimatforskning (Bolincentret) och styrs i samverkan mellan de i Bolincentret ingående institutionerna: Institutionen för geologiska vetenskaper (IGV), Institutionen för naturgeografi (NG), Institutionen för miljövetenskap och analytisk kemi (ACES), Meteorologiska institutionen (MISU), Institutionen för ekologi, miljö och botanik (DEEP) och Zoologiska institutionen, tillsammans med representanter från Kungliga Tekniska Högskolan (KTH) och Sveriges meteorologiska och hydrologiska institut (SMHI).

Bolincentrets klimatforskarskola har under åren finansierats av både anslag och externa bidrag.

Syfte

Bolincentrets klimatforskarskola ska bidra till en kompetenshöjning hos doktoranderna inom klimatområdet. Genom en samlad forskarutbildning inom klimatområdet ska spetskompetens inom empirisk, experimentell och teoretisk klimatforskning vid den naturvetenskapliga fakulteten nyttjas maximalt i utbildningen av doktorander.

Övergripande målsättningar

- Bolincentrets klimatforskarskola ska bidra till utbildning av en ny generation forskare som fyller samhällets behov av mångvetenskaplig kompetens och spetskompetens inom klimatområdet
- Bolincentrets klimatforskarskola ska erbjuda kurser som är relevanta för doktorander inom klimatområdet
- Bolincentrets klimatforskarskola ska genom sin verksamhet bidra till att Bolincentret är ett ledande kunskapscentrum inom klimatområdet
- Bolincentrets klimatforskarskola ska bidra till samverkan med Humanområdet och med det omgivande samhället där så är möjligt och lämpligt.
- Kommunikationen kring Bolincentrets klimatforskarskola ska vara relevant och aktuell. Informationen som kommuniceras ska vara anpassad till målgruppen. I kommunikationen ska det framgå att Bolincentrets klimatforskarskola är en del av Bolincentret.

Ramar för kursutbudet

- Kursinnehållet ska avspeglar den mångvetenskapliga ansats som präglar klimatfrågorna och ska innehålla såväl teoretiska som praktiska moment.
- Kursinnehållet ska vara aktuellt och relevant för forskarstuderande och vara förankrad i forskningen som bedrivs inom de institutioner som ingår i Bolincentret.
- Kursinnehållet ska ge förutsättningar för nätverkande och kunskapsutbyte mellan forskarstuderande såväl nationellt som internationellt



- Kursinnehållet ska möta den forskarstuderandes behov av kunskaper inom metodik och i praktiska färdigheter och stärka den studerande i rollen som forskare.
- Kursinnehållet ska avspeglar den klimatrelaterade forskningen inom det naturvetenskapliga området samt det humanvetenskapliga området vid Stockholms universitet där så är möjligt och lämpligt.

Organisation, roller och ansvar

Organisationen av Bolincentrets klimatforskarskola utgörs av följande roller: styrelsen vid Bolincentret, arbetsutskottet, föreståndaren, studierektorn och kommunikatören. Nedan beskrivs dessa roller närmare vad gäller ansvar och mandat.

Styrelsen för Bolincentret

I styrelsen ingår prefekterna vid de sex institutioner vid Stockholms universitet som ingår i Bolincentret. Styrelsen leds av en ordförande som är anställd vid någon av dessa institutionerna. I styrelsen ingår även representanter för SMHI och KTH, en studeranderepresentant samt en extern representant från en organisation med nära anknytning till klimatområdet. Styrelsen är det högst beslutande organet för Bolincentrets klimatforskarskola.

Styrelsen beslutar om nedanstående frågor:

- Strategi (löper på tre år)
- Verksamhetsplan (löper på ett år)
- Ekonomi (ekonomiska ramar på årsbasis)
- Ersättningsmodell för lektorer som bidrar i utvecklingen av kurser/i undervisningen vid Bolincentrets klimatforskarskola
- Kursutbud (vilka kurser som ges/vilka kurser som inte ges¹)
- Utser föreståndaren för Bolincentrets klimatforskarskola
- Utser studierektorn för Bolincentrets klimatforskarskola

Arbetsutskottet

I arbetsutskottet ingår representanter för de inom Bolincentret sex ingående institutionerna vid Stockholms universitet, en studerande representant, studierektorn för Bolincentrets klimatforskarskola, kommunikatör från Bolincentrets sekretariat samt en eller två externa representanter. Utskottets arbete leds av en ordförande, tillika föreståndaren vid Bolincentrets klimatforskarskola. Arbetsutskottets medlemmar väljs av Bolincentrets styrelse, på förslag av prefekt och sitter en mandatperiod om tre år, med möjlighet till förlängning.

Arbetsutskottet är ett beredande organ till stöd för föreståndaren och styrelsen och besluten är av rådgivande karaktär. Arbetsutskottet bereder ärenden på uppdrag av föreståndaren och underlaget ligger sedan till grund för styrelsens beslut. Föreståndaren föredrar underlag från arbetsutskottet i styrelsen för Bolincentret. Medlemmar i arbetsutskottet kan även själva initiera ärenden för beredning. Beredningen i arbetsutskottet förutsätter att representanterna har goda kunskaper om forskarutbildning.

¹ Eftersom någon enskild institution är ansvarig för de kurser som ges vid Bolincentrets klimatforskarskola är det nödvändigt att alla frågor om kursutbud noga förankras av Föreståndaren för Bolincentrets klimatforskarskola med ansvarig prefekt, innan ärenden om kursutbud når Bolincentrets styrelsebeslut.



Arbetsutskottets ansvarar för att bereda nedanstående ärenden:

- Strategi
- Verksamhetsplan
- Budget
- Kursutbud och kursinnehåll
- Evenemang

Föreståndaren

Föreståndaren för Bolincentrets klimatforskarskola ansvarar för den löpande verksamheten på en operativ nivå och är ordförande i arbetsutskottet.

Föreståndaren bereder ärenden med arbetsutskottet och föredrar informationsärenden och beslutsärenden för Bolincentrets styrelse. Ärenden som rör nedläggning eller start av nya kurser förankras med prefekt vid berörd institution innan frågan lyfts som beslutspunkt vid Bolincentrets styrelse.

Föreståndarens ansvar omfattar nedanstående uppgifter:

- Leda den löpande verksamheten på en operativ nivå
- Ordförande i arbetsutskottet
- Föredragande av ärenden i Bolincentrets styrelse
- Upprätta årlig budget
- Intern och extern kommunikation
- Årlig översyn/uppdatering av verksamhetsplanen
- Initiera översyn av strategin för Bolincentrets klimatforskarskola vart tredje år
- Verka för samverkan med Humanområdet och med det omgivande samhället där så är möjligt och lämpligt

Studierektorn

Studierektorn för Bolincentrets klimatforskarskola ska stödja föreståndaren i den löpande driften av verksamheten. De huvudsakliga arbetsuppgifterna listas nedan. I rollen som studierektor krävs god kunskap om hur forskarutbildningen fungerar vid Stockholms universitet. Vidare krävs ett brett vetenskapligt klimatorienterat perspektiv. Studierektorn ska vara en god organisatör och administratör och behärska både det svenska och engelska språket väl. Studierektorn bör ha avlagt doktorsexamen.

Studierektorn ansvarar för nedanstående frågor:

- Övergripande ansvar för koordinering och administration av doktorandkurser
- Hantera ansökningar till doktorandkurser, bereda underlag för budget rörande kurser, säkerställa registrering av kurspoäng.
- Vara behjälplig vid framtagande av kursplaner
- Hantera ansökningar från doktorander rörande stipendier, resor, konferenser etc.
- Koordinera och organisera aktiviteter för nätverkande mellan doktorander inom Bolincentret.
- Koordinera och organisera övriga aktiviteter såsom seminarier och evenemang
- Samråda med kommunikatör om kommunikation kring verksamheten
- Uppmuntra doktorander att bli medlemmar i Bolincentret

Kommunikatören

Kommunikatören ska stödja föreståndaren och studierektorn i frågor om intern och extern kommunikation. Kommunikatörens arbete sker under ledning av föreståndaren.





Kommunikatören ansvarar för nedanstående frågor:

- Hålla hemsidan för Bolincentrets klimatforskarskola uppdaterad
- Intern och extern kommunikation enligt aktiviteter i verksamhetsplanen för Bolincentrets klimatforskarskola, inklusive löpande kommunikation om kursutbud etc. till doktorander och andra målgrupper

Kommunikation

Kommunikationen vid Bolincentrets klimatforskarskola kan vara både intern och extern och den hanteras primärt av kommunikatören som är anställd vid sekretariatet inom Bolincentret. Den information som ska kommuniceras rör verksamhetens innehåll. Nedan följer den strategiska inriktningen för kommunikationen vad gäller målgrupper, målsättningar och kommunikationskanaler.

Primära målgrupper för intern kommunikation (inom Stockholms universitet)

- Doktorander
- Potentiellt blivande doktorander
- Handledare
- Bolincentrets styrelse
- Arbetsutskottet
- Ledningen vid naturvetenskapliga fakulteten och vid Stockholms universitet
- Forskare inom humanområdet vid Stockholms universitet, med orientering mot klimatfrågor

Primära målgrupper för extern kommunikation (utanför Stockholms universitet)

- Doktorander
- Potentiellt blivande doktorander
- Andra klimatforskarskolor
- Allmänheten

Målsättningar för kommunikationen

- Kommunikationen ska stärka bilden av att Bolincentrets klimatforskarskola är en del av Bolincentret
- Kommunikationen ska vara tydlig, aktuell, tillgänglig och relevant
- Kommunikationen ska bidra till ökad medvetenhet om verksamheten vid Bolincentrets klimatforskarskola bland primära målgrupper

Kommunikationskanaler

- Profilprodukter
- Hemsida
- Nyhetsbrevet som ges ut av Bolincentret
- Genom nätverket av forskare som Bolincentret utgör

Ekonomi

Bolincentrets Klimatforskarskola har en separat budget som ingår i den totala årliga budgeten för Bolincentret. Styrelsen för Bolincentret beslutar om de ekonomiska ramarna för Bolincentrets klimatforskarskola på årsbasis. Föreståndaren ansvarar för upprättande av budget och uppföljning av densamma på årsbasis.



UTKAST STRATEGI BOLINCENTRETS KLIMATFORSKARSKOLA

2019-05-17
Viktoria Arwinge

Arbetsprocess – utkast strategi BCRS

- Beslut av BC styrelse VT 19 att Viktoria Arwinge tar fram utkast till strategi för BCRS.
- Arbetsprocess
 - Input genom möten/mail kring nedanståde frågeställningar
 - prefekterna inom BC
 - studierektorerna inom ”Arbetsutskottet”
 - Björn G, HC, Jan Backman, Karin, Annika, Alasdair, Nina, Anders M
 - 6 doktorander (IGV, MISU, NG, DEEP)
 - Frågeställningar som diskuterats/input inhämtats kring:
 - Syfte och Mål med verksamheten
 - Organisation/Roller/Ansvar
 - Kommunikation
 - Kursinnehåll
 - Vad fungerar bra/vad kan fungera bättre
 - Ekonomi/Budget
 - Input från dokumentation
 - Ansökningar (fakultet/VR)
 - ESAG rapporter
 - VR utvärdering av Linnéstöd
 - BC strategi

Sammanfattning styrkor BCRS

BCRS styrkor

- Tvärvetenskaplig ansats som ger doktorander en bred kunskap i klimatfrågan och därmed insikt i frågans komplexitet
- Erbjuder kurser som både ger doktorander ämnesorienterad kunskap om klimat samt kunskap om metodik/verktyg
- En plattform som ger doktorander förutsättningar för nätverkande
- Kan bidra till samverkan mellan naturområdet och humanområdet och med det omgivande samhället
- Synergieffekter för enskilda institutioner genom samverkan institutioner emellan

Sammanfattning utvecklingsområden BCRS

- Förtydliga organisationsmodell ansvar/roller/mandat
- Förtydliga/förbättra kommunikationen till primära intressenter
- Löpande utveckla kursutbudet så det är aktuellt och relevant
- Tillvarata möjligheten till samverkan med Humanområdet och det omgivande samhället vid skapande av kurser/event inom BCRS
- Utveckla administrationen avseende uppföljning och rapportering
- Fokus på kurser till doktorander – inte på kurser på grund/avancerad nivå.

INNEHÅLL UTKAST STRATEGI BCRS

- En strategi som svarar mot identifierade styrkor och utvecklingsområden, som är väl förakrad i ursprungliga mål, vision och syften för BCRS och som överensstämmer väl med rekommendationer från ESAG (och svarar även väl mot VR utvärdering).
- Innehåll Strategi:
 - Syfte och Mål
 - Övergripande målsättningar
 - Ramar för kursutbudet
 - Organistion, roller, ansvar
 - Kommunikation
 - Ekonomi

LETTERS



Nearly 1 million Rohingya refugees are living in camps in Bangladesh.

Edited by Jennifer Sills

Rohingya refugees and the environment

Violence in the Rakhine State of Myanmar has led to a humanitarian crisis as Rohingya people flee across the border to Bangladesh (1). With the rapid influx of nearly 700,000 arrivals between August 2017 and the beginning of 2018, the Bangladeshi city of Cox's Bazar is now under severe strain from a Rohingya population of almost 1 million, one of the largest concentrations of refugees in the world (2). The crisis seized global attention, and the international response was rapidly escalated to a Level 3 emergency (3).

In addition to the humanitarian challenges, the mass influx of Rohingya refugees has resulted in environmental degradation both within the refugee camps and in the surrounding areas (2). The expansion of existing campsites has led to more than 2000 ha of forest loss in the Cox's Bazar region (4). Expansion of the old Kutupalong camp blocked the only corridor used by the globally endangered Asian elephant as a migration route and trapped about 45 elephants in the western side of the camp (5). The latest Rohingya settlement has also amplified human-elephant conflict in the area, with 13 human casualties so far (6). The remaining elephant habitat is under severe pressure from uncontrolled fuelwood collection in the forest (7). The pressure on forests has caused tensions with local

host communities, which rely on these forests for fuelwood, medicine, and food (8). The surrounding critical biodiversity areas, such as the Teknaf Wildlife Sanctuary, Himchari National Park, and Inani National Park, are also at risk (2). Soil erosion and landslides are already common in the area, affecting water resources, irrigation, and groundwater reserves (9). Local biodiversity, including marine resources, acoustic environment, and air quality, is being degraded at an unprecedented rate (2).

Repatriation is under negotiation, but it is likely that the Rohingya refugees will remain in Bangladesh for some time (10). The situation demands development of a long-term strategy at the landscape level not only to address humanitarian needs but also to mitigate both short- and long-term environmental effects. A forest and landscape restoration approach (11) will provide ample opportunities to integrate environmental and humanitarian interventions, both inside and outside the refugee camps. For instance, establishing fuelwood plantations to meet the local demand will reduce pressure on nearby forests. In addition, refugees and local host communities can use native species seedlings to plant trees, facilitating reforestation of degraded lands.

Sharif A. Mukul^{1,2}, Saleemul Huq^{3,4},

John Herbohn^{2,5}, Ainun Nishat⁶,

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Address the roots of environmental crime

In their Letter “Madagascar: Crime threatens biodiversity” (22 February, p. 825), J. P. G. Jones *et al.* call on the new president of Madagascar, Andry Rajoelina, to get tough on environmental crime and corruption to protect what is left of the island’s precious resources. However, in countries where enforcement-heavy conservation strategies take precedence, the rural poor and frontline environmental activists, rather than those truly at fault, often pay the price (*1*).

As Jones *et al.* point out, illegal activities are “often linked to local violence and insecurity,” but such activities are also deeply connected to the political and economic marginalization of local communities and global demand for valuable resources (*2*). For instance, Madagascar’s exports of rosewood (*Dalbergia* spp.), a high-value hardwood, increased in protected areas from 2002 to 2009 and continued unabated during Rajoelina’s political coup d’état and the subsequent 5-year economic crisis (*3, 4*). Neither local gangs nor rural communities engineered this international trade; rather, it was organized by large timber syndicates and those in positions of power with connections in global networks (*5*).

To date, top-down enforcement on environmental crime in Madagascar has mainly resulted in minor thieves held in jail indefinitely awaiting trial. Amnesty International reported that, as of October 2017, more than half the total prison population were petty offenders made up of rural poor who “lacked formal education and were underinformed of their rights” (*6*). Long-term incarceration will drive many rural inhabitants deeper into poverty, potentially reversing conservation objectives, and does little to target more powerful, centrally involved actors. Compounding the injustice, environmental activists and journalists speaking out on the government’s role have also been arrested (*7*).

I agree with Jones *et al.* that enforcement is vital, but it must be implemented in a way that avoids overcriminalization of the rural poor. Fairer and more inclusive conservation policies would focus attention on important global drivers of environmental crime, including the role of complicit governments. Independent truth and justice commissions (*8*) adapted to specialize on international environmental crime could be used alongside in-depth investigations by United Nations special rapporteurs on human rights and the environment (*9*). Such programs are not meant to replace a country’s judicial or enforcement systems, but rather

to support existing institutions and work with transnational crime prevention programs. Interventions that directly address structural poverty at the local level could also combat counterproductive enforcement (*10*). Governments should fully adopt transparent benefit-sharing mechanisms, compensation for burdens of environmental harm, procedures to ensure diverse voices in natural resource allocation, and recognition of historical injustices (*11*).

Strengthened conservation enforcement involves not only national governments but also journalists and frontline activists, who often help hold those in power to account—including for their involvement in environmental crimes. These actors need to be able to live and work without the fear of arrest or worse. In 2017 alone, there were 207 activists and frontline environmental defenders killed worldwide (*12*). Now more than ever, we must ensure basic standards of human rights, freedom to protest, and protection of the press.

Benjamin Neimark

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Concerns of young protesters are justified

The world’s youth have begun to persistently demonstrate for the protection of the climate and other foundations of human well-being. (*1, 2*). As scientists and scholars who have recently initiated similar letters of support in our countries, we call for our colleagues across all disciplines and from the entire world to support these young climate protesters (*3*). We declare: Their concerns are justified and supported by the

best available science. The current measures for protecting the climate and biosphere are deeply inadequate.

Nearly every country has signed and ratified the Paris Agreement of 2015, committing under international law to hold global warming well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C (*4*). The scientific community has clearly concluded that a global warming of 2°C instead of 1.5°C would substantially increase climate-related impacts and the risk of some becoming irreversible (*5*). Moreover, given the uneven distribution of most impacts, 2°C of warming would further exacerbate existing global inequalities (*5*).

It is critical to immediately begin a rapid reduction in CO₂ and other greenhouse gas emissions. The degree of climate crisis that humanity will experience in the future will be determined by our cumulative emissions; rapid reduction now will limit the damage. For example, the Intergovernmental Panel on Climate Change (IPCC) has recently assessed that halving CO₂ emissions by 2030 (relative to 2010 levels) and globally achieving net-zero CO₂ emissions by 2050 (as well as strong reductions in other greenhouse gases) would allow a 50% chance of staying below 1.5°C of warming (*5*). Considering that industrialized countries produced more of and benefited more from previous emissions, they have an ethical responsibility to achieve this transition more quickly than the world as a whole (*4, 6*).

Many social, technological, and nature-based solutions already exist. The young protesters rightfully demand that these solutions be used to achieve a sustainable society (*7*). Without bold and focused action, their future is in critical danger. There is no time to wait until they are in power.

Politicians have the huge responsibility of creating the necessary framework conditions in a timely manner. Policies are needed to make climate-friendly and sustainable action simple and cost-effective and make climate-damaging action unattractive and expensive. Examples include effective CO₂ prices and regulations; cessation of subsidies for climate-damaging actions and products; efficiency standards; social innovations; and massive, directed investment in solutions such as renewable energy, cross-sector electrification, public transport infrastructure, and demand reduction. A socially fair distribution of the costs and benefits of climate action will require deliberate attention, but it is both possible and essential (*8*).

The enormous grassroots mobilization (*2*) of the youth climate movement—including Fridays for Future, School (or Youth) Strike 4 Climate, Youth for (or 4) Climate, and Youth

Climate Strike (7)—shows that young people understand the situation. We approve and support their demand for rapid and forceful action. We see it as our social, ethical, and scholarly responsibility to state in no uncertain terms: Only if humanity acts quickly and resolutely can we limit global warming, halt the ongoing mass extinction of animal and plant species, and preserve the natural basis for the food supply and well-being of present and future generations. This is what the young people want to achieve. They deserve our respect and full support.

Gregor Hagedorn¹, Peter Kalmus^{2*}, Michael Mann³, Sara Vicca⁴, Joke Van den Berge⁴, Jean-Pascal van Ypersele⁵, Dominique Bourg⁶, Jan Rotmans⁷, Roope Kaaronen⁸, Stefan Rahmstorf⁹, Helga Kromp-Kolb¹⁰, Gottfried Kirchengast¹¹, Reto Knutti¹², Sonia I. Seneviratne¹², Philippe Thalmann¹³, Raven Cretney¹⁴, Alison Green¹⁵, Kevin Anderson^{16,17}, Martin Hedberg¹⁸, Douglas Nilsson¹⁹, Amita Kuttner²⁰, Katharine Hayhoe²¹

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SUPPLEMENTARY MATERIALS

www.sciencemag.org/content/364/6436/139.2/suppl/DC1
List of signatories

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Science

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Agenda

for the Bolin Centre Science Advisory Group (SAG) meeting

Date: Thursday 25 April, 2019

Time: 9:00–12:00

Place: Tarfala room (T433), Geoscience building

Directors:	Nina Kirchner (NK) Alasdair Skelton (AS)	RA 5:	Malin Kylander (MK) Frederik Schenk (FS) Qiong Zhang (QZ)
RA 1:	Agatha de Boer (AdB) Torben Königk (TK) Thorsten Mauritsen (TM)	RA 6:	Helen Coxall (HC) Margret Steinthorsdottir (MgS)
RA 2:	Frida Bender (FB) Matthew Salter (MtS)	RA 7:	Kristoffer Hylander (KH) Zahra Kalantari (ZK) Regina Lindborg (RL)
RA 3:	Fernando Jaramillo (FJ) Anne Sørensen (Ans)	RA 8:	Sara Cousins (SC) Johan Ehrlén (JE) Karl Gotthard (KG)
RA 4:	Christian Beer (CB) Volker Brüchert (VB) Gustaf Hugelius (GH)	Communication: Data coord: Mod. coord:	Annika Granebeck (AG) Karin Jonsell (KJ) Anders Moberg (AM) Kristofer Döös (KD)

1. Meeting opens	NK	
2. Selection of minute taker and attester for this meeting Helen Coxall agreed to take meeting minutes, and Sara Cousins agreed to attest.	NK	
3. Approval of the agenda The agenda was approved with addition of item 10f, information regarding the Bolin Days 2019.	NK	
4. Protocol from previous SAG-meeting The protocol from the previous SAG meeting was approved.	NK	App. 1
5. Protocol from previous Board meeting The SAG has the opportunity to comment upon the protocol from the latest BC board meeting. The SAG asked for clarification about the group who will represent the Bolin Centre regarding media opinions (see Board protocol, item 7), and information was provided at the table. AM noted that this group was not easy to find on the Bolin Centre website.	NK	App. 2
6. Protocol from previous CRS meeting	NK	App. 3

<p><i>The SAG has the opportunity to comment upon the protocol from the latest Bolin Centre Climate Research School (CRS) meeting.</i></p> <p><i>The SAG had no comments on the CRS meeting minutes.</i></p>		
<p>7. The SAG & Board retreat agenda</p> <p><i>An agenda for the retreat is to be presented and decided on.</i></p> <p><i>The SAG discussed the agenda, and the database agenda item was given special attention. The SAG retreat agenda was approved under the condition that</i></p> <ul style="list-style-type: none"> - Additional items can be suggested by emailing NK and/or AS, though no later than 31 July 2019 - The agenda item regarding the database is reformulated to “What is the present and future role of the database in the Bolin Centre”? <p><i>It was decided to conduct a short survey among the Bolin Centre members to ask if and where they store and/or make data available at present. The survey will be designed and conducted by AM, TK and NK.</i></p>	NK	App. 4
<p>8. Centralization of the Bolin Centre conference participation support to PhD students of the Climate Research School: Research Area funds-contribution to the CRS</p> <p><i>The SAG is asked to decide on a proposal outlining how Bolin Center Research Areas could contribute to a more centralized “participation support for PhD students (which now usually apply to individual RAs).</i></p> <p><i>The SAG discussed the proposal in length, and decided to table the decision until the CRS strategy is available and a CRS Director of Studies is appointed. As conference participation support is not equally relevant for all RAs, the SAG expressed the wish to discuss this in more detail, both within the SAG (a natural opportunity is the SAG retreat, in connection with the agenda item concerning the CRD) and with (representatives of) the CRS</i></p>	NK	App. 5
<p>9. Bolin Centre membership system</p> <p><i>We are looking into a new membership management system for the Bolin Centre. Do the SAG have any requirements that a new system needs to fulfill?</i></p> <p><i>The SAG discussed the Bolin Centre RA mailings lists and their use. The SAG informed that</i></p> <ul style="list-style-type: none"> (i) <i>The RA-specific mail lists are used by many, though not all, RAs.</i> (ii) <i>Some RAs use their own lists, to avoid over using the unmanaged RA-specific lists (new members – if registered via the homepage – enter the lists, but leaving members are not automatically removed: the “remove me from the list” option is found under the “join the Bolin Centre” button).</i> (iii) <i>they assume the lists are updated by the communicators.</i> 	NK	

<p>Information</p> <p>a) Outcome of the Geoscience and society meeting 2019, GSS <i>The Bolin Centre co-hosted the Geoscience and Society Meeting on March 18–21 2019. 79 participants from 14 countries participated. Of these where 33 from academia, 1 from government, 29 from NGOs, 6 from companies and 10 from others organizations.</i></p> <p>b) FORMAS Communication call <i>The Bolin Centre will send an application for this FORMAS call: https://formas.se/en/start-page/archive/calls/2019-02-22-formas-communication-call-2019.html</i></p> <p>c) Arctic Avenue <i>The Arctic Avenue had its kick off meeting on March 27-27 2019.</i></p> <p>d) Upcoming SAG-fikas <i>2019-05-02 Thursday, 15:00–15:30 in the Navarino room (T223)</i></p> <p>e) Upcoming SAG-meetings <i>Retreat lunch-to-lunch 20–21 August. The fall meetings will be decided later.</i></p> <p>f) Bolin Days This year's Bolin Days will take place 20-21 November. As in the previous year, the program will feature joint sessions (topics to be decided), hosted by two Research Areas (RAs) each. The combination of RAs and the topics of the session have to be decided upon at the September SAG meeting. RA leaders are encouraged to explore possible combinations and topics already prior to the SAG retreat in August, so that discussions can continue at the retreat, too, if needed.</p>	<p>NK</p> <p>NK</p> <p>NK</p> <p>NK</p>	
Meeting closes 10.30	NK	

Helen Coxall, Notekeeper

Sara Cousins, Attester

Nina Kirchner, co-director



UTDRAG UR PROTOKOLL
fört vid föredragning för rektor 2019-04-03

Ärende

3. Utseende av suppleant i styrelsen för Bolincentret för klimatforskning (dnr SU FV-1.2.2-1219-19). *Föredragande:*
Henrik Lindell, Ledningssekretariet.

Åtgärd

Rektor beslutar att utse professor Luca Brandt, KTH, till suppleant för perioden 2019-04-15 – 2019-12-31.

Detta beslut är fattat av rektor, professor Astrid Söderbergh Widding, i närvaro av prorektor, professor Clas Hättestrand, och förvaltningschefen, universitetsdirektör Eino Örnfeldt. Studeranderepresentanter har informerats och haft tillfälle att yttra sig. Övrig närvarande har varit Anna Riddarström, Ledningssekretariatet (protokollförare).

Ur protokollet

A handwritten signature in blue ink, appearing to read "Henrik Lindell".

Henrik Lindell