CLIMATE MIGRATION: TOWARDS A BETTER UNDERSTANDING AND MANAGEMENT

FINLAND AND A GLOBAL PERSPECTIVE

Eeva-Kaisa Prokkola, Saija Niemi, Élise Lépy, Jaana Palander, Outi Kulusjärvi and Päivi Lujala

Government's analysis, assessment and research activities

FINNISH GOVERNMENT

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Abstract

Climate migration is expected to increase in the future. This study brings together knowledge on climate and environmental change-induced migration and displacement within and across country borders, their effects and management. Climate migration is first examined from the perspective of vulnerable countries, regions and people. The EU INFORM Risk Index is used to identify vulnerable countries. In addition, potential migration routes are investigated, considering the areas of origin, transit and destination. Second, the management frameworks of climate migration are examined. In terms of governance, the international and regional perspective and respect for human rights are emphasised. The study shows that development of regular migration routes currently offers the most realistic possibility for protection and adaptation of climate migrants. Thirdly, good practices and their implementation to influence climate migration and adaptation with a particular focus on the international activities, knowledge and expertise in Finland are discussed. Climate migration is a multidimensional phenomenon, which is why actors in different sectors should increasingly work together to meet the challenges. In addition to international cooperation and partnerships, there is a need to promote cross-sectoral cooperation in managing climate migration at international and national levels.

ILMASTOMUUTTOLIIKE: KOHTI ILMIÖN PAREMPAA YMMÄRTÄMISTÄ JA HALLINTAA
Suomi ja globaali näkökulma

Tiivistelmä

Ilmastomuuttoliikkeen odotetaan lisääntyvän tulevaisuudessa. Tämä selvitys kokoaa yhteen tutkimustietoa ilmaston- ja ympäristömuutoksen vaikutuksista maiden sisäiseen ja väliseen muuttoliikkeeseen sekä näiden hallinnasta. Ilmastomuuttoliikettä tarkastellaan ensin haavoittuvien maiden, alueiden ja ihmisryhmien näkökulmasta. Haavoittuvien maiden määrittelemisessä hyödynnetään EU:n INFORM-riski-indeksiä. Lisäksi selvitetään mahdollisia muuttoreittejä, huomioiden lähtö-, kauttakulku- ja kohdealueet. Toiseksi tarkastellaan ilmastomuuttoliikkeen hallintaa ja hallinnan reunaehtoja. Hallinnan osalta korostuu kansainvälinen ja alueellinen näkökulma sekä ihmisoikeuksien kunnioittaminen. Selvitys osoittaa, että normaalien säännönmukaisten maahanmuuton reittien kehittäminen tarjoaa tällä hetkellä realistisimman suojelua ja sopeutumista tukevan mahdollisuuden ilmastomuuttajille. Kolmantena laajempana asiakokonaisuutena käsitellään hyviä käytäntöjä ja ilmastonmuutokseen sopeutumisen keinoja, joilla voidaan vaikuttaa ilmaston- ja ympäristömuutoksen vuoksi tapahtuvaan muuttoliikkeeseen, huomioiden erityisesti Suomen kansainvälinen toiminta ja erityisosaaminen. Ilmastomuuttoliike on moniulotteinen ilmiö, minkä vuoksi eri alojen toimijoiden tulisi yhä enemmän pyrkiä vastaamaan haasteisiin yhdessä. Kansainvälisen yhteistyön ja kumppanuuksien lisäksi on tarpeen edistää sektorien välistä yhteistyötä ilmastomuuttoliikkeen hallinnassa kansainvälisellä ja kansallisella tasolla.

KLIMATMIGRATION: MOT EN BÄTTRE FÖRSTÅELSE OCH HANTERING
Finland och globala perspektiv

Referat	Klimatmigrationen förväntas öka i framtiden. Denna studie sammanför kunskap om och effekterna av klimat- och miljöförändringar på migration och omflyttning inom och mellan länder och deras hantering. Klimatmigration undersöks först ur sårbara länders, regioners och människogruppers synvinkel. EU INFORM Riskindex används för att identifiera utsatta länder. Dessutom undersöks möjliga migrationsvägar med hänsyn till ursprungs-, transit- och destinationsområdena. För det andra undersöks ramarna för hantering av klimatmigration. När det gäller styrning betonas det internationella och regionala perspektivet och respekten för mänskliga rättigheter. Undersökningen visar att regelbundna migrationsvägar för närvarande erbjuder de mest realistiska möjligheterna att stödja skydd och anpassning. Den tredje nyckelfrågan handlar om god praxis och deras genomförande för att påverka klimatmigration och anpassning med särskilt fokus på internationell verksamhet, kunskap och expertis i Finland. Klimatmigration är ett flerdimensionellt fenomen, varför aktörer i olika sektorer i allt högre grad bör samarbeta för att möta utmaningarna. Förutom internationellt samarbete och partnerskap finns det ett behov av att främja sektorsövergripande samarbete för att hantera klimatmigration på internationell och nationell nivå.

Contents

ESIPUHE

Ilmastomuuttoliikkeet: kohti ilmiön parempaa ymmärtämistä ja hallintaa -selvitys on toteutettu osana valtioneuvoston selvitys- ja tutkimustoimintaa (VN TEAS). Selvityksen laatimisesta vastaavat Oulun yliopiston maantieteen tutkimusyksikkö ja Siirtolaisuusinstituutti yhdessä. Oulun yliopistosta selvityksen laatimiseen ovat osallistuneet professori Eeva-Kaisa Prokkola, tutkijatohtori Élise Lépy, professori Päivi Lujala sekä tutkijatohtori Outi Kulusjärvi. Siirtolaisuusinstituutin puolesta selvityksestä vastaavat erikoistutkija Saija Niemi sekä tutkija Jaana Palander. Prokkola on toiminut hanke-konsortion vastaavana yhteyshenkilönä. Siirtolaisuusinstituutin puolelta hankkeen hallinnosta on vastannut tutkimusjohtaja Elli Heikkilä. Selvitys on toteutettu tutkija-ryhmän tiiviinä yhteistyönä.

Prokkola vastaa ilmastomuuttoreittien sekä ilmastonmuuttoliikkeen ennusteiden tarkastelusta. Lisäksi hän vastaa yhdessä hankkeen muiden tutkijoiden kanssa hallintaa ja turvallisuutta sekä hyviä käytänteitä käsittelevistä luvuista ja johdanto-osuudesta. Lépy vastaa ilmastonmuutosmallien, luonnonuhkien ja aluetiedon analyysistä sekä kuvista. Lisäksi hän vastaa ilmastonmuutoksen näkökulmasta erityisen haavoittuvien maiden analyysistä yhdessä Niemen ja Lujalan kanssa. Lépy on toteuttanut tutkimushaastatteluja sekä osallistunut hankkeen työpajojen järjestä-miseen. Lujala on toiminut hankkeessa asiantuntijana ja yhteistyökumppanina sekä osallistunut haavoittuvien maiden kuvausten ja johdannon kirjoittamiseen. Lisäksi Lujala on tuonut hankkeeseen tietoa meneillään olevista ilmastomuuttoa koskevista kansainvälistä hankkeista ja ollut mukana asiantuntijana hankkeen työpajoissa. Kulusjärvi vastaa kestävän kehityksen tavoitteiden ja rahoitusmekanismien tarkaste-lusta. Lisäksi hän vastaa kansainvälisiä politiikkakokonaisuuksia koskevan luvun kirjoittamisesta, tutkimushaastatteluiden toteutuksesta sekä työpajojen suunnittelusta ja toteutuksesta yhdessä muiden tutkijoiden kanssa. Niemi vastaa ilmastomuutto-liikkeen yhteiskunnallisten juurisyiden ja ajurien tutkimuksesta sekä yhdessä Lépyn kanssa maakohtaisista tarkasteluista. Niemi on ollut päävastuussa hankkeen kansainvälisen seminaarin järjestelyistä. Niemi on toteuttanut tutkimushaastatteluja sekä osallistunut kansainvälisiin ja kotimaisiin alan konsultaatioihin, kokouksiin ja konferensseihin tiedonhankintaa varten. Palander vastaa ilmastomuuttoliikkeen

analysoimisesta oikeudellisesta ja hallinnollisesta näkökulmasta. Palander on vastannut suurelta osin Ilmastonmuutos ja turvallisuus verkostoituneessa maailmassa -työpajan käytännön järjestelyistä. Työpaja järjestettiin yhteistyössä VN TEAS -hankkeen Ilmastonmuutos ja Suomen turvallisuus kanssa. Niemi ja Palander vastaavat muuttoliikkeiden käsitteiden määrittelystä. Hyviä käytänteitä ja toimeenpanoa käsittelevä luku, suositukset ja johtopäätökset ovat kaikkien tutkimusryhmän jäsenten yhdessä laatimia ja kirjoittamia. Samoin kaikki hankkeen järjestämät seminaarit ja työpajat on toteutettu yhteistyönä.

Kansainvälisillä ja kansallisilla yhteistyökumppaneilla ja osana hanketta järjestettyihin tapahtumiin osallistuneilla asiantuntijoilla on ollut suuri merkitys hankkeen onnistumiselle. Kiitämme kaikkia seminaariin ja työpajoihin osallistuneita asiantuntijoita ja kutsupuhujia. Erityinen kiitos kaikille haastatteluihin osallistuneille asiantuntijoille. Lisäksi haluamme erikseen kiittää Ulkopoliittisen Instituutin vanhempaa tutkijaa Emma Hakalaa ja tutkija Sanna Erkamoa yhteistyöstä Ilmastonmuutos ja turvallisuus verkostoituneessa maailmassa -työpajaan liittyvän suunnittelun ja toteutuksen osalta. Samoin kiitämme Rajavartiolaitoksen tutkimuspäällikköä Sari Lindblomia edellä mainittuun työpajaan liittyvästä yhteistyöstä. Raportin viimeistelyyn liittyvissä asioissa meitä ovat avustaneet useat henkilöt. Suuret kiitokset Siirtolaisuusinstituutin harjoittelija Tereza Brheloválle yhtenäisen lähdeluettelon laatimisesta, Charlotta Lahnalahdelle raportin kommentoimisesta, Sonja Pietiläiselle julkaisutilaisuuteen liittyvien järjestelyiden hoitamisesta sekä Heta-Maria Korkalalle karttojen tuottamisesta raporttiin. Lujala kiittää Norjan tutkimusneuvostoa (projekti 274702) tuesta. Raportin kielentarkistuksen on toteuttanut Delingua kielipalvelut, jota kiitämme sujuvasta yhteistyöstä. Lopuksi suurimmat kiitokset hankkeen ohjausryhmälle arvokkaista kommenteista, neuvoista ja kannustuksesta. Tutkijaryhmä vastaa yksin kaikista selvityksessä mahdollisesti esiintyvistä virheistä.

Eeva-Kaisa Prokkola, Saija Niemi, Élise Lépy, Jaana Palander, Outi Kulusjärvi ja Päivi Lujala
Toukokuu 2021

PREFACE

The study 'Climate migration: towards a better understanding and management of the phenomenon' is part of the Finnish Government's analysis, assessment and research activities (VN TEAS). The study has been conducted jointly by the Geography Research Unit of the University of Oulu and the Migration Institute of Finland. Professor Eeva-Kaisa Prokkola, Postdoctoral Researcher Élise Lépy, Professor Päivi Lujala and Postdoctoral Researcher Outi Kulusjärvi are responsible for preparation of the report by the University of Oulu. Senior Researcher Saija Niemi and Researcher Jaana Palander are responsible for the study at the Migration Institute of Finland. Prokkola is responsible for the research project and communication for the project. Research Director Elli Heikkilä is responsible for managing the project on the part of the Migration Institute of Finland. The study has been conducted in close cooperation with all researchers.

Prokkola is responsible for examining migration corridors and the predictions for climate migration. Together with other researchers in the project, she is responsible for the introduction, management and security sections as well as good practices. Lépy is responsible for the analysis of climate change models, natural hazards and regional information, as well as illustrations. In addition, she is responsible for the analysis of vulnerable countries from the perspective of climate change, together with Niemi and Lujala. Lépy has conducted research interviews and participated in the organisation of project workshops. Lujala has served as an expert and collaborator in the project and participated in writing descriptions of vulnerable countries as well as the introduction. In addition, Lujala has brought to the project information on ongoing international projects on climate migration and has participated as an expert in the project workshops. Kulusjärvi is responsible for scrutinising sustainable development goals and financing mechanisms. In addition, she is responsible for writing a section on international policies, conducting research interviews, and designing and conducting workshops with other researchers. Niemi is responsible for examining the societal root causes and drivers of climate migration. Together with Lépy, she is responsible for country-specific analysis. Niemi had the main responsibility for arranging the project's international seminar Solutions, Innovations and Partnerships for Climate Migration. Niemi has also carried out research interviews and participated in international and domestic consultations, meetings and conferences for data collection. Palander is responsible for analyzing climate migration from a legal and administrative perspective. Palander was largely responsible for the practical arrangements for the Climate Change and Security in a Networked World workshop. The workshop was organized in cooperation with the VN TEAS project Climate Change and the Finnish Security project. Niemi and Palander are responsible for defining the concepts of climate migration. All members of the research team are

responsible for the recommendations and conclusions as well as good practices. Similarly, all the seminars and workshops organised by the project have been carried out in collaboration.

Eeva-Kaisa Prokkola, Saija Niemi, Élise Lépy, Jaana Palander, Outi Kulusjärvi and Päivi Lujala

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TIIVISTELMÄ

Ilmastonmuutoksen odotetaan vaikuttavan ja muuttavan elinympäristöjä kaikkialla maapallolla merkittävällä tavalla. Sadat miljoonat ihmiset elävät alueilla, jotka ovat alttiita voimakkaille ja hitaasti eteneville ympäristön muutoksille, kuten merenpinnan nousulle ja kuivuudelle. Erityisesti köyhyydestä kärsivät ihmiset, joiden toimeentulo on riippuvaista luonnonolosuhteista, ovat hyvin haavoittuvassa asemassa suhteessa ilmaston- ja ympäristömuutokseen. Ilmastonmuutoksen yhteydessä muuttoliike on tärkeä, mutta ei kuitenkaan ainoa sopeutumiskeino. Ilmaston- ja ympäristömuutoksista johtuva muuttoliike on usein väliaikaisia ja kohdistuu lähialueille, mutta se voi olla myös pitkäaikaisempaa ja valtion rajat ylittävää muuttoliikettä. Muuttoliike vaikuttaa muuttajien lisäksi lähtöyhteisöihin, kauttakulkualueisiin ja vastaanottaviin yhteisöihin. Muuttoliikettä sopeutumiskeinona on siis tarkasteltava laajemmasta näkökulmasta.

Tämän selvityksen tavoitteena on vahvistaa hallituksen ja ministeriöiden tietoon perustuvaa päätöksentekoa ja yleistä strategista ymmärrystä koskien ilmasto-muuttoliikettä. Selvitys kokoaa yhteen ajankohtaista tutkimustietoa ilmaston- ja ympäristömuutoksen vaikutuksesta tapahtuvista muuttoliikkeistä sekä niiden hallinnasta, huomioiden erityisesti Suomen ja Euroopan unionin (EU) näkökulma. Selvityksessä ilmastomuuttoliikettä tarkastellaan kolmen laajemman asiakokonaisuuden kautta:

1. Ilmaston- ja ympäristömuutosten vuoksi tapahtuva muuttoliike ilmiönä, mukaan lukien
   a. ilmaston- ja ympäristömuutoksen näkökulma sekä erityisen haavoittuvien alueiden että muuttoliikkeen juurisyiden ja ajurien tunnistaminen
   b. historiallisesti muotoutuneet muuttoliikereitit ja -dynamiikka.
2. Ilmaston- ja ympäristömuutoksen vuoksi tapahtuvan muuttoliikkeen hallinta.
3. Mahdolliset keinot ja hyvät käytännöt, joilla voidaan vaikuttaa ilmaston- ja ympäristömuutoksen vuoksi tapahtuvaan muuttoliikkeeseen sekä sen juurisyihin.

Ensimmäiseksi ilmastomuuttoliikettä tarkastellaan tunnistamalla alueet, jotka ovat kaikkein alttiimpia ilmaston- ja ympäristömuutoksille ja joilla on huonot valmiudet sopeutumiseen ja maansisäisen muuttoliikkeen hallintaan, sekä kartoitetaan näiden alueiden historiallisia ja nykyisiä muuttoreittejä. Toiseksi tarkastellaan ilmasto-muuttoliikkeen hallintaa käymällä läpi kansainvälisten instrumenttien kuten Yhdisty-neiden kansakuntien kestävän kehityksen agendan, siirtolaisuuden ja pakolaisuuden globaalien kompaktien ja Nansenin aloitteen asettamia hallinnan reunaehtoja. Lisäksi

huomioidaan ihmisoikeusnäkökulma ja erilaiset turvallisuusnäkökulmat. Kolmanneksi nostetaan esille mahdollisia kehitettäviä hallinta- ja vaikutuskeinoja huomioiden erityisesti Suomen osaamisalat ja kansainvälinen toiminta.

Selvityksessä on hyödynnetty useita eri aineistoja ja aineistonkeruumenetelmiä, mukaan lukien tutkimuskirjallisuus, muuttoliiketilastot, aineistopankit, politiikkadokumentit, digitaaliset- ja medialähteet, strategia- ja maaraportit sekä lainsäädännölliset aineistot. Lisäksi tutkimuksessa on hyödynnetty teemahaastatteluja sekä työpajoja aineiston- ja tiedonkeruumenetelminä. Työpajat edistivät monialaisen tietopohjan rakentumista ilmastomuuttoliikeilmiöstä, tuottivat uusia näkökulmia sekä nostivat esille niitä menetelmiä ja toimenpiteitä, jotka ovat mahdollisia ja suositeltavia Suomelle kansainvälisen toiminnan ja osaamisalojen näkökulmasta.

Raportin ensimmäisessä osiossa määritellään keskeiset käsitteet sekä esitellään muutamia keskeisiä ilmastomuuttoskenaarioita (luku 1). Ilmastomuuttoliikkeellä tarkoitetaan tässä selvityksessä henkilön tai ihmisryhmien liikkumista joko maiden sisällä tai valtioiden rajojen yli ilmaston- ja ympäristömuutoksen vuoksi. Muuttoliike kattaa kaikenlaisen ihmisten muuttamisen muuton pituudesta, toteutustavasta ja syistä riippumatta, mukaan lukien työllisyys, koulutus, perheenyhdistäminen ja paluumuutto. Muuttoliike voidaan ymmärtää pakotetun ja vapaaehtoisen muuttoliikkeen jatkumona. Käytännössä muuttopäätös voidaan toisinaan tehdä vapaaehtoisemmalta pohjalta, jolloin esimerkiksi muuttoajankohta ja tapa ovat pitkälti muuttajan päätettävissä, ja toisinaan pakotetummalla tavalla, esimerkiksi äkillisten luonnonkatastrofien uhatessa tai niiden seurauksena. Maan sisäinen sekä pakolaisten, turvapaikanhakijoiden ja taloudellisista syistä maahan muuttavien muuttoliike sisältää usein vapaaehtoista sekä pakotettua muuttoa. Paikallaan pysyminen voi sekin olla vapaaehtoista tai pakotettua. Vapaaehtoinen liikkumattomuus kohdistuu ihmisiin, jotka haluavat vapaaehtoisesti pysyä paikassa ilmastonmuutoksesta ja sen ympäristövaikutuksista huolimatta. Tahaton paikallaan pysyminen viittaa ihmisiin, jotka haluavat ja joiden olisi hyvä muuttaa oman toimeentulon tai turvallisuuden takaamiseksi, mutta jotka eivät pysty siihen. Tällaiset niin sanotusti loukkuun jääneet väestöt ovat usein haavoittuvimpia ilmastonmuutoksen vaikutusten suhteen.

Muuttoliikkeeseen vaikuttavat lukuisat ympäristölliset ja yhteiskunnalliset juurisyyt ja ajurit. Tässä selvityksessä on keskitytty tarkastelemaan ilmastonmuutoksen aiheuttamaa muuttoliikettä. Ilmastonmuutos tarkoittaa ilmaston pitkän aikavälin muutoksia, jotka voivat näkyä esimerkiksi muutoksina sademäärissä tai lämpötiloissa. Nämä muutokset johtuvat luonnollisesta vaihtelusta tai ihmisen toiminnasta. Ilmaston lämpenemisen seurauksena tapahtuvan muuttoliikkeen tärkeimmät syyt ovat trooppisten hurrikaanien voimistuminen, kuivuuden lisääntyminen sekä merenpinnan nousu. Ihmisen toiminnasta aiheutuvat muut ympäristömuutokset vaikeuttavat ilmastonmuutoksen tuomiin ympäristömuutoksiin sopeutumista ja vastaamista. Selvityksessä

ilmastosiirtolaisuuden näkökulmasta haavoittuvia alueita ja muuttoliikkeiden juurisyitä on tarkasteltu tutkimuskirjallisuuteen perustuen (luku 2).

Pysyvän ilmastomuuttoliikkeen odotetaan lisääntyvän tulevaisuudessa. Ilmaston-muutoksen riskialueiden kartoittaminen auttaa arvioimaan mahdollisia ilmasto-muuttoliikkeen lähtöalueita. Ympäristösyiden lisäksi muuttopäätöksiin vaikuttavat merkittävästi erilaiset yhteiskunnalliset tekijät ja ajurit. Ilmastomuuttoliikkeen juurisyyt kiinnittyvät samanaikaisesti luonnon tapahtumiin altistumiseen, sosioekonomiseen tilanteeseen sekä yhteiskunnan ja paikallisyhteisöiden sopeutumiskykyyn. Ympäristö-muutos, mukaan lukien ilmastonmuutos, vaikuttaa eri tavoin esimerkiksi ruokaturvaan, elintarviketuotantoon, luontoon perustuvaan toimeentuloon ja terveyteen. Yhteis-kunnallisiin juurisyihin kuuluvat väestörakenteelliset, terveydelliset, taloudelliset, poliit-tiset sekä sosiaaliset ja kulttuuriset tekijät. Lisäksi henkilökohtaiset ja kotitalouden tekijät vaikuttavat muuttoliikepäätöksiin ja käytännön mahdollisuuksiin. Valtion muutto-liikepolitiikka vaikuttaa muuttoliikkeisiin alueellisella, yhteisö-, kotitalous- ja yksilötasolla.

Ilmaston- ja ympäristömuutokselle erityisen haavoittuvia maita on tässä selvityksessä tunnistettu EU:n INFORM-riski-indeksin avulla. Indeksi perustuu maakohtaiseen tietoon (a) luonnonvaaroille altistumisesta (sisältää myös geofysikaaliset katastrofit), (b) sosioekonomisista haavoittuvuuksista sekä (c) maan sopeutumiskyvystä. Raportti sisältää analyysin kuudesta ilmaston- ja ympäristömuutoksen näkökulmasta riski-alttiista maasta: 1) Somalia, 2) Afganistan, 3) Bangladesh, 4) Meksiko, 5) Sierra Leone ja 6) Kiribati. Esimerkkimaiden tarkastelu osoittaa, että haavoittuvuustekijät ja muuttoliikkeet voivat olla monentyyppisiä. Riskialueiden tunnistaminen ei kuitenkaan vielä tuo tietoa siitä, millaisia muuttoliikkeitä ilmaston- ja ympäristömuutoksen vuoksi syntyy sekä mihin ja millaisia muuttoreittejä pitkin ihmiset mahdollisesti muuttavat.

Toinen tapa lähestyä ilmastomuuttoliikettä on tarkastella mahdollisia muuttoliikkeitä ja -reittejä sekä kohdealueita tämänhetkiseen muuttoliiketietoon perustuen. Selvi-tyksessä ilmastomuuttoliikkeen ilmiötä on tarkasteltu selvittämällä mahdollisia muuttoreittejä, huomioiden mahdolliset lähtö-, kauttakulku- ja kohdealueet (luku 3). Diaspora selittää reittien ja kohdemaiden valintaa sekä sääntöjenmukaisen että sääntöjenvastaisen muuton yhteydessä. Monet Euroopan maat ovat suosittuja muuttokohteita ja niiden odotetaan houkuttelevan maahanmuuttajia myös tule-vaisuudessa. Muutto Eurooppaan ja Suomeen tapahtuu useiden sääntöjenmukaisten ja sääntöjenvastaisten muuttoreittien kautta, ja ilmastomuutoksen vuoksi muuttamaan joutuvat ihmiset voivat käyttää molempia reittejä. Eurooppa sijaitsee lähellä Lähi-idän ja Pohjois-Afrikan kriisialueita, jotka ovat samanaikaisesti erittäin haavoittuvaisia ilmastonmuutoksen suhteen sekä tarjoavat vain vähän taloudellisia mahdollisuuksia kasvavalle väestölle. Nämä tekijät lisäävät todennäköisesti muuttoliikettä kohti Eurooppaa. Suomen näkökulmasta Arktinen reitti Venäjältä Suomeen ja EU-alueelle

on myös tärkeä. Arktisen muuttoliikennekäytävän strateginen merkitys voi kasvaa tulevaisuudessa, sillä ilmastonmuutos lisää muuttoreitin mahdollisuuksia. Muutto-reittien dynamiikkaan voivat vaikuttaa lähtö-, kauttakulku- ja kohdemaiden muutokset sekä maiden suhteiden muutokset.

Toisena laajana asiakokonaisuutena selvityksessä tarkastellaan ilmastomuuttoliikkeen hallintaa ja hallinnan reunaehtoja (luku 4). Ilmastomuuttoliikkeen hallinta tapahtuu monilla tasoilla: globaali tai kansainvälinen taso, alueellinen Euroopan unionin (EU) taso sekä kansallinen Suomen taso. Myös kaupunkien ja paikallinen hallinto sekä yhteistyöverkostot ja kumppanuudet ovat tärkeitä. Ilmaston- ja ympäristömuutoksen vuoksi tapahtuvan muuttoliikkeen hallinta edellyttää monitasoista yhteistyötä. Hallinnan keinot ovat erilaisia riippuen siitä, onko kyse maan sisäisestä vai rajat ylittävästä muuttoliikkeestä. Ilmastomuuton hallinnan näkökulmasta kansainvälinen ja alueellinen (EU) näkökulma korostuvat, sillä yksittäiset valtiot eivät ole pystyneet tai halunneet ottaa edelläkävijän roolia ilmaston- ja ympäristömuutosten vuoksi siirtymään joutuvien tukemiseksi.

EU:lla ei tällä hetkellä ole yhteistä ilmastomuuttoliikepolitiikkaa tai sitä koskevia sopimuksia. Kiinnostus ilmasto- ja ympäristösyiden vuoksi tapahtuvien muuttoliikkeiden hallintaa kohtaan on kuitenkin lisääntynyt, mukaan lukien kiinnostus muuttoliikkeen juurisyihin vaikuttamiseen ja yhteistyöhön EU:n ulkopuolisten kolmansien maiden ja kansainvälisten järjestöjen kanssa. Ilmastomuuttoliikkeen juurisyihin vastaamisessa oleellista on myös ilmastonmuutoksen hillitseminen. Näihin tavoitteisiin ja toimiin on luotu mekanismeja kansainvälisissä ilmastoneuvotteluissa. Ilmastoneuvottelujen näkökulmasta läpimurto tapahtui Cancun:in 2010 (COP16) kokouksessa, jossa vaadittiin toimenpiteitä ymmärryksen, koordinoinnin ja yhteistyön lisäämiseksi ilmas-tonmuutoksen aiheuttamien muuttoliikkeiden ja suunnitellun uudelleensijoittamisen osalta kansallisella, alueellisella ja kansainvälisellä tasolla. Neuvotteluiden pohjalta syntyneet kansainväliset sopimustekstit eivät kuitenkaan luo vahvaa oikeudellista velvoitetta vaan pikemminkin politiikkasuosituksia.

Ilmastonmuutokseen ja muuttoliikkeisiin liittyy monitahoisia turvallisuuskysymyksiä. Valtioiden ymmärretään olevan ensisijaisesti vastuussa alueellaan siirtymään joutu-neiden ihmisten turvallisuudesta ja suojelusta. Hallituksilla on päävastuu ihmisten turvallisuuden takaavien toimien toteuttamisesta ja niiden tulisi myös ryhtyä ennalta-ehkäiseviin toimiin ilmastomuuttoliikkeen hallitsemiseksi. Globaalit siirtolais- ja pako-laiskompaktit korostavat inhimillisen turvallisuuden huomioimisen tärkeyttä ilmaston-muutoksen aiheuttaman muuttoliikkeen hallinnassa. Kompakteissa on lisäksi vahva ihmisoikeusulottuvuus. Niissä tunnustetaan muuttoliikkeen yksilölliset ja laajemmat yhteiskunnalliset vaikutukset, maahanmuuttajien hyvinvoinnin edistäminen sekä lähtö-, kauttakulku- ja kohdemaiden yhteisöjen jäsenten hyvinvointi.

Yhtenä tavoitteena selvityksessä on ilmastomuuttajien suojelun ja avun oikeudellisten näkökohtien tarkastelu. Ilmastonmuutoksen, muuttoliikkeen ja ihmisoikeuksien välinen yhteys on monitahoinen, minkä vuoksi ihmisoikeudellisen lähestymistavan määritteleminen ilmastomuuttoliikkeen yhteydessä on haastavaa. Kansainvälisen suojelun saaminen on erittäin epätodennäköistä, jos ympäristötekijät ovat ainoa muuton syy. Suomessa ei ole nimenomaista ilmasto- tai ympäristöpakolaisen statusta tai oleskelulupaa, jota ulkomaalainen voisi hakea. Kansainvälisen suojelun myöntäminen on kuitenkin mahdollista, jos ilmastomuuttoon liittyy muita tekijöitä, jotka mahdollistavat turvapaikan antamisen (ulkomaalaislain 87 §) tai toissijaisen suojelun myöntämisen (ulkomaalaislaki 88.1.2 §). Muuna mahdollisena keinona on uudelleensijoittaminen valitsemalla kiintiöpakolaisia (ulkomaalaislain 90 §) käyttämällä ilmaston- ja ympäristömuutokseen liittyviä kriteerejä. Suomen lainsäädännön mukaan on myös mahdollista tarjota tilapäistä suojelua ympäristökatastrofien yhteydessä (ulkomaalaislain 109 §), mutta se edellyttää hallituksen poliittista päätöstä.

Ilmastosyistä siirtymään joutuneiden ihmisten todellinen mahdollisuus saada kansainvälistä suojelua on nykyisessä oikeudellisessa kehyksessä pieni. Yleensä vastaaminen äkillisiin katastrofeihin näyttää olevan helpompaa kuin ratkaisut hitaasti alkaviin ympäristömuutoksiin. Jos laillisia keinoja ei ole käytettävissä ja suojelussa on suuria aukkoja, ilmastomuuttajat joutuvat hyödyntämään sääntöjenvastaisia keinoja maahantuloon. Tällaista tilannetta on vältettävä, ei vain sääntöjenvastaisuuden vuoksi vaan myös siksi, että se ei salli kehitystä kohti parempaa tulevaisuutta ja ihmisarvoista elämää. Uusien kansainvälisten, alueellisten tai kansallisten suojeluinstrumenttien säätäminen voi kuitenkin olla poliittisesti mahdotonta. Normaalit sääntöjenmukaiset maahanmuuttoreitit tarjoavatkin tällä hetkellä tärkeimmät suojelua- ja sopeutumista tukevat mahdollisuudet.

Nansenin aloite ja siirtolaiskompakti molemmat nostavat esille hallitun rajat ylittävän muuttoliikkeen tukemisen. Muuttoliike voidaan nähdä yhtenä sopeutumiskeinona ilmastonmuutoksen vaikutuksiin. Hallittu ilmastomuuttoliike edellyttää toimivaa ja avoimempaa maahanmuuttopolitiikkaa. Turvalliset lennot, junat ja laivareitit ovat mahdollisia niille muuttajille, joille pystytään järjestämään kansainvälisessä yhteistyössä turvallisia muuttoreittejä ja uusi asuinpaikka. Vaihtoehtoisten laillisten maahantulokeinojen lisääminen ja sallivampi viisumipolitiikka edistäisivät muuttajien inhimillistä turvallisuutta. Ilmastomuuttoliikkeen reitteihin ja reittien turvallisuuteen tulee hallinnan näkökulmasta vaikuttamaan se, miten ilmastomuuttoliike ja -pakkomuutto määritellään, millaisia oikeuksia, sopimuksia ja politiikkakokonaisuuksia ilmastomuuttoliikkeen ilmiöön vastaamiseksi luodaan sekä miten EU ja Suomi asemoituvat suhteessa näihin.

Kolmantena asiakokonaisuutena selvityksessä on nostettu esille hyviä käytänteitä ja keinoja, joilla vaikutetaan ilmaston- ja ympäristömuutoksen vuoksi tapahtuvaan muuttoliikkeeseen ilmastonmuutokseen sopeutumisen keinona (luku 5). Tarkastelussa

tuodaan esille mahdollisia toimintakokonaisuuksia ja hyviä käytänteitä, joilla voidaan vaikuttaa ilmastomuuttoliikkeen juurisyihin ja tukea sopeutumiskeinoja lähtöalueilla, kauttakulkumaissa sekä kohdemaissa.

Ympäristöllisiin ja yhteiskunnallisiin juurisyihin vaikuttamalla esimerkiksi ilmasto- ja ympäristöpolitiikan, kehitysyhteistyön, humanitaarisen avun tai käytännön kumppanuuksien kautta voidaan edistää ja/tai estää liikkuvuutta ja liikkumattomuutta. Ilmastomuuttoliikkeen hallinnan mahdollistamiseksi tarvitaan julkista mutta myös yksityistä rahoitusta. Yksityisen sektorin panosta tarvitaan kehittämään YK:n jäsenvaltioiden kanssa yhdessä muun muassa riskien vähentämistä koskevia järjestelyjä, infrastruktuuria ja innovatiivista tekniikkaa.

Suomessa on monenlaista osaamista ja mahdollisuuksia kehittää teknologiaa ja innovaatioita ilmaston- ja ympäristömuutokseen sopeutumiseksi. Muun muassa Ilmatieteen laitoksella on tarvittavaa osaamista ja kansainvälisiä verkostoja meteorologisten ja hydrologisten palveluiden ja osaamisen kehittämiseen yhdessä ilmastonmuutoksen kannalta haavoittuvien maiden kanssa. Toisena esimerkkinä voidaan nostaa esille vesiosaaminen. Finnish Water Forum on vakiintunut verkosto, joka kokoaa yhteen vesitekniikkaan ja palveluihin erikoistuneita yrityksiä ja toimijoita. Monet suomalaiset yliopistot tarjoavat vesiteknologian koulutusta, ja niiden tutkimus ja koulutus helpottavat uusien vesiin liittyvien tekniikoiden ja innovaatioiden luomista. Mahdollistava liiketoimintaympäristö ja uusien tekniikoiden käyttöönotto haavoittuvilla alueilla edistävät ilmastonmuutokseen sopeutumista. Myös terveydenhuoltojärjestelmien vahvistaminen haavoittuvissa maissa on tehokas toimenpide yhteisöjen sopeutumiskyvyn parantamiseksi. COVID-19-pandemia saattaa lisätä ymmärrystä niistä tavoista, joilla kansanterveydellisiä kriisejä ja moninkertaisten päällekkäisten kriisien dynamiikkaa voidaan hallita entistä paremmin. Monet pandemian aikana toteutetut keinot ovat samankaltaisia, mitä vaaditaan ilmaston- ja ympäristömuutoksiin liittyviin uusiin terveysuhkiin sopeutumiseksi niistä selviytymiseksi.

Konfliktit ja humanitaariset kriisit heikentävät valtioiden kykyä sopeutua ilmaston- ja ympäristömuutokseen, mikä voi entisestään vahvistaa alueilla käynnissä olevia konflikteja. Ympäristönäkökulma tulisi huomioidea entistä vahvemmin Suomen rauhanrakentamistoiminnassa ja siviilikriisinhallinnassa. Suomen ja EU:n kehitysapua, ympäristöllistä rauhanrakentamista ja juurisyitä koskevaa lähestymistapaa ei pitäisi nähdä yksinomaan hallinnan ja muuttoliikkeen hallinnan mekanismina, vaan sen sijaan asettaa etusijalle ihmisten turvallisuus, ihmisoikeudet ja hyvinvointi. Haavoittuvassa asemassa olevat ryhmät olisi otettava huomioon politiikan suunnittelussa ja käytännön toimissa ennen ilmaston- ja ympäristömuutosten aiheuttamia muuttoliikkeitä, niiden aikana ja niiden jälkeen.

Vaikka ihanteellisessa tilanteessa kenenkään ei olisi pakko muuttaa toiselle alueelle tai toiseen maahan, nykytilanteen arvioiden valossa muuttaminen näyttää välttämättömältä monilla alueilla. Siksi kansainvälisen yhteisön on ihmisten sopeutumisen ja paikallaan pysymisen tukemisen lisäksi valmisteltava hallinnan keinoja, joilla vastataan pakolaisten ja turvapaikanhakijoiden lisääntyvään määrään. Mikäli kansainvälisen suojelun laajentaminen tai uusien kiintiöpakolaisten hyväksyminen on poliittisesti mahdotonta, opiskelijoiden tai työvoiman muuttoliikkeen tukeminen voi tarjota ratkaisun joillekin mahdollisille ilmastomuuttajille. Tämä antaisi useammille ihmisille ja heidän perheilleen mahdollisuuden sopeutua ilmastonmuutoksen vaikutuksiin sekä siirtyä pois riskialueilta.

Koulutus- ja tutkimustoiminnan kehittäminen tarjoaa monia keinoja vastata ilmaston- ja ympäristömuutoksen tuomiin haasteisiin. Ilmaston ja ympäristön aiheuttamasta muuttoliikkeestä tarvitaan myös lisää tutkimusta ja tietoa hallinnan ja päätöksenteon tueksi. Koulutuksen ja tutkimuksen lisäksi tarvitaan myös muita tiedonvälityksen muotoja ja kanavia. Media tarjoaa tärkeän kanavan, jonka kautta tutkimukseen perustuvaa tietoa ja ymmärrystä ilmastomuuttoliikkeen ilmiöstä saadaan tuotua laajemman yleisön ulottuville. Hankkeessa kuullut kansainväliset asiantuntijat suosittelivat lisäksi kulttuuritoimintaa ja taidetta mahdollisina keinoina ilmastomuuton ymmärtämisen lisäämiseen Suomessa.

Kansainvälisen yhteistyön ja kumppanuuksien lisäksi on tarpeen edistää sektorien välistä yhteistyötä ilmastomuuton hallinnassa Suomessa. Ilmastomuuttoliike on moniulotteinen ilmiö, minkä vuoksi eri alojen toimijoiden tulisi yhä enemmän pyrkiä vastaamaan haasteisiin yhdessä sen sijaan että vain keskityttäisiin etsimään ratkaisuja alakohtaisiin kapeasti määriteltyihin ongelmiin. Esimerkiksi kehitys- yhteistyöhankkeissa olisi pyrittävä mahdollisimman monien samanaikaisten tavoitteiden saavuttamiseen. Ilmastomuuttoliikkeen hallinta ja muuttoliikkeen turvallisuuden varmistaminen edellyttää erilaisia toimenpiteitä useilla hallinnon ja politiikan aloilla. On tärkeää rakentaa yhteistyötä ja avata keskustelufoorumeita eri sektoreiden ja toimijoiden välille.

Kansallista ennakointiverkostoa voitaisiin hyödyntää ilmastomuuttoliikkeen tilannekuvan vahvistamiseksi sekä ilmastonmuutoksen vuoksi mahdollisesti lisääntyvään muuttoliikkeeseen valmistautumiseksi. Laaja-alaista ajankohtaista tietämystä ja tiedon jakamista voidaan saavuttaa ainoastaan monialaisella ja - tasoisella yhteistyöllä. Kansalliseen ennakointiyhteistyöhön ja varautumisen verkostoon on hyvä sisällyttää eri alojen asiantuntijoita sekä maahanmuuttaja- ja turvapaikkataustaisia henkilöitä. Erilaiset hallinnan ja varautumisen keinot eivät ole vaihtoehtoisia vaan ennakointia ja sopeutumista vahvistavien toimien olisi tapahduttava samanaikaisesti. Kestävän kehityksen tavoitteet sekä inhimillisen turvallisuuden ja ihmisoikeuksien näkökulma asettavat reunaehdot kaikille toimille ilmastomuuttoliikkeen lähtöalueilla, kauttakulkualueilla ja vastaanottavilla alueilla.

ABBREVIATIONS

AU	African Union
CCVI	The Climate Change Vulnerability Index
COP16	2010 UN Climate Change Conference
COVID-19	Coronavirus Disease 2019
CREWS	Climate Risk and Early Warning Systems
EASO	European Asylum Support Office
ECOWAS	Economic Community of West African States
EEA	European Environment Agency
EMN	European Migration Network
ENP	European Neighbourhood Policy
ENSO	El Niño/Southern Oscillation
EU	European Union
EWS	Early Warning Systems
Fingo	Finnish Development NGOs
FMI	Finnish Meteorological Institute
Frontex	European Border and Coast Guard Agency Frontex
GAMM	Global Approach to Migration and Mobility
GCC	Gulf Cooperation Council
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GERD	Grand Ethiopian Renaissance Dam
GINTL	Global Innovation Network for Teaching and Learning
GMDAC	Global Migration Data Analysis Centre (IOM)
GPC	Global Protection Cluster
ICCPR	International Covenant on Civil and Political Rights
IDMC	Internal Displacement Monitoring Centre
IDP	Internally Displaced Persons
IFRC	International Federation of Red Cross and Red Crescent Societies
IIT	Indian Institutes of Technology

IMMC	International Migration Monitoring Centre
INFORM	Index for Risk Management
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
KV20	Kiribati 20-year Vision
LDC	Least developed countries
LDCF	Least Developed Countries Trust Fund
LIBE	European Parliament Committee on Civil Liberties, Justice and Home Affairs
MMC	Mayors Migration Council
NAP	National Adaptation Plan
ND-GAIN	The Notre Dame Global Adaptation Initiative index
NGO	Nongovernmental organization
ODA	Official development assistance
OHCHR	United Nations Office of High Commissioner for Human Rights
PDD	Platform on Disaster Displacement
RCP	Representative Concentrations Pathway
RVF	Rift Valley Fever
SCCF	Special Climate Change Trust Fund
SDG	Sustainable Development Goals
SIDS	Small Island Developing States
SIMHE	Supporting Immigrants in Higher Education in Finland
UCLG	United Cities and Local Governments
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees
UNFCCC	United Nations Framework Convention on Climate Change
VWSA	Vietnam Water Supply and Sewerage Association
WASH	Water, Sanitation and Hygiene
WHO	World Health Organization
WIM	Warsaw International Mechanism
WMO	World Meteorological Organization

1 Introduction

1.1 Aims of the study

Climate change is expected to affect and alter habitats in all places and regions of the Earth in significant and unpredictable ways. Hundreds of millions of people live in areas exposed to sea level rise and related hazards, severe slow-onset environmental degradation and increasingly frequent sudden-onset climatic events. Many of them are extremely vulnerable to these changes due to their dependence on nature-based livelihoods, high levels of poverty and low levels of individual, household and community capacity to withstand shocks (Rigaud et al. 2018; Davis et al. 2018; Brown 2008). The World Bank has estimated that up to 143 million people may need to migrate due to slow-onset climate-related events alone in the next three decades (Rigaud et al. 2018). Although this may prove to be an overestimate (Boas et al. 2019), many more are likely to be impacted by environmental degradation and will see their lives and livelihoods substantially affected in the decades to come.

Climate migration is a global phenomenon and international organisations and governments all over the world have started to recognise the consequential effect that climate and environmental change has on human livelihoods and migration. According to current knowledge, migration and displacement for environmental reasons is often temporary, with migrants and displaced people moving short distances within countries to nearby areas. Such migration can also be more permanent and across borders. Long-term cross-border migration decisions are rarely driven by climate and environmental reasons alone, but are a response to a range of economic, political, demographic and social factors (Brown 2008; Black & Collyer 2014; Gemenne & Blocher 2017; Rigaud et al. 2018; Cattaneo et al. 2019). The link between climate change and migration is thus complex and materialises differently in different places. Consequently, although there is a wide consensus that climate change-induced migration and displacement are increasing, distinguishing climate migration and its routes from other forms of migration, inclusive non-climate-related environmental mobility, is challenging and rarely feasible. It is also important to note that migration is only one method of adaptation when people and communities are confronted by climate change and its consequences.

The Finnish Government has responded to the global need to increase the knowledge base concerning environmental and climate-induced migration and its management. The objective of this Government's analysis, assessment and research activities (VN TEAS) study is to strengthen the overall strategic understanding of the

Finnish Government and its ministries of the complex phenomenon of climate migration and support their decision making and policymaking with regard to the management frameworks and activities through which climate migration is addressed. In the evaluation of the possible responses to and governance of environmental and climate-induced migration, special attention is paid to sustainable development, human rights and human security.

This report provides knowledge that supports the activities of Finland and the European Union in preparing for and responding to climate migration, taking into account the long-term perspective. In addition to compiling and evaluating the existing means and mechanisms, it explores potential new avenues, institutions and policies through which Finland can better address environmental and societal changes created by climate change. Importantly, to successfully address climate migration, policies and strategies are required for countries and regions of origin, transit areas and host communities and countries. Further, the actions of Finland and the European Union must be in line with international agreements, objectives and plans, including the United Nations' Sustainable Development Goals, the Global Compact for Migration, the Global Compact on Refugees and the Nansen Initiative.

This report provides answers to the following related questions:

- Which countries are most vulnerable to climate and environmental changes? How do such phenomena affect different socioeconomic groups?
- Where does climate migration and displacement occur and on what scale?
- What environmental and societal mechanisms generate and increase climate migration?
- Which migration corridors and routes are used or can be used by cross-border climate migrants?
- In what ways does climate migration affect Europe and Finland?
- What are the possibilities and preconditions of the European Union and Finland for managing climate migration and for receiving, assisting and securing the rights of climate migrants and displaced people?
- What practical implications do the European Union and Finland currently have to address the challenges of climate migration and displacement? In what ways should regulation, institutions and modes of action be developed to address these?
- Is it possible to increase Finland's preparedness regarding the growth in climate migration and displacement with the help of the national foresight network?

The evaluation of the objectives, perceived needs and good practices regarding the management of climate migration and displacement reveals that various actors in Finland, including the government, already have expertise and activities that can be used to address different aspects of climate migration. These include competence and knowhow to address the root causes and drivers of climate migration and displacement, support adaptation and protect human security. There is considerable potential to develop these activities, expertise and knowhow further together with different national, European Union and other international actors and through international partnerships.

This report is structured in the following way (Figure 1). Chapter 1 provides understanding and knowledge of climate migration as a phenomenon. Chapter 2 focuses on the environmental and societal drivers that impact migration and people's decision to migrate. The chapter also includes a more in-depth analysis of six countries that are vulnerable to climate and environmental change, although in somewhat different ways. In chapter 3, the decision to migrate and possible migration routes are approached by investigating existing migration trajectories with the specific focus on migration routes in Europe. Chapter 4 scrutinises the governmental and legal frameworks concerning the management of climate migration as well as different security perspectives. Chapter 5 introduces good practices and implementation. Chapters 6 and 7 include conclusions and recommendations.

Figure 1. The report offers: 1) knowledge of climate migration as a phenomenon, 2) knowledge and understanding of the framework of governance and management of climate migration and 3) suggestions and examples of good practices and implications to address climate migration.
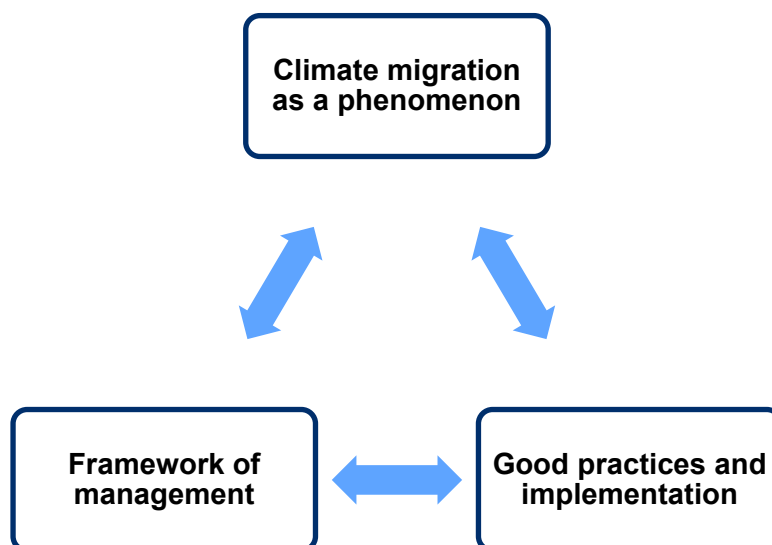
1.2 Research data and methods

This report provides answers to the questions above by examining research literature and by compiling and analysing various quantitative and qualitative datasets that describe climate migration as a phenomenon. As the link between climate change and migration is complex, it needs to be approached from a multidisciplinary perspective and studied using information from various sources and various methods. The following methods and materials have been utilised in this study: 1) desk research on the existing literature and data (scientific research, statistics, digital and media sources) 2) legal, political and administrative documents; 3) interviews with experts; 4) participatory workshops; and 5) national and international seminars, conferences and consultations. The accepted Guidelines of Good Scientific Research Practices of the Research Ethical Advisory Board (TENK 2012) were followed during all stages of the research process.

The questions concerning the scope of climate migration and the environmental and societal drivers of migration, migration routes and dynamics, and the governance and security aspects of climate migration were examined by compiling and evaluating existing data and knowledge from research literature, statistics, data banks, digital and media sources and strategy and country reports. A substantial amount of research on climate-induced migration and displacement has been produced by international organisations, non-governmental organisations and researchers. Further, many organisations offer information and perspectives on ways to adapt to changes in the environment caused by climate change as well as propose measures that support climate migration as an adaptation strategy. Key sources include, among others, the European Environment Agency EEA, GMDAC and the Environmental Migration Portal of the International Organization for Migration, the International Displacement Monitoring Centre IDMC, the Red Cross Climate Centre IFRC, the European Border and Coast Guard Agency Frontex, the European Migration Network EMN, the European Asylum Support Office EASO, the Mixed Migration Centre, the UNHCR and the Platform on Disaster Displacement. In addition, Intergovernmental Panel on Climate Change IPCC reports provided valuable information on climate change and the drivers of environmental change.

The first step was to conceptualise the phenomenon of climate migration and identify the most vulnerable countries and groups of people to climate and environmental change. The EU INFORM Risk Index, providing an open-source risk assessment for humanitarian crises and disasters, was utilised to recognise countries with a high vulnerability to climate and environmental changes and with a low capacity to cope and adapt to such changes. We also approached the topic from the multi-level viewpoint, that is, looking at the phenomenon from the individual, family, community, regional, state and global perspectives. A more detailed analysis was conducted for

six countries (the Federal Republic of Somalia, the Islamic Republic of Afghanistan, the People's Republic of Bangladesh, the United Mexican States, the Republic of Sierra Leone and the Republic of Kiribati) to illustrate the impact of different environmental and climate-induced changes and hazards and their relationship to migration and displacement. In addition, we have examined migration routes from vulnerable regions and countries, including the countries of origin, transit and destination. The migration routes and their dynamics as well as diasporas were also considered from the point of view of the European Union and Finland. The examination of the routes was based on the knowledge and analysis of the historical and current migration corridors and their dynamics.

The research on expectations placed on the EU and Finland in managing climate migration was conducted by analysing research literature and policy and strategy papers providing approaches and suggestions on how to address this phenomenon. In addition, interviews, workshops and webinars provided information and insight for the analysis. As this report employs a holistic approach to climate migration, the analysis is not limited to migration and asylum management but also includes aspects such as development, adaptation, financing and security. Further, the analysis considers the different levels of the existing institutions, platforms and governance structures that can be found at the national, regional and global levels. As the global or international level was emphasised in the call for this research tender, the analysis of management approaches focuses on it especially.

As one of the research tasks was to define the ways in which regulations, institutions and modes of action should be developed to address climate migration and secure the rights of climate migrants, legal methods were also employed. On the basis of a legal analysis of different soft law and hard law instruments of international, regional and national law, a legal framework, including relevant law and policy sources, was constructed. The analysis of international and regional legal obligations, including an analysis of the development of international human rights practice, provides necessary information for policymakers on the expectations and possibilities concerning national measures. The inclusion of different legal and policy sources in the analysis material was guided by the overarching principles set for this project that emphasise a human rights approach, human security, sustainable development and global solidarity. In the analysis, special attention was paid to the effective protection, reception and assistance of displaced people. The document analysis was supported by a review of legal literature and expert interviews that gave insight into the analysis and information on administrative practice.

As a method of data collection for responding to the questions concerning needs, expectations and practical implications, the research team members conducted thematic interviews with experts and professionals working at various global, EU and

national level organisations and institutions (see Annex 1: the list of interviewed experts). Interviews provided information about the ongoing activities, expectations and potential solutions regarding climate migration, focusing on the questions outlined in section 1.1. Due to the travel restrictions imposed by the COVID-19 pandemic, all interviews were conducted via Microsoft Teams or Zoom. With a few exceptions, the interviews were recorded (always with the permission of the interviewees). In addition, several more informal discussions were conducted on the topic of climate migration and future research needs among researchers in Finland.

An important source of information for the report was the three expert workshops organised by the research team. The workshops made it possible for the research team to bring national and international experts from different sectors together to discuss climate migration and displacement, to communicate and co-create understanding on the phenomenon as well as to collect information and perceptions on the topic. The online workshops included invited presentations, group discussions and plenum discussions. The themes of the workshops were planned so that they covered different perspectives concerning climate migration and displacement and facilitated dialogue between different actors. The workshops were recorded with the permission of the participants.

The first workshop, Climate Migration: Toward a Better Understanding and Management (Ilmastosiirtolaisuus: kohti ilmiön parempaa ymmärtämistä ja hallintaa), was held on 29 October 2020. All together 28 experts participated in the event and included several presentations, two separate small group discussion sessions, plenum discussions and a wrap-up session. The first small group discussion (6–8 discussants per group) focused on gaining feedback and suggestions on particular aspects of climate migration (climate and environmental change, vulnerability, routes, protection and human rights). The second, a 45-minute-long small group discussion, focused on a more specific theme (countries highly vulnerable to climate change, identifying the activities and expertise of Finnish actors in those domains that facilitate prevention and adaptation to climate and environmental change in highly vulnerable countries).

The second workshop, Solutions, Innovations and Partnerships for Climate Migration, was organised on 19 January 2021 in the form of an international seminar. The seminar brought together a total of 64 participants, including high-level international experts and six keynote speakers, to discuss and contemplate the potential ways of addressing climate migration and its drivers, with a focus on how Finland and the European Union can support attempts to alleviate challenges related to climate migration in the areas of origin, transit and destination. The invited participants represented a range of civil society organisations, intergovernmental organisations, regional unions, decision makers and academia.

The third event, Climate Change and Security in a Networked World (Ilmastonmuutos ja turvallisuus verkostoituneessa maailmassa) was organised on 4 February 2021 in conjunction with the VN TEAS 4.7 climate security and Finland project. The workshop brought together 56 participants, including authorities and experts from different parts of the security sector and institutions in Finland. The working methods included presentations by security sector experts, humanitarian experts and researchers, followed by group discussions of four to six participants and plenum discussions.

All three workshops greatly benefitted from the participants' multidisciplinary knowledge and their topical expertise, knowhow and experiences from the field. The workshops provided new insights and suggestions on measures and tools for addressing climate migration that are especially relevant and have potential for Finland as a global actor. In addition to the interviews and workshops, the team members participated in various climate migration-related online seminars, conferences, consultations and workshops, which offered opportunities to discuss the topic and pose questions to leading scholars on migration, displacement and climate change.

All the material and data collected for the report were discussed and evaluated together by the research team, thus supporting the validation of the findings and their interpretation. The research process was supported by discussions with the steering group members, who offered valuable insights and feedback.

1.3 Conceptual framework

This report discusses the mobility and immobility of people in relation to climate change-induced natural hazard events and environmental changes (see Figure 2). Next, the terms used in this report are explained in turn.

Figure 2. Concepts used in the report in relation to climate migration.
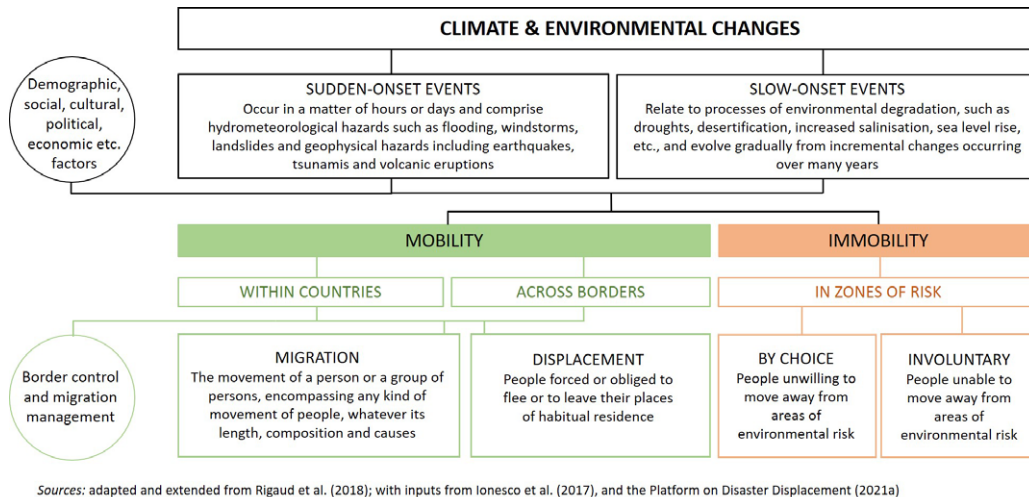
Sources: adapted and extended from Rigaud et al. (2018); with inputs from Ionesco et al. (2017), and the Platform on Disaster Displacement (2021a)

Climate change refers to a long-term change in average weather patterns. These can be identified as changes in the mean and/or the variability of temperature, humidity and rainfall. These changes occur due to natural variability or as a result of human activity. **Environmental change** includes changes in the physical and biogeochemical environment, either caused naturally or by human activities, including climate change. Climate change and environmental change can cause slow- and sudden-onset events. Negative **slow-onset events** relate to environmental degradation processes such as biodiversity loss and desertification, increased salinisation and sea level rise. These processes evolve gradually from incremental changes occurring over many years. **Sudden-onset events**, on the other hand, occur in a matter of hours or days and comprise hydrometeorological hazards such as flooding, windstorms, landslides and geophysical hazards, including earthquakes, tsunamis and volcanic eruptions. As this report only deals with environmental changes connected to climate change, it does not deal with migration related to geophysical hazards such as earthquakes, tsunamis and volcanic activity.

For the purpose of this report, **mobility** refers to the act of people moving, and **immobility** refers to the lack of it. **Voluntary immobility** occurs when people choose, on a voluntary basis, to stay in a location despite the adverse impacts of climate change and its environmental impacts. **Involuntary immobility** occurs when people who need to and aspire to move are not able to do so. **Climate migration** as an overall concept for this report refers to mobility related to the adverse effects of climate change, and it includes both voluntary and involuntary movement. Although mobility also includes short-term travel, such as recreation, visits to friends and relatives, business and medical treatment, this report concentrates on migration and displacement. In order to emphasise the different degrees of voluntariness, this report

regards climate migration and displacement together as a synonym for climate migration (understood widely), and sometimes separately when only talking about voluntary or involuntary movement.

Migration refers to movement characterised by change in usual residence, whether that is within a country or across an international border, temporarily or permanently, and for a variety of reasons. It comprises, for instance, movement due to employment, education and family reunification as well as return to a place of origin. Migration can be considered to take place along a continuum, where aspects of voluntary and involuntary mobility are at opposite ends, but where there is fluctuation in the importance of the two. In practice, the decision to move can at times be taken on a more voluntary basis, such as a desire to move closer to one's family; while at other times on a more forced basis, as is often the case in conflicts. Migration is voluntary insofar as people have the ability to choose between different realistic options. In the context of climate change, voluntary migration can take place as a coping strategy in the face of deteriorating environmental conditions or more frequent hazard events (e.g. devastating cyclones) that could otherwise result in a humanitarian crisis and displacement in the future.

Involuntary or **forced migration** takes place when people are forced or obliged to leave their habitual place of residence. For this, the term displacement is often used. Internal displacement and internally displaced persons or IDPs, refer to **displacement** within state borders. **Relocation** occurs when a community or a significant part of it moves permanently from one location to another as an entity, retaining important characteristics of the original community, such as its social structures, political and regulatory systems, cultural characteristics and worldview. **Resettlement** often refers to the transfer of refugees from one country of asylum to another that has agreed to receive them and ultimately grant them a residence permit. Resettlement does not seek to retain the characteristics of people and communities, and often assumes that the resettled will integrate into the host country or community. Some countries, such as Finland, have a particular annual quota for refugees arriving to the country through a resettlement programme. Resettlement and relocation may also occur within countries.

The terminology used for speaking about this phenomenon is still not well established, especially in Finnish, and variations occur, such as between different fields of governance. The terminology used in this report is compatible with the most relevant glossaries in the field of global and regional governance (IOM and EU/EMN). Only the IOM glossary mentions human mobility, defining it as "a generic term covering all the different forms of movements of persons" (IOM 2019a). It is further explained as usually also encompassing tourists. The EMN glossary includes the word mobility only in the term mobility partnership, which makes sense since those EU partnership

programmes often include visa travel. The term migration is understood by the IOM as "the movement of persons away from their place of usual residence, either across an international border or within a state", which tends to embrace an inclusive and wide approach (IOM 2019a). The EMN glossary adds an additional time aspect by considering migrants as people who reside for at least 12 months in the receiving country (EMN 2018), but this type of strict time-limit is not relevant for this report. However, both the IOM and EMN glossaries define separately categories of forced migration, such as refugees and displaced people. Displacement is defined as involuntary movement away from the place of usual residence, also in situations of natural or human-made disasters.

In addition, only the IOM recognises climate migration, and defines it as "the movement of a person or groups of persons who, predominantly for reasons of sudden or progressive change in the environment due to climate change, are obliged to leave their habitual place of residence, or choose to do so, either temporarily or permanently, within a state or across an international border". The IOM defines separately but quite similarly environmental migration, but considers it wider by including all "changes in the environment that adversely affect their lives or living conditions" (IOM 2019a). The EMN glossary does not include climate migration, but it defines the term environmentally displaced person as "a person subject to forced migration as a result of sudden, drastic environmental changes" (EMN 2018). The definition used in this report for climate migration is in accordance with that of the IOM, without limiting it to sudden changes in the environment.

1.4 Climate migration as a phenomenon

IDMC (2020a) estimated that 5.1 million individuals were living in displacement in 2019 due to environmental disasters; although it noted that this figure is most likely an underestimate. The estimate for those who left their homes due to environmental disasters and had not returned by the end of one year is the first estimate produced by the IDMC. The countries that have faced major displacement, often in the form of preventive evacuations and due to major sudden environmental disasters during recent years, include China, India, the Philippines, Indonesia, the United States, Ethiopia, Somalia, Iran, Cuba, Japan and Bangladesh (IDMC 2020a).

The Intergovernmental Panel on Climate Change (IPCC) (2014) acknowledges **migration as an important adaptation strategy** in response to both sudden extreme weather events and longer-term climate and environmental changes. International Organization for Migration (IOM) underlines that climate migration in itself can contribute to sustainable development (IOM 2017). As IOM (2017: 25) states in its

report Migration in the 2030 Agenda, "moving might be, for many, the only practicable adaptation strategy in light of the unprecedented impacts on lives and livelihoods of those relying on natural resources, including both land and water". From a migrant's perspective, the decision to migrate can be a coping mechanism indicating household resilience, as it can bring new livelihood opportunities and widen the resources available to the household (IOM 2017: 26). Moreover, it is important to recognise that the **multiple social and individual processes of adaptation not only concern the migrant but also the community of origin, and the community of destination as well as the communities along the transit routes** (Gemenne & Blocher 2017). Therefore, to be addressed successfully, climate migration needs to be considered from a broad perspective.

People affected by climate change will increasingly look for more viable and safer places to live, many of them moving internally and over short distances within their home countries, while others seek opportunities abroad (Government Office for Science 2011; Mallick & Vogt 2014; Lujala et al. 2020). The division between cross-border migration and internal migration is entrenched in the political terminology. However, from the perspective of migration routes, intra-country migration and international migration can be part of the same continuum, and the division between different types of migration can often be blurred from the perspective of the individual migrant who may see internal migration only as one stage in their effort to relocate abroad. The destination is likely to partially depend on personal and household resources: the poor may only be able to migrate over shorter distances and within countries, while those who are wealthier may be able and are likely to resort to cross-border migration (Giannelli & Canessa 2021).

There is some evidence that storms and other sudden events are more likely to lead to short-term, short-distance intra-country forced displacement (Cattaneo et al. 2019). For slow changes brought about by climate change, such as gradual droughts or land degradation, the evidence is more mixed, with the evidence suggesting that it can cause more long-term, voluntary migration or immobility (Cattaneo et al. 2019; Government Office for Science 2011). One explanation for this can be that people perceive different types of natural hazards differently and, for different reasons, react to them differently. A recent study, conducted in climate-exposed coastal areas of Bangladesh, found that households considered sudden-onset events as a reason for migrating, but not slow-onset phenomena (Wiig et al. 2020).

Further, if people are not prepared to migrate voluntary and also fail to adequately adapt in situ, the result is likely to be increasing poverty levels and vulnerability to environmental shocks, which may, in turn, result in large-scale displacements. Such involuntary and voluntary movements, if not adequately addressed, can negatively impact the social acceptance of internal and cross-border environmental migrants,

lead to their exclusion, loss of welfare and assets and, in the worst cases, cause violence if the social tensions between the displaced and host communities intensify and escalate due to, for example, competition over scarce resources (Burke et al. 2015; Koubi 2019). Further, climate migrants may have to move to high-risk areas in which they are exposed to health risks, eviction or other risks (Weber et al. 2019). Climate migration and displacement can also affect the environment, especially in the case of large refugee camps and internal displacements. These impacts must be taken into consideration in order to protect the environment as well as local, refugee and IDP populations and communities (see e.g. UNHCR 2005).

Equally importantly, there is a need to consider the people who stay, i.e. those who are not able to move or who do not want to move, even when it would in many ways be their best option. Involuntarily immobile people are not able to migrate due to, for example, the lack of financial means or social capital and networks. These **trapped populations are often among the most vulnerable when it comes to climate change impacts** (Black & Collyer 2014; Ayeb-Karlsson et al. 2018). Some people stay voluntarily even in conditions that seem overly harsh (e.g. Farbotko 2018; Farbotko & McMichael 2019). They may see migration as an existential threat to their culture, connection to the land and sea, identity and as a risk to self-determination and indigenous rights. Losing one's homeland and the spiritual and resting place of one's ancestors is not seen as an option, so people prefer to stay where they are despite the impacts of climate change.

1.5 Predictions and scenarios concerning climate migration

Climate migration is a complex phenomenon. Consequently, it is difficult to predict the number of people who will be directly affected by climate change, how many will migrate from their homes, whether those people will move temporarily or permanently and where they will settle (Davis et al 2018). The predictions concerning climate-induced migration vary from "substantial" to "minor" migration and displacement during the 21st century. Different studies employ different methodologies and adopt different definitions of environmental and climate-induced displacement and migration, which means the **estimates concerning the number of people who will be displaced and must move due to climate-induced changes vary considerably** (Black et al. 2011: 4; Afifi 2011).

The often repeated estimate of 200 million people was put forward by Norman Myers (2005) in his article "Environmental Refugees: An Emergent Security Issue". This estimate was based on the idea that the number of people forced to abandon their

homelands on a semi-permanent and permanent basis would increase due to population growth, profound poverty and deteriorating environmental conditions. This figure was repeatedly cited and has been taken up by different actors, organisations and campaigns. The estimate of 200 million displaced people has not been accepted without criticism, however, and some scholars have regarded it as simplistic and lacking empirical evidence (Brown 2008; Afifi 2011; Deheza & Mora 2014: 5).

Sea level rise is considered among the most costly and permanent future consequences of climate change. Most of the world's megacities are located in coastal zones and in large deltas. The projections for the number of climate-induced displacements and migrants due to sea level rise are more accurate than with other climate-related natural hazards. The sea level is estimated to rise by approximately 1 metre or more by 2100 if societies do not manage to lower their carbon footprint (Neuman et al. 2015). The scenarios produced by Ionesco et al. (2017; see also Piguet 2020) suggest a global sea level rise of 0.3–1 metre will directly impact 150 million people this century. The recent estimate of global vulnerability to sea level rise and coastal flooding produced by Kulp et al. (2019) predicts higher numbers of affected people. According to their research, under the low carbon emissions scenario, 190 million people currently occupy land below projected high tide lines (the line on the land up to which the highest water line reaches) for 2100. Under the high carbon emissions scenario, the estimated number of people living on land below projected annual flood levels is 340 million for mid-century and more than 630 million by 2100. These low-lying coastal areas and their immediate surroundings will be affected by progressive soil salinisation that severely impacts agriculture, aquaculture, infrastructure, coastal ecosystems and the availability of freshwater, posing one of the greatest environmental threats in many countries to people's livelihoods and health (see also Dasgupta et al. 2015; IPCC 2019).

A World Bank report by Rigaud et al (2018) introduces a scenario in which the number of displaced people in the three different greenhouse emission and development scenarios (pessimistic, more inclusive development, more climate-friendly). The study highlights three regions that are particularly vulnerable from the perspective of climate migration: Sub-Saharan Africa, South Asia and Latin America. Together, these regions comprise 55 per cent of the developing world population. The estimates focus on slow-onset climate impacts and include people who move more than fourteen kilometres within a country, leaving aside shorter distances as well as short-term mobility such as seasonal migration (Rigaud et al. 2018: vii). The report projects that climate change will drive tens of millions of people to migrate within their home countries in these three regions by 2050. Without concrete climate and development efforts, it is predicted that up to 143 million people may be forced to migrate due to ongoing climate change.

The scenarios and predictions concerning environmental and climate-induced displacement and migration are uncertain because **actual migration will depend on political decisions and the success in reducing carbon emissions today as well as the success of adaptation strategies** and human resilience (Hauer, Fussell & Mueller 2020), and the evolution of other migration drivers that impact people's migration decisions. There are also other human-induced environmental processes that cause environmental degradation and that compound the impact of climate change (Sassen 2014). Therefore, it is important to carefully contemplate the hypothetical estimates and the possible political, economic and social consequences and responses to different future scenarios.

2 Root causes and vulnerability

This chapter introduces the main environmental and societal root causes and drivers as well as personal and household-related intervening factors of climate and environment change-related migration and displacement. Root causes and drivers are central to decision making when it comes to moving or staying in place. This chapter also explains how exposure, vulnerability and adaptation capacity are connected. The chapter identifies which individuals, groups, countries and regions are vulnerable and what measures have been taken to cope with climate and environment-induced migration and displacement. The vulnerable countries explained in more detail are the Federal Republic of Somalia, the Islamic Republic of Afghanistan, the People's Republic of Bangladesh, the United Mexican States, the Republic of Sierra Leone and the Republic of Kiribati.

2.1 Decision making concerning moving or staying in place

The root causes and drivers of migration and displacement impact in different ways the decision making of individuals, households and communities in connection to moving or staying in place. It is necessary to understand that decision making is complex and the drivers of mobility and immobility are often interconnected. Even though it is the individual, household and community that moves, it needs to be recognised that, in addition to local decisions and policies, also regional, state and global structures, policies and agreements may influence decision making directly or indirectly. (On the complexity of migration and displacement, see e.g. Castles & Miller 2003; Bakewell 2010; Samers 2010; Fiddian-Qasmiyeh et al. 2014; Baldwin & Fornalé 2017: 322; Niemi 2018).

There are spatial, temporal, individual, household and community differences in the factors that drive mobility. Intervening factors (such as household characteristics) and facilitators (such as transportation and the cost of moving) concerning mobility can also differ. For individuals, households and communities, decision making in connection to climate mobility involves several spheres of life. In addition to environmental and nature-related reasons, there are social, political, economic, cultural and other factors in relation to places of origin, transit and destination that contribute to the need, desire, possibility and action to move. **The decision of who, where to, for how long and how to migrate can vary between geographical regions, communities, households and individuals** (Bates 2020).

Among the variety of factors that impact migration decisions and the motivation to move, climate and environmental factors are still usually considered as secondary by those who move (Ionesco et al. 2017: 36, 64). Especially in relation to slow-onset environmental changes (e.g. Zickgraf 2021) such as sea level rise or desertification, it is often difficult to differentiate climate change or environmental change as being the single most important driver of mobility. Rather, the decision to move is based on several drivers. Slow-onset environmental changes can be a proximate factor in a long-term or permanent movement from a place. It is also important to observe that not all slow-onset events cause migration. **Migration depends on not just the severity of the climate event but also on the ability to cope and on the resilience of communities, families and individuals.**

In sudden-onset disasters (e.g. Privara 2019), such as flooding or windstorms, the reasons for displacement are often more obvious than in the case of slow-onset disasters. Movement caused by slow-onset disasters can be shorter in time and distance. Such movements are often, but not always, temporary, as people return to their home areas to rebuild their houses and livelihoods when possible. However, sudden-onset events can also cause protracted displacement and conditions may not allow a return.

2.2 Drivers of climate and environmental migration and displacement

Climate and environmental migration and displacement are not determined by only weather and other environmental hazards people may face. In this context, Japan is a good example. Being the third most exposed country in the world to natural hazards (according to the INFORM Risk Index), its socioeconomic situation is good and the country has been able to cope with tsunamis and earthquakes. Although exposure to climate and environmental changes plays an important role in mobility decisions, it is in the contexts in which the country, community or household is socioeconomically vulnerable and lacks adaptive capacity to cope with natural hazards that voluntary and forced migration are more likely to occur (Figure 3).

Figure 3. Contribution of exposure, vulnerability and adaptive capacity to migration and displacement.
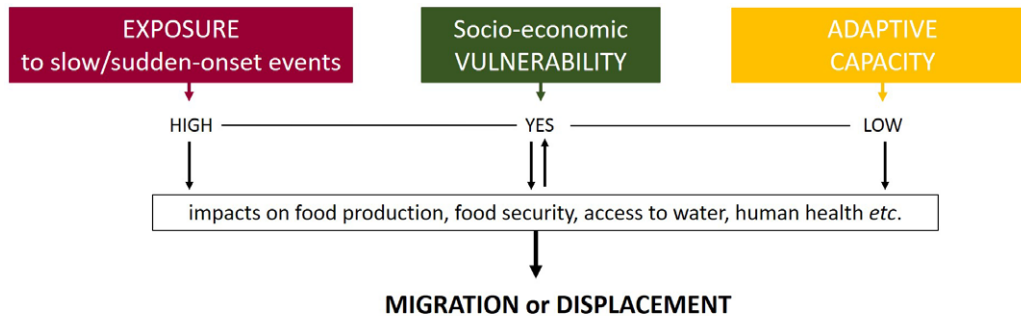
2.2.1 Exposure of societies to natural hazards

People have always depended on the environment and on nature's resources (Ionesco et al. 2017). Environmental change, including climate change, impacts, among other things, food security, food production, nature-based livelihoods including agriculture and human health in different ways. Its impacts are both short-term, resulting from more frequent and more intense extreme weather events, and long-term, caused by sudden-onset events (FAO 2008; Piguet 2020). While many empirical studies very often distinguish between slow- and sudden-onset events, another distinction should be made between direct and indirect links. A direct link occurs when displacements are caused by the destruction of resources (water, food, etc.) or capital (houses, infrastructure, etc.). There is an indirect link when climate-related events exacerbate conflicts over resources, contributing to violence, which may then incite people to move (Piguet 2019; 2020).

In the 2020 report concerning the state of the global climate in 2019, the World Meteorological Organization (WMO 2020: 29-30) stated that "more than 6.7 million new internal disaster displacements were recorded between January and June 2019, triggered by hydrometeorological events generating acute humanitarian and protection needs […] Of all natural hazards, floods and storms have contributed the most to displacement recorded in 2019, followed by droughts". The fifth report of the Intergovernmental Panel on Climate Change (IPCC) in 2014 underlined three consequences of climate warming which appear to be the main causes of human mobility (Gemenne 2011; Piguet 2020):

1. Increase in strength of tropical hurricanes
2. Growth in the number of droughts
3. Sea level rise.

Next, this section briefly introduces these most threatening potential causes of migration and displacement.

WHAT ARE THE RCPS USED FOR CLIMATE PROJECTIONS?

The Representative Concentrations Pathways (RCPs) were first time used in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) in 2014. The RCPs are scenarios that include time series of emissions and concentrations of the full suite of greenhouse gases (GHGs) and aerosols and chemically active gases, as well as land use/land cover. They usually refer to the portion of the concentration pathway extending up to 2100.

	Emissions	Description	Temperature increase (2081-2100 average)	Adaptation required
RCP 2.6	low	Radiative forcing reaches 3.1 W/m2 before it returns to 2.6 W/m2 by 2100. Ambitious greenhouse gas emissions reductions would be required over time	1.0°C	less adaptation
RCP 4.5	intermediate	Radiative forcing is stabilised shortly after year 2100, consistent with a future with relatively ambitious emissions reductions	1.8°C	
RCP 6.0	intermediate	Radiative forcing is stabilised shortly after year 2100, which is consistent with the application of a range of technologies and strategies for reducing greenhouse gas emissions	2.2°C	
RCP 8.5	high	Increasing greenhouse gas emissions that lead to high greenhouse gas concentrations over time	3.7°C	more adaptation

Sources: data collected from IPCC (2014), CICERO (2015), and CoastAdapt website

2.2.1.1 Tropical cyclones

Tropical cyclones vary in intensity and include tropical depressions, tropical storms and hurricanes. Recent studies forecasting the future global activity of tropical cyclones have shown that, while the frequency of tropical cyclones will decrease, the frequency of very intense tropical cyclones (categories 4–5) will increase under the RCP 4.5 scenario (Knutson et al. 2020; 2015). These forecasts indicate that by the end of the 21st century, the East Pacific will see more tropical cyclones than today, while elsewhere the number of tropical cyclones will decrease, particularly in the West Pacific and the Indian Ocean. The number of tropical cyclones of high intensity

(categories 4–5) is projected to increase in the West Indian Ocean and North Pacific and Atlantic, especially in the East Pacific. Globally, fewer tropical cyclones are to be expected, but more hurricanes and typhoons (high intensity cyclones) will occur.

Hurricanes and typhoons (i.e. category 4 and 5 cyclones) and the associated floods and storm surges manifest themselves in a brutal and direct manner, which leads to the displacement of populations. On the question related to temporary or permanent displacement due to tropical cyclones, studies have contradictory results. While some have observed that displacements tend to be temporary and over short distances—the victims with few resources for long-distance mobility return to live in the disaster zone—others acknowledge that **disasters result in both temporary and permanent displacement**, and in both proactive and reactive displacement (Gemenne 2011; Piguet 2020).

2.2.1.2   Droughts, desertification and floods

Droughts can cause water stress, land degradation, desertification and wildfire, and they affect the quality of soil, air and freshwater biomes. Consequently, drought severely impacts agriculture and water resources, causing substantial economic losses and, in extreme cases, migration and displacement. Previous research (Vicente-Serrano et al. 2020) has suggested that climate change will increase the severity of droughts due to changes in precipitation. According to maps published by Vicente-Serrano et al. in 2020, soil in the majority of North and South America, Africa, Europe and Western Asia is projected to get drier by 2100 under the emission scenarios RCP2.6, RCP4.5 and RCP8.5.

Difficult access to water resources is one of the consequences of drought. The IPCC forecasts that "freshwater availability in Central, South, East and Southeast Asia, particularly in large river basins, is projected to decrease due to climate change which […] could adversely affect more than a billion people by the 2050s" (IPCC 2007: 13). Both RCPs 4.5 and 8.5 scenarios suggest an increase in desertification risk level between 2000–2014 and 2086–2100 in many regions of the world. A recent study predicts that desertification risk will especially increase in Africa, North America, India and the northern areas of China (Huang et al. 2020).

Many researchers strongly agree that the direct link between drought and migration is not straightforward and depends on a wide range of factors (Gemenne 2011; Piguet 2020). **Drought is often considered to be one of several factors that influence displacement decisions**. If migration occurs, it is often short-term rural to rural migration. Drought does not seem to cause long-distance and cross-border mobility (Piguet 2020).

2.2.1.3 Sea level rise

"Sea level rise is one of the greatest climate threats that are likely to affect populations and cause migration in the future" (Ionesco et al. 2017: 50). In fact, sea level rise is probably the most obvious consequence of climate change with regard to environmental migration (Gemenne 2011). The increase in sea levels results from both melting ice from glaciers and ice sheets, which add water to the oceans, and from water expansion due to the warming of sea waters (Lindsey 2020; Piguet 2020). The 2014 IPCC report (Church et al. 2013: 105) predicts that it is "virtually certain that global mean sea level rise will continue beyond 2100, with sea level rise due to thermal expansion to continue for centuries to millennia".

On the basis of the scenario of a global sea level rise of 0.3–1 metres (Ionesco et al. 2017), it seems reasonable to conclude that 150 million people living at an altitude of less than one metre will be directly vulnerable during the next century (Piguet 2020). Future extreme sea level projections show that the most vulnerable coastal areas (up to 9 m above sea level) will be the Atlantic coasts of Europe, the Pacific and Indian coasts of Asia and the northernmost coastal regions of Australia. Modelling studies project that the population potentially exposed to episodic coastal flooding will increase from 128–171 million to 176–287 million in 2100 under the RCP8.5 emission scenario. Significant change in episodic flooding by the end of the century is found to be mostly concentrated in Western Europe and in Asia (Kirezci et al. 2020). In addition to these, the highly populated delta areas of South Asia (Indus, Ganges, Brahmaputra, etc.) and East Asia (Mekong, Yangtze, Pearl River, etc.) account for three-quarters of the population at risk (Piguet 2020).

Researchers agree that the **potential for migration linked to an increase in sea level is considerable**. Rising sea levels could make human mobility the only possible option for the affected populations (Piguet 2020).

2.2.2 Main societal drivers

In addition to environmental drivers, people are greatly affected by various societal drivers, which impact the need, desire and ability to move. In this sub-chapter, some important, but not all, societal drivers are introduced. Societal drivers include demographic and health-related, economic and technological, political, and social and cultural aspects. In addition, there are personal and household-related factors which can intervene in the decision-making and practical realities of migration and displacement. Societal drivers function at the micro, meso and macro levels. In other words, migration policies at the state level, for instance, can influence migration movements at the regional, community, household and individual levels in practice. Influencing the societal drivers through policies, development cooperation,

humanitarian aid or practical partnerships, for example, can promote and/or prevent mobility and immobility.

2.2.2.1 Demographic and health-related drivers

Climate and environmental change-related events and disasters cause the degradation of resources, which directly affects people's food and water supply, land use and ability to earn a sufficient livelihood. Many of the countries that are least able to cope with the effects of climate change are experiencing high **population growth** rates. The world's population is estimated to increase from 7.7 billion in 2019 to 8.5 billion in 2030, and further to 9.7 billion in 2050 and to 10.9 billion in 2100 (UN-DESA 2019a). For example, the population of sub-Saharan Africa is projected to double by 2050 (UN-DESA 2019a). As the population increases, a growing number of people live in areas prone to hazards. **Population pressure and its distribution** creates more competition for fertile land, access to employment and possibilities for earning a livelihood. Challenges in land ownership and land grabbing[1] can add to the pressure to move. Even though migration from rural to urban areas can also be seen as a phenomenon connected to modernisation in underdeveloped countries and as a move away from subsistence agriculture, it is strongly linked to climate and environmental changes.

Along with population pressure, **urbanisation** is increasing and people suffering from environmental changes are looking for opportunities and alternative income in urban centres. Globally, more people already live in urban areas than in rural areas, with 55 per cent of the world's population living in urban areas in 2018 (UN-DESA 2019b). By 2050, 68 per cent of the world's population is predicted to be urban, with the most rapid growth taking place in Africa and Asia (UN-DESA 2019b). In many parts of Africa there is a high dependence on agriculture and an already highly variable and often marginally suitable agro-climate that increases the risk of climate change impacts for agriculture. Even though improved seeds and increased irrigation may mitigate the risk, the technological change in Africa has been slow. For many farmers facing adverse climatic conditions, the only option may be migrating to urban areas. Analysis by Henderson et al. (2017) suggests that agro-climatic conditions influence urbanisation rates, with better conditions retarding urbanisation and unfavourable conditions leading to greater urban population growth. Climate-related mobility from rural areas to cities often involves the impoverished, who are forced to move to densely populated areas and the outskirts of the cities where infrastructure is often

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[1] Land grabbing can be defined as "being the control (whether through ownership, lease, concession, contracts, quotas, or general power) of larger than locally-typical amounts of land by any person or entity (public or private, foreign or domestic) via any means ('legal' or 'illegal') for purposes of speculation, extraction, resource control or commodification at the expense of peasant farmers, agroecology, land stewardship, food sovereignty and human rights" (Baker-Smith & Miklos-Attila 2016: 2).

inadequate and settlements have been affected by environmental disasters such as tropical storms and landslides. Consequently, people's vulnerability to environmental hazards in terms of health, security and livelihood may even increase by secondary or tertiary movement away from areas affected by climate and environmental changes.

Age can be a factor in migration. For instance, younger people are more likely to move due to potential employment opportunities. An ageing population may affect the demand for jobs and employment opportunities, and hence the perceived attractiveness of an area. However, age can also prevent mobility and contribute to immobility.

The **health** impacts of climate change will be harmful and will occur via direct exposure, such as through more frequent heatwaves and extreme weather events (McMichael & Lindgren 2011). Higher temperatures and heatwaves are likely to increase heat stress, respiratory illnesses and heat-related deaths. Even when the number of cold-related deaths is projected to decrease, net climate-related mortality is likely to increase (Kemp & Palinkas 2015). Most of the impacts of climate change on physical, ecological and social systems will affect human health via changes in food yields, freshwater flows and quality, stability of infectious disease patterns, air quality, social cohesion, and family income and livelihoods (McMichael et al. 2012). The lack of food and the quality of food available impact **nutrition** and can cause, among other consequences, the stunting of children. Several **infectious diseases**, including malaria, dengue fever and tick-borne borreliosis and encephalitis, are expected to change in their geographical and seasonal patterns—worsening in some areas and occurring in new areas. In addition, the uneven distribution of **health services** in many countries can impact migration. Better health services in cities can function as a pull factor to urban centres. These health-related issues can make some geographical areas less and some more appealing, thus promoting migration.

Another serious health concern causing migration is **air pollution**. WHO (2015a:148) estimates that globally air pollution contributes to some seven million premature deaths each year. How anticipated climatic changes will influence air pollution is clearly of critical concern. Air pollution is a complex problem with much local and regional variation. Migration and displacement caused by air pollution is not a problem for cities alone. Due to their physical geography smaller towns may also suffer from high air pollution (Akhtar & Palagiano 2018). **Water pollution and salinity** also cause major health problems and affect the availability of clean drinking water. Movement related to climate and environmental changes is likely to result in adverse health outcomes, both for those who move and for host populations, particularly in situations of displacement. When discussing the health impacts, it is important to take into consideration **mental health challenges** caused by climate and environmental changes, especially in cases of displacement. Mental health contributes to the well-

being of families and communities and can affect the decision to migrate when, for example, in search of health services. In general, where voluntary migration is used as an adaptive strategy, health risks are likely to be minimised. In some cases, there will be health gains (McMichael et al. 2012).

2.2.2.2 Economic and technological drivers

It is challenging to predict the exact effects of climate change on economic drivers of migration, such as **income differentials and income variability**. However, it is likely that climate change-related environmental impacts lead to a reduction in income and in the ability to rely on an income. This then can either promote mobility or immobility, depending, for example, on the availability of opportunities and household characteristics. The economic drivers of migration can be examined through three perspectives. First, people move due to wage differences between two areas, such as rural and urban or two countries. Secondly, a potential migrant considers the wage differential against the unemployment probability and their subjective discount rate when deciding to migrate or not to migrate. Thirdly, migration is seen as a family strategy rather than an individual's decision. Here the family strategy aims at both maximising expected earnings and reducing the risk of consumption failure by diversifying income sources across sectors or so-called agro-zones (Lilleør & Van den Broeck 2011). As Lilleør and Van den Broeck (2011: 79) state, "reducing fluctuations in agricultural production and overcoming market imperfections in the rural sectors will be important for increasing resilience to climate change". New agricultural technologies, the development of drought-resistant crops, better water access and irrigation can contribute positively to the development and allow people to stay in place. Also, the introduction of microfinance schemes providing micro credit, micro savings and micro insurance can play an important role. When **safety nets** such as pensions, food distribution, birth and death allowances, housing subsidies and other allowances are available, they can affect the decision to move. If safety nets are linked to specific places which no longer support the livelihoods of poor people, such people may decide to stay. However, if modern technologies can help simplify access to these benefits, this can promote the mobility of those affected by climate and environmental changes (Hallegatte et al. 2016: 161).

According to Hallegatte and Rozenberg (2017), the two most important channels through which climate change affects **poverty** are the effect of agriculture prices on consumers and the health impacts through malaria, diarrhoea and stunting. Looking at economic metrics such as GDP does not give the full picture on the influence of climate change on poor people who may have almost no impact on national income, and economic growth is not the only channel through which climate change can affect poverty. For example, it has been shown that poor people may be heavily affected by climate change even when impacts on the rest of the population remain limited

(Hallegatte & Rozenberg 2017). Poor people are more vulnerable to environmental shocks, tend to lose more relative to their wealth compared to the better-off and, when they are affected by a shock, they tend to receive less support from friends and family, the financial system and social safety nets. Climate change is a poverty multiplier: it makes poor people poorer and it increases the poverty headcount. Poverty reduction can take place when the effects of climate change on, for example, agricultural productivity and food prices are targeted. Not all poor people, especially the poorest, are able to migrate; however, if they are, migration can help poor households and individuals by providing employment opportunities, higher wages and access to education and services.

Remittances from migrant workers and diaspora[2] alleviate poverty in lower- and middle-income countries. Remittances in value are three times larger than the official development assistance (ODA) (Barne & Pirlea 2019). Remittances to lower- and middle-income countries reached a record USD 554 billion in 2019. However, due to the economic crisis caused by COVID-19, remittances were expected to decline by 20 per cent in 2020 (World Bank 2020a). In times of environmental shocks, remittances provide a significant financial buffer for poorer people. The significance of diaspora is important in sending remittances and development aid to home areas or their families' native countries also after sudden-onset disasters such as tropical storms. When climate change impacts land fertility or food security, families may send a member to work in a city or abroad for the benefit of the family. Families in the place of origin can improve nutrition, send children to school and develop their communities by money received as remittances.

Remittances help small and medium enterprise growth. Remittances are also used to meet environmental change-related challenges. They can be invested to ensure a better income; for example, by improving farm technologies. For many people in rural areas, remittances make investment possible, which helps them maintain a variety of income activities that protect them against expected climate change impacts such as a poor agricultural or fishing season. Musah-Surugu and colleagues (2018) show that "there is evidence that remittances absorb part of the economic losses owing to climate-related natural disasters, thereby lessening relief services required from local and central government". However, remittances should perform a complementary role and not be seen as a replacement for public investment. A fall in remittances forces families and individuals to concentrate on obtaining food and immediate livelihood needs rather than investing in education or technological development. There is a call

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[2] Diaspora refers to migrants or descendants of migrants who identify with a 'homeland' but live outside of it, and whose identity and sense of belonging have been shaped by their migration experience and background.

for decreasing transfer prices for sending remittances, which would allow families to consume, save and invest more in their local economies. This can contribute positively to staying in place and investing in technologies that prevent or diminish the impact of climate and environmental changes. Remittances contribute to adaptation to climate change, which means migration and displacement may be prevented or delayed for those receiving them.[3]

The role of **energy** is often absent in the discussion on climate change-related movement. However, prior to the COVID-19 crisis, energy demand was projected to grow by 12 per cent between 2019 and 2030 (IEA 2020). Access to energy services might indirectly influence the decision to migrate. This can take place in relation to: 1) other established drivers such as food insecurity or lack of access to sufficient resources, basic infrastructure, such as roads, water and sanitation, and social services, including health care; 2) the livelihoods of farmers and the self-employed, such as when the lack of reliable and decently priced energy limits productive activities; 3) social and economic development opportunities where energy access can help improve education and skills and the productivity of business activities; and 4) resilience to natural hazards, as easily deployable renewable energy technologies could allow communities to be prepared and recover more swiftly (Scott et al. 2018). As stated by Scott and his colleagues (2018) "the informal or irregular status of many migrants is a barrier to universal access to modern energy services. Migrants in informal settlements and displaced people often experience a worsening in their access to modern energy services". In addition, energy challenges can cause further displacement in refugee and internally displaced camps if residents are dependent on energy sources like firewood, which is not available nearby. With nearly 2.4 billion people relying on **firewood and charcoal (woodfuel) for cooking**, woodfuel is by far the most commonly used solid fuel. Cooking over open fires or inefficient stoves typically entails burning fuels like wood, charcoal, coal and kerosene, which releases harmful, climate-warming emissions and causes health problems. **Clean cooking** is vital to combating global climate change and reducing environmental degradation and health problems (Clean cooking alliance 2020). Clean cooking and sustainable energy sources can influence the need for moving in times of environmental degradation.

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[3] Mohamoud et al. (2014) suggest that cost-effective remittance transaction systems also as a contribution to climate adaptation and national funding systems such as national remittance funds, as well as tax redemption for such transactions, should be built up. Developing investment channels targeted at diaspora communities to actively invest in low carbon options in Africa and elsewhere should be considered.

2.2.2.3 Political drivers

The political drivers of migration and displacement include **discrimination and persecution**, **lack of rights** and freedoms and **direct coercion**. In addition, **political inclusiveness** and **migrant integration** into the community function as political drivers. **Migration, climate, environment, development and other sectoral policies and incentives** within states and in places of origin, transit and destination can promote or prevent mobility. Immobility can be a choice that is enabled by policies, while restrictive or maladaptive policies can also be a "trapping factor" that limits people's abilities to move (Zickgraf 2019). Policies on urban development and housing costs linked to natural risks, such as stricter norms on building or restrictive flooding zoning, can impact mobility. Increased crime and violence or civil unrest can cause **insecurity**, which leads to or prevents moving. The global discussion on burden sharing and climate justice (see Mohai et al. 2009; Meyer & Roser 2010), once they become policies and actions at the regional or local level, can affect people's decision to move.

Various forms of **conflict** can especially drive displacement (Krieger et al. 2020). These include inter-state conflict, but it is more likely that a conflict within states, such as civil war, communal violence, genocide and politicide lead to mobility. There is no consensus on how much climate change contributes to conflicts and how much climate change and conflicts contribute to migration and displacement in practice (Thalheimer & Webersik 2020: 59). However, it has been shown that environmental conflicts emerge as clashes over access to non-renewable resources, in connection to the (over)exploitation of renewable resources, as conflicts between competing land uses or environmental services and as distributional conflicts over the inequitable allocation of environmental hazards and burdens. Environmental conflicts begin due to resource scarcity, environmental abundance or due to environmental degradation. Climate change-related conflicts are predicted to increase (Krieger et al. 2020). Global and local cooperation in climate and environmental changes and related migration and displacement issues can benefit from approaches of **peace** and **partnership** rather than conflict-related security thinking (e.g. Barnett 2019). For example, environmental peacebuilding, which refers to building more peaceful relations through environmental cooperation, natural resource management, climate change adaptation and disaster risk reduction, can contribute to people's ability to stay in place, whereas conflicts often act as drivers of mobility.

A central question in climate change-related movement is connected to **land** and **land tenure**. Land provides the principal basis for human livelihoods and well-being, including the supply of food, freshwater and many other ecosystem services and biodiversity. Land is both a source and a sink when it comes to greenhouse gases. Good land governance and secure land tenure are fundamental in sustainable and

equitable development. However, in many countries, large numbers of people in rural and urban communities are without adequate access to land or lack legal proof of ownership of their land. Insecure land tenure exacerbates vulnerability to environmental and climate-related hazards, both directly and indirectly. The lack of documents to prove ownership of land can influence the desire to invest in land and climate adaptation measures in the long run as there is a fear of losing it. When land tenure is included in adaptation strategies and actions, it will increase the likelihood of acceptance and ownership of measures by affected communities (UN-Habitat 2019; IPCC 2020). Decision makers and authorities need to take into account that land also plays an important role for indigenous people whose identity and existence is closely connected to the land. This can be a factor concerning voluntary immobility in areas affected by climate change.

2.2.2.4 Social and cultural drivers and intervening factors

There are social and cultural drivers that can encourage mobility or immobility. **Lived values**, such as belongingness (e.g. community spirit, sense of place and traditional heritage), esteem (e.g. social status and pride) and self-actualisation (e.g. spirituality and aspiration), can be affected by climate and environmental-related changes and also impact decision making on moving (Graham et al. 2013). **Human capital**, such as skills and knowledge, and **social capital**, including social connectedness and citizen power, can promote or prevent moving. In relation to migration in general, **education** and **capacity-building** as well as **social networks** are especially often given great emphasis in decision making related to mobility. Education and capacity-building opportunities elsewhere can lead to migration, but the lack of education, such as illiteracy, can keep people in place due to their inability to receive and analyse the information needed for migration. Social networks are a set of interpersonal ties that connect mobile people like migrants and refugees with other people, including members of diaspora and non-migrants, through friendship, kinship and shared community origin. Social networks can help in obtaining work, advice and different types of support (e.g. financial, spiritual) when living in a place becomes difficult or there is a need to move in order to assist one's household in gaining a livelihood. However, social networks or the lack of them can also prevent mobility.

Social media and social gatherings assist people in gaining information on moving and its practical perspectives, as well as on the experiences of those who have been displaced or migrated elsewhere (Merisalo 2017). Many families have relatives living somewhere else, so they are familiar with aspects of living in cities or abroad and the possibility of maintaining their own lifestyle there. **Social and cultural norms**, which contribute to access, political power and equality —including gender norms, social differentiation, exclusion and discrimination— can also impact decision making. Family and cultural expectations, cultural practices regarding inheritance and the

need to acquire funds for dowries or bride payments can function as social drivers, which need to be considered alongside the effects of environmental change when contemplating migration options. **Reuniting with family** and **personal property damage or loss** may be a motivation for migration, such as after sudden-onset disasters.

Personal and household-related factors can interfere in the importance of drivers in the decision making. **Marital status, gender, wealth, ethnicity, language** and **religion** are some of the characteristics that may influence mobility (Black et al. 2011). **Maintaining sovereignty, cultural identity, self-determination** and **territorial rights** can also be significant factors when thinking about moving due to climate and environmental changes. A **strong bond with land, ancestral burial sites, cultural traditions** and **home** are important and may prevent moving. For many, entire communities relocating abroad is seen as an option of last resort. When there is a need to move, moving locally compared to international relocation is often preferred by residents and the authorities as this allows people to more easily continue following their cultural and social traditions and practices (Niemi 2020).

2.3 Vulnerability

Vulnerability, which in short refers to the exposure and adaptive capacity of people, is not static but can vary according to time and place. As Lama et al. (2020) describe, vulnerability is something that has been historically produced over time, putting some at higher risk than others when facing, for example, the same natural hazard. It is contextually produced and reproduced over time among households and groups in the course of their active engagement with their physical and social environment. In addition to individuals and groups of people, geographical areas can also be vulnerable. Physical geography and human-induced actions can affect the vulnerability of areas such as rural and urban spaces, but also places such as refugee and internal displacement camps.

2.3.1 Risks and resilience of individuals and groups

Vulnerability can be shaped by, for instance, social, political, economic and physical factors such as social inequality, disabilities, health, age and ability to migrate. Some groups and their characteristics are often identified to contribute to vulnerability more than that of some other groups in connection to climate and environmental changes related to movement. These vulnerable groups are: the **impoverished** (urban and rural); gendered groups such as **young men**, **women** and **girls**; age groups such as **seniors** and **children**; particular groups such as the **disabled** and **indigenous**

people; and those connected to mobility and place, such as **trapped populations, people who are displaced multiple times** due to climate change impacts or for other reasons, and **people without citizen rights** (Bates 2020; Niemi 2021). A **community** can also become vulnerable, for instance, in connection to not wanting to be relocated or after having moved with a badly planned relocation.

Environmental factors including recurrent hazards or gradual environmental degradation can affect vulnerability by, for instance, deteriorating livelihood possibilities. Those who are already vulnerable and have fewer means to respond to environmental, social and other shocks and stresses, suffer the greatest impact and have the highest risk of displacement (Ionesco et al. 2017: 36–37). Many times, the impoverished and wealthy have different possibilities when it comes to coping in, for instance, sudden-onset events like cyclones. Those with no resources may not be able to return to their homes from evacuation or displacement as they have no source of income or possibility to rebuild their homes, whereas those with more resources are able to do so. The wealthy also have better possibilities in finding ways to attend health care and education even if these have been affected by a hazard and are not available to those with fewer resources. Remittances are an important source of income for many in the place of origin, but the poorer tend to receive less remittances and are therefore more vulnerable in times of crisis (Majid et al. 2017).

A **community relocation** refers to a permanent or long-term movement of a community or a significant part of it from one location to another while important characteristics of the original community, including its social structures, political and legal systems, cultural characteristics and worldviews are retained (Campbell 2012). A planned relocation of vulnerable communities impacted by climate change is increasingly regarded as a potential strategy to decrease exposure to climate-related events (Arnall 2019). However, it is often considered a last resort when there are no other options left. A planned relocation can leave individuals and communities more vulnerable if it has not been properly planned (Walelign & Lujala 2020). Relocated people become more vulnerable when they are not able to adjust to the new place and way of life, especially when a hosting community is hostile and does not accept the idea of a new community moving in or when relocated people have no possibility of supporting a livelihood or practising their traditions, language and way of life. This has been the case, for instance, in some rural to urban relocations. An important part of a properly planned relocation is that the voices of those being relocated and those hosting or neighbouring the relocated community are heard (Lujala et al. 2020). This can be considered consistent with the idea of a human rights approach to adaptation and relocation (Palander 2020). Especially in cases where communities or families do not want to be relocated, policymakers and those implementing policies are faced with the requirement of balancing between the right to stay of individuals, households and communities and people's health and survival. Therefore, supporting and conducting

peaceful negotiations and finding the best solutions for all is of the utmost importance. In case of planned relocations, the rights of people should be respected and protected (Niemi 2020).

Even if people are vulnerable, they can still have **agency** and be resilient[4], which may improve their situation in relation to climate change and its environmental impacts (e.g. Bates 2020). Also, different types of political, economic and social changes and policies may assist in altering the vulnerability of these individuals, groups and communities. Identifying the causal structure of vulnerability and potential policy responses can be a basis for developing a broad vulnerability reduction strategy (Ribot 2010). Vulnerable groups should be taken into consideration in policy formation and practical actions before, during and after migration and displacement induced by climate and environmental changes. A resilience approach, which can offer a useful way of thinking about and implementing development work, can assist in reducing vulnerability and strengthening the resilience of individuals, households and communities. The resilience approach has been considered essential in contributing to the delivery of the Sendai Framework, the Sustainable Development Goals and the Paris Climate Agreement when dealing with vulnerable individuals and groups through development projects and programmes. To change vulnerability to resilience, perspectives such as understanding and adapting to future uncertainty, effective responses to shocks and stresses, livelihood security with investment for the future and good governance need to be taken into account (Pasteur & McQuistan 2016).

2.3.2 Vulnerable countries and regions

2.3.2.1 Indices as tools for practitioners

Several research groups have established different indices based on various variables that serve as tools for policymakers and practitioners to make decisions on issues in relation to environmental matters and climate change. For the sake of the ILMASI project and this report, we have chosen the EU INFORM Risk Index. Figures 4a-d show that the total vulnerability of a country does not depend on a single factor but rather on the combination of factors, such as the levels of exposure to natural hazards (value 1/3), socioeconomic vulnerability (value 1/3) and the lack of coping capacity (value 1/3) (Table 1). The Inform Risk Index is a suitable tool for evaluating climate migration and displacement that usually result from the combination of different environmental, political, economic and social factors and drivers.

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[4] Resilience can be defined as the "ability of a system, community, or society to pursue its social, ecological, and economic development and growth objectives, while managing its disaster risk over time in a mutually reinforcing way" (Pasteur & McQuistan 2016: 5).

The risk profiles for every country need to be carefully interpreted. The examination of both natural and societal risk factors through which the INFORM Risk Index scores are formed is important for identifying the risk areas of environmental and climate-induced migration and displacement. Some countries with a high risk score may have moderate natural hazard and exposure risk but high human vulnerability, and vice versa. High social-economic vulnerability is often interlinked with a lack of coping capacity. For example, the Central African Republic has a nature risk range 3.1 (lower than some EU countries), but the combination of a high human vulnerability score with a lack of coping capacity increases the level of risk. The index result and risk profile for every country are revised and published twice a year and they provide support to many EU policy initiatives, including climate change adaptation, disaster risk reduction and resilience and humanitarian initiatives, etc. (Marin-Ferrer et al. 2017).

INDICES SERVE AS TOOLS FOR POLICYMAKERS AND PRACTITIONERS

The Index for Risk Management (INFORM Index) piloted by the Joint Research Center of the European Commission is a global, open-source risk assessment for humanitarian crises and disasters. Four products are operational or in preparation: INFORM risk, INFORM severity, INFORM warning and INFORM COVID-19. The INFORM Risk Index is an effective tool for identifying countries at risk (a total of 191). It is made up of three dimensions: hazards and exposure, vulnerability and the lack of coping capacity.

The Notre Dame Global Adaptation Initiative Index (ND-GAIN) from the University of Notre Dame, USA, considers a country's vulnerability to climate change and other global challenges (see Notre Dame Research 2021). The current ranking of 181 countries is based on data released in 2018.

The Climate Change Vulnerability Index (CCVI) from the global risks advisory firm Maplecroft evaluates 42 social, economic and environmental factors to assess national vulnerabilities of 193 countries (see Verisk Maplecroft 2021).

The Global Risk Index from the NGO Germanwatch analyses the extent to which countries have been impacted by weather-related events (see Germanwatch 2021). It also considers human fatalities and economic losses; however, the Global Risk Index is less comprehensive than the ND-GAIN and CCVI indices.

The level of vulnerability of countries to climate and environmental changes differs quite a lot depending on the natural hazards they have to cope with, their socioeconomic situation and their coping capacity. The differences and disparities are illustrated through the introduction of six vulnerable countries. They all present either a "high" or "very high" overall level of vulnerability, and quite different when compared to Finland, which is ranked 187 out of 191 (see Table 1).

A detailed analysis was conducted for the Federal Republic of Somalia, the Islamic Republic of Afghanistan, the People's Republic of Bangladesh, the United Mexican States, the Republic of Sierra Leone and the Republic of Kiribati. The choice of these six countries is based on different factors: 1) the variety of natural slow- and sudden-onset events; 2) the geographical distribution of those countries, covering different parts of the world; 3) the diversity of human mobility; and 4) the relationships between Finland and some of these countries. In addition to an overview of these factors, a few examples of country-specific adaptation strategies and means as well as continuances are provided in each case.

Figure 4a.   Level of exposure to natural hazards includes also geophysical disasters. Data source: INFORM Risk Index 2021.
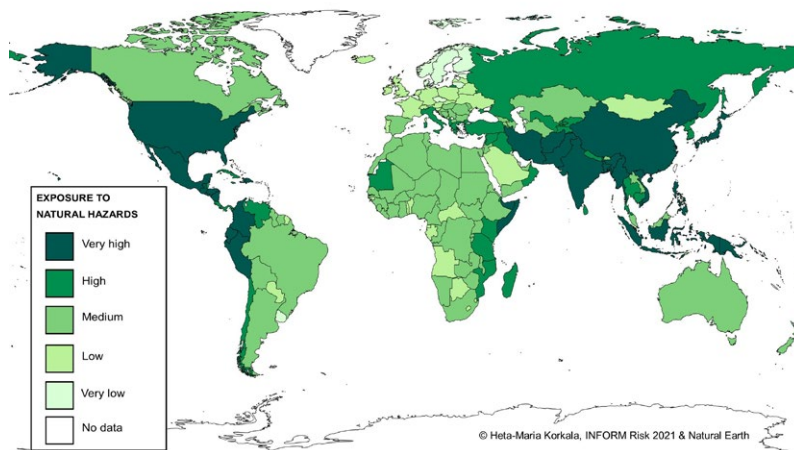
Figure 4b.   Socioeconomic vulnerability. Data source: INFORM Risk Index 2021.
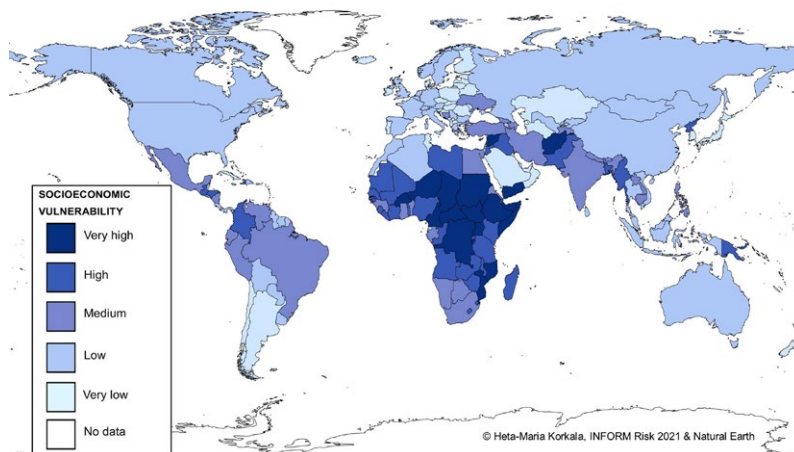
Figure 4c. Lack of coping capacity. Data source: INFORM Risk Index 2021.
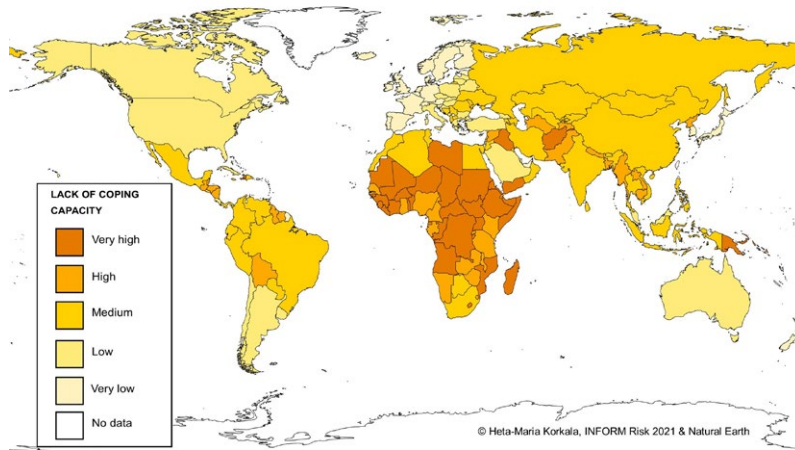
Figure 4d. Overall vulnerability. Data source: INFORM Risk Index 2021.
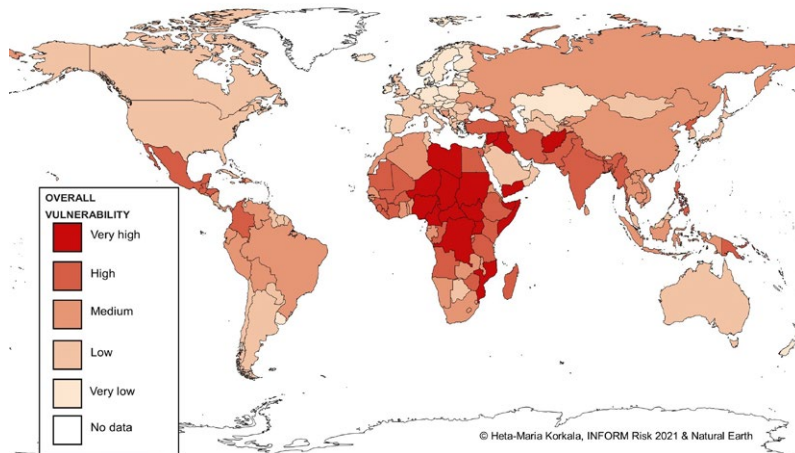
Table 1.   INFORM Risk Index for the six chosen vulnerable countries and Finland.

	Somalia	Afgha-nistan	Bangla-desh	Mexico	Sierra-Leone	Kiribati	Finland
Earthquake	1,6	9,7	9,2	8,6	0,1	0,1	0,1
Flood	7,5	7,2	10,0	7,2	4,6	0,1	0,1
Tsunami	8,1	0,0	8,2	6,6	5,8	8,7	0,0
Tropical cyclone	1,0	0,0	6,9	7,7	0,0	0,0	0,0
Drought	10,0	8,4	4,7	3,3	1,0	3,8	1,9
Epidemic	6,3	6,9	7,6	4,9	7,7	4,5	1,1
Natural	**6,9**	**6,7**	**8,2**	**6,7**	**3,9**	**3,8**	**0,6**
Projected conflict risk	10,0	10,0	9,3	10,0	5,6	0,0	0,0
Conflict intensity	10,0	10,0	0,0	9,0	0,0	0,0	0,0
Human	**10,0**	**10,0**	**6,5**	**9,0**	**3,9**	**0,0**	**0,0**
HAZARD & EXPOSURE	**8,9**	**8,9**	**7,4**	**8,1**	**3,9**	**2,1**	**0,3**
Development and deprivation	9,7	8,6	6,7	4,1	9,2	6,4	0,0
Inequality	x	7,7	4,5	4,8	5,7	3,0	0,7
Economic dependency	8,5	5,1	1,2	0,4	3,6	7,8	0,1
Socio-economic vulnerability	**9,3**	**7,5**	**4,8**	**3,4**	**6,9**	**5,9**	**0,2**
Uprooted people	10,0	10,0	7,7	6,6	0,8	0,0	5,0
Health conditions	1,9	2,1	2,0	0,6	6,4	8,2	0,1
Children U5	7,2	4,5	3,6	1,0	5,6	3,7	0,1
Recent shocks	10,0	7,2	4,0	0,0	0,1	0,0	0,0
Food security	8,6	7,8	4,1	1,7	6,6	0,9	1,2
Other vulnerable groups	7,9	5,8	3,5	0,8	5,1	4,1	0,4
Vulnerable groups	**9,2**	**8,7**	**6,0**	**4,3**	**3,2**	**2,3**	**3,0**
VULNERABILITY	**9,3**	**8,2**	**5,4**	**3,9**	**5,3**	**4,3**	**1,7**
DDR	x	6,3	3,0	5,1	3,5	x	2,2
Governance	9,3	8,2	7,0	6,2	7,0	5,6	1,2
Institutional	9,3	7,3	5,0	5,7	5,3	5,6	1,7
Communication	8,0	6,3	5,0	2,5	7,8	5,4	1,6
Physical infrastructure	7,8	7,3	4,9	3,1	8,4	4,1	0,5
Access to health care	9,6	8,3	5,2	3,2	8,2	5,4	0,5
Infrastructure	8,5	7,3	5,0	2,9	8,1	5,0	0,9
LACK OF COPING CAPACITY	**8,9**	**7,3**	**5,0**	**4,4**	**6,9**	**5,3**	**1,3**
INFORM RISK	**9,0**	**8,1**	**5,8**	**5,2**	**5,2**	**3,6**	**0,9**
RISK CLASS	**Very high**	**Very high**	**High**	**High**	**High**	**Medium**	**Very low**
Rank	1	2	26	34	34	99	187

2.3.2.2   Federal Republic of Somalia

Land area: 627,340 km2

Population: 15,442,905 (2019)

INFORM ranking: 1 out of 191
(very high vulnerability)

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According to the INFORM Index ranking, Somalians are the most vulnerable people in the world to climate and environmental change impacts. Vulnerability is connected to extreme and widespread poverty, food insecurity, conflict, lack of health care and education and economic deprivation. The total population of Somalia is over 15.4 million (2019) (World Bank 2021) and it is expected to grow to 35 million by 2050 (Worldometer 2021).

Somalia is located in the Sub-Saharan region in East Africa, where an arid and semi-arid climate prevails along with periodic monsoons and irregular rainfall. The annual mean surface temperature is close to 30°C throughout the country. The country is characterised by two dry seasons, from December to March (Jiilaal) and from July to September (Xagga), and by two rainy seasons, from April to June (Gu) and October to November (Deyr). Precipitation is generally low and erratic across the country, with an average annual rainfall of about 200 mm except for the south-west (Beier & Stephansson 2012; Ogallo et al. 2017; Nguvava et al. 2019; World Bank Group 2021). In Somalia, around 65 per cent of the population is dependent on natural resources for their livelihood, and close to six million people face food insecurity (NAP 2019; WFP 2020). Consecutive failed rains have prolonged a debilitating dry spell, halting the way of life of many nomads (ICRC 2017; NAP 2019).

Climate projections for Somalia indicate a significant increase in high rainfall extremes in periods leading up to 2050 and 2070, a 0.3–0.7°C increase in temperatures by 2035, seasonal and geographical variations and amplification and intensification of droughts and floods with far-reaching impacts on water access, food security, community safety, energy and health. Recurring droughts and floods are already becoming more frequent and prolonged, making the situation for people worse and causing acute stress on developing economies, such as in Lower Jubba (Ogallo et al.

2018). In 2007–2008, 2011–2012, 2015–2016 and 2016–2017, severe droughts in East Africa caused devastating famines, outbreaks of diseases such as Rift Valley Fever (RVF), resulting in large displacements in Somalia (943,000 in 2017), a ban on the export of livestock from Somalia, massive losses for communities and the economy, and land degradation (Beier & Stephansson 2012; Ogallo et al. 2018; Nguvava et al. 2019).

In the first half of 2020, there were 514,000 displacements due to disasters, compared to 189,000 displacements caused by conflict and violence (IDMC 2020a). There are many intertwined drivers for new and protracted displacement in Somalia, including years of internal conflict, hazards related to climate, food and livelihood insecurity, human rights violations, the state's limited ability and political will to protect and assist IDPs and help them find durable solutions (e.g. Thalheimer & Webersik 2020). Half of the population is living below the poverty line and the country is dependent on international assistance, especially in relation to food insecurity. The need for safe shelter, food, water and pasture for livestock as well as the lack of secure tenure in places of settlement have caused repeated large-scale displacements (IDMC 2021a). Many of those affected by climate-related events are already living in internal displacement camps due to previous displacement caused by conflicts or disasters.

Displacement movement in Somalia is often from rural to urban locations, and inter-urban when IDPs move between cities (IDMC 2021a). As many as 80 per cent of IDPs recorded in 2019 were living in urban centres. For example, in Mogadishu, there are an estimated 800,000 IDPs dwelling in 700 sites across the city. Mogadishu, second on Demographia's 2015 ranking of the fastest-growing cities in the world, has very limited capacity to integrate such a large number of displaced people into its urban system. IDPs move to informal settlements, which lack proper infrastructure and security, and where many suffer from food insecurity and malnutrition (Hujale 2020). Those moving to informal settlements face a high risk of eviction. Forced evictions cause secondary displacement in Somalia, mainly intra-urban displacement when IDPs move to another part of a city. Sometimes, IDPs return home, but often only to work on their land during the sowing and harvesting seasons. It is estimated that by 2030 Somalia will add another 3.8 million residents to its urban areas, and another 11.6 million by 2050, tripling its urban population in the space of 30 years. These estimates could underestimate urban population growth as recent shocks have forced rural Somalis to seek refuge in cities in great numbers (World Bank 2020b: 11).

Somalian diaspora is an important asset in responding and adapting to climate and environmental change and associated natural hazards. In times of crisis, humanitarian organisations face problems in accessing regions and communities in need of assistance. Diaspora humanitarianism, which is based on transnational connections that link diaspora groups with their families and homelands, has become an important

lifeline for communities and families experiencing disasters. Diaspora groups facilitate rapid mobilisation and delivery to hard-to-reach areas when there is an emergency. Online communication platforms, such as WhatsApp, Facebook, Twitter and GoFundMe, are used for maintaining kinship and local ties and as virtual hubs for the mobilisation of assistance and for accountability (Hassan et al. 2021). Also, Somali diaspora in Finland send remittances during emergencies to their families and communities, and also for developing regions and villages in their homeland.

Climate migration in Somalia is interlinked with wider developments in the Horn of Africa and in East Africa. The region has experienced a great number of displacements due to conflicts and natural disasters. Emergencies and conflicts may well be on the rise as there are currently growing tensions in the region. The long-running dispute over the Grand Ethiopian Renaissance Dam (GERD) on the Blue Nile may well start an international conflict between Ethiopia and Egypt, also involving other states, such as Eritrea and Sudan. Ethiopia sees the dam as the key to becoming Africa's largest power exporter. Egypt, which gets more than 90 per cent of its scarce fresh water from the Nile, fears the dam could devastate its economy and effect its control of water access. Widespread political instability in the region can promote individual, community and ethnic tensions over shrinking natural resources, including water, and endanger the entire region's stability and security (see e.g. Vitalis Pemunta et al. 2021). Somalia claims it is neutral in the GERD issue, but its position between Ethiopia and Egypt is difficult (see e.g. Al-Shafi'I Abtadoun 2020). Should the Nile-related conflict begin over water security and governance, it is very likely this will create displacements in various countries in the region.

2.3.2.3 Islamic Republic of Afghanistan

Land area: 652,860 km^2

Population: 38,041,754 (2019)

INFORM ranking: 2 out of 191
(very high vulnerability)

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Afghanistan is one of the most vulnerable countries in the world to climate change
(Kreft et al. 2015; Aich et al. 2017). Afghanistan has high exposure to droughts, floods
and landslides and a low adaptive capacity underpinned by armed conflicts,
widespread poverty and underdevelopment (Aich et al. 2017).

Over 60 per cent of the country is mountainous, with the Hindu Kush mountain range
running from northeast to southwest; however, in the southwestern part of the
country, flatlands with deserts dominate. The country's climate is quite diverse with six
climate regions whose mean annual temperatures range from 0.7°C to 23.3°C. There
is a wide thermal range in Afghanistan that can reach 70°C (-20°C in the glacier
areas; and +50°C in the most arid areas). Annual precipitation varies from 116 mm in
the arid areas to 745 mm in the mountainous areas (Aich et al. 2017).

Climate projections show that the mean annual temperature will significantly increase
in all regions of the country from 1.1°C to 2.9°C by 2050 and from 2.1°C to 3.6°C by
2099 under RCP4.5 scenario, and from 1.6°C to 3.5°C by 2050 and from 5°C to 8.4°C
by 2099 under the RCP8.5 scenario (Aich et al. 2017; Hassanyar & Tsutsumi 2017;
Sidiqi et al. 2018). Regarding projected precipitation, there is no significant trend until
2050. Until 2099, most models indicate a decrease in precipitation (Aich et al. 2017),
especially in the summertime (Hassanyar & Tsutsumi 2017). There is still a high
degree of uncertainty regarding precipitation projections, but increasing
evapotranspiration is likely to exacerbate Afghanistan's already existing water stress,
including a very strong increase in the frequency and magnitude of heatwaves (Aich
et al. 2017).

Afghanistan suffers from one of the world's most acute internal displacement crises due to natural hazards, protracted conflict and ongoing insecurity in the country. Displacement has become a common survival strategy for many Afghans, while for some it is an inevitable part of life for several generations. The situation is further exacerbated by extensive poverty, unemployment, landlessness and a lack of basic services (IDMC 2021b). Natural disasters in Afghanistan cause mainly internal displacement, whereas international migration is boosted by, for instance, unemployment and insecurity. However, the drivers and destinations for migration and displacement can change over time depending on the conditions of individuals, families, communities and different places as well as the availability of humanitarian aid and existing migration policies.

In 2019, there were over 4 million IDPs in total in Afghanistan: almost 3 million due to conflicts and close to 1.2 million due to natural disasters. Two-thirds were displaced in their home province. (Siegel 2020; IDMC 2021b). On average, 250,000 people are annually affected by natural disasters in Afghanistan. These disasters drive the displacement of people, including many who have already been displaced by conflict and violence. People living in areas exposed to natural disasters are made vulnerable due to high levels of poverty and illiteracy, a lack of income-generating opportunities, chronic health problems and poor infrastructure access. The growing frequency and intensity of disasters and insufficient investment in risk reduction strategies bring about even more vulnerability (IDMC 2021b).

 A lack of services, markets and social protection has forced many people to move from rural to urban areas, impacting the rapid expansion of informal settlements in the main cities. Conditions in informal settlements are dire and pose health and protection risks for displaced people. Those internally displaced who settle on government or private land are at heightened risk of eviction and secondary displacement. Many displaced people live in makeshift shelters or in the open air. Inadequate shelter makes people more vulnerable to the impacts of sudden-onset disasters such as floods and increase the risk for secondary displacement. Many displaced people are underage and face protection concerns such as interrupted education, child labour and early marriage. As land rights and proving land ownership are complicated practical issues in displacement situations, the authorities have developed some housing and occupancy certificate programmes to improve the situation (IDMC 2021b).

There are over three million Afghan refugees and asylum seekers in the world (UNHCR 2021c). The majority of Afghans outside their country are currently residing in Iran and Pakistan. Afghan migrants have constituted one of the largest nationalities arriving in the European Union (EU) since 2015, and they also account for one of the largest proportions of asylum claims made in the EU (IOM 2019b). Those migrating to

neighbouring countries such as Iran and Pakistan seem to be less educated than those migrating to the EU. For those migrants who are able to consider their migration destination, according to an IOM (2019b) survey, many Afghans choose to migrate to the EU, Iran and Turkey due to their perceived access to job opportunities, the presence of friends and/or family in the intended destination country, safety or obtaining citizenship at the intended destination. The most common secondary pull factor is the availability of educational scholarships, most notably in Iran. Many Afghans gather information on their destination country via social media and from social gatherings or from family and friends living abroad.

In the past years, there have been large numbers returning to Afghanistan, mainly from Iran and Pakistan, but also some, for example, from the EU and Turkey. In 2016, more than one million Afghans returned, mainly due to pressure from Pakistan. In the period 2016–2018, there were about 2.4 million returnees to Afghanistan as forced, spontaneous and assisted returns. In 2018, while the number of returnees from Pakistan decreased, the number of returnees from Iran reached an all-time high (over 750,000). Due to the COVID-19 situation, many Afghans who have lost their jobs are returning from countries such as Iran (Mixed Migration Centre 2020). When Afghans return, this negatively affects the Afghan economy as remittances decrease and most of the returnees are young men who are unemployed and return to live as internally displaced. Undocumented and involuntary returnees and those who are unable to return to their areas of origin are at particular risk. These returnees tend not to be monitored or assisted because they fall off the radar of humanitarian agencies soon after returning (IDMC 2020a, 2020b, 2021b). Migrants, IDPs and returnees are also vulnerable due to human trafficking. Human traffickers sell people for labour and sex work. Many children and adults are sold for domestic servitude due to unpaid debts (Siegel 2020).

2.3.2.4   People's Republic of Bangladesh

Land area: 145,000 km²

Population: 163,046,161 (2019)

INFORM ranking: 26 out of 191
(high vulnerability)

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Bangladesh is among the 10 most climate-affected countries in the world, and climate change propels these changes through sea level rise and changing weather patterns, the first effects being already felt in coastal Bangladesh (Neumann et al. 2015; Eckstein et al. 2018; IPCC 2019). The low-lying coastal areas of the Bay of Bengal suffer from different types of slow-onset environmental change, of which land degradation due to soil salinisation, drinking water contamination, and biodiversity loss are the most acute (Dasgupta et al. 2015; Hossain et al. 2018, 2019; Islam et al. 2018a). Sudden-onset climate-related threats include frequent riverine flooding and devastating cyclones. Riverbank erosion and flooding together with droughts are the main hazards in inland areas.

Bangladesh has a tropical monsoon climate distinguished by high temperatures, heavy seasonal rainfall and high humidity. Average temperatures vary from 15°C to nearly 34°C throughout the year, April being the hottest month and January the coldest (Hossain et al. 2018; World Bank Group 2021). The warmest months coincide with the rainy season (March–September). Bangladesh is one of the wettest countries in the world, with average annual rainfall fluctuating from 1,500 mm/year in the central part to over 3,000 mm/year in the southeast and northeastern parts of the country (Hossain et al. 2018), some areas receiving as much as 5,800 mm/year of rainfall, and more than 70 per cent of total rainfall occurring during the monsoon (July–September). Bangladesh has also been subject to major and deadly tropical cyclones, which form in the Bay of Bengal during the pre-monsoon and post-monsoon seasons (Alam et al. 2018).

Temperatures are projected to increase by between 1.5 °C and 2.7 °C by the 2060s, and between 2.6 and 4.8 °C by the end of the 21st century under RCP 6.0 and RCP 8.5 scenarios. Rainfall changes are projected to increase of 8–28 per cent by the end of the century. It is also projected that the number of wet days will decrease, but the intensity of heavy rainfall events will increase, which may increase the risk of flash

flooding and changes in freshwater availability (Caesar & Janes, 2018). Sea level rise is a severe long-term threat to the low-lying deltas of Bangladesh, with an estimated rise of 88 cm by the end of the 21st century (MoEF 2005). Floods are expected to worsen especially in the central and north-east regions and in coastal areas (Brown et al. 2018). Rises in temperature, tropical cyclone intensity and sea level would importantly impact highly vulnerable communities on the Bangladeshi coast. It is predicted that "0.9 million people (by 2050) to 2.1 million people (by 2100) could be displaced by direct inundation" (Davis et al. 2018: 1). Large-scale evacuations take place regularly, especially in the cyclone-prone coastal areas. In 2020, for example, an estimated 2.4 million people were evacuated before the arrival of cyclone Amphan, which affected 2.6 million people, damaged 200,000 houses and destroyed 55,000, and damaged 40,000 latrines, 18,000 water points, 32,000 hectares of crops and vegetable, 19,000 hectares of fish cultivation area, 440 km of road and 76 km of embankment (IFRC 2020c).

The Ganges floodplain is interlaced by rivers and waterways that bring fertile, silty water to the floodplain. Riverine flooding in the deltaic floodplain is a natural phenomenon that supports intensive agriculture in the area but often causes heavy damage to houses and crops (Fenton et al. 2017). Although not as deadly as they used to be, thanks to improved evacuation routines (Sadik et al. 2018), tropical cyclones such as Sidr in 2007, Aila in 2009, Bulbul in 2019 and Amphan in 2020 cause economic havoc among Bangladesh's coastal communities as the strong winds and flash floods destroy buildings and crops, and the accompanying storm surges push salty seawater upstream, breaking through embankments to the surrounding areas, causing not only direct damage but, notably, contaminating the soil for several years (Subhani & Ahmad 2019).

Inhabitants in the coastal areas rely mainly on agriculture and pisciculture, both sectors being vulnerable to climate-related hazards (Huq et al. 2015; Mallick et al. 2017). People residing in the highly exposed coastal areas also tend to be socioeconomically vulnerable to hazards, with low literacy rates, limited land ownership and often living in extreme poverty (Islam et al. 2018b; Mallick et al. 2017). They thus have limited capacity to prepare for and withstand environmental hazards. According to surveys conducted in southwest coastal Bangladesh, cyclones, flooding and soil salinisation have forced people to change occupation, sell their assets and migrate to nearby villages and cities in search of a livelihood (Mallick & Vogt 2014; Islam & Hasan 2016; Islam et al. 2018b). Therefore, in the coastal areas, the increasingly worsening conditions for agriculture, the threat of periodic destruction of houses and crops and the fear for one's life and health could in the coming decades cause economic and psychological burdens that can be difficult to bear and alleviate, leading to increased voluntary and forced climate-related migration to nearby areas and beyond (Huq et al. 2015; Mallick et al. 2017).

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With estimates of up to 20 million internal climate migrants by 2050 (Rigaud et al. 2018: 148), "[t]he GoB recognizes that it is important to shift its traditional approach to the displacement issue from relief-oriented to a more proactive and comprehensive displacement management" (Bangladesh Ministry of Disaster Management and Relief 2020: 6). The Government of Bangladesh has thus realised that the country needs to address climate-induced migration and displacement challenges and find durable solutions, for example, through permanent resettlement and relocation. The draft version of the national strategy on how to manage climate-induced internal displacement emphasises the rights of the displaced in the resettlement process (Bangladesh Ministry of Disaster Management and Relief 2020). The draft strategy is based on Sendai Framework, UN Guiding Principles on Internal Displacement and Agenda2030, and it recognises that climate-related displacements have grave implications for individuals and communities who experience displacement. These include multiple human rights challenges related to safety and security, gender-based violence, unequal access to assistance, basic goods and services, abuse, neglect and the exploitation of children, inadequate law enforcement mechanisms and restricted access to a fair and efficient justice system and forced relocation and unsafe or involuntary return or resettlement (ibid. 2). A key aim is thus to reduce the risk of displacement before the hazard strikes and when displacement cannot be prevented, put in place rights-based measures that protect people during evacuation and throughout displacement until durable solutions for return, local integration or further relocation or resettlement are in place (ibid. 3–4).

2.3.2.5   United Mexican States

Land area: 1,943,950 km2

Population: 127,575,529 (2019)

INFORM ranking: 34 out of 191
(medium vulnerability)

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Due to its geographical and topographical characteristics, Mexico has a very varied climate (World Bank Group 2021). More than 65 per cent of Mexico is located over 1,000 m above sea level, and climate zones vary greatly, from arid deserts in the north of the country to mountainous regions in the centre and tropical rainforest in the south. The Pacific and Atlantic coasts are hot and humid all year round and are subject to the hurricane season from June to October. Mexico experiences rainy (from May/June to October) and dry (November to May) seasons.

Many parts of Mexico are subject to frequent floods, which can be destructive when they are generated by hurricanes often leading to landslides and causing substantial economic damage (Haer et al. 2018). These hurricanes can even lead to coastal inundation. In 2013, Mexico was hit by two severe tropical storms simultaneously, one on each coast, which affected 77 per cent of Mexico's land area (NASA 2013). According to some estimates, up to 90 per cent of the damage caused by natural hazards in Mexico is related to hydro-meteorological events (González & Magaña 2006).

Climate change is expected to exacerbate river floods in states that are becoming wetter (e.g. eastern part of Mexico), but reduce them in those that are expected to become drier (Haer et al. 2018). According to Colorado-Ruiz et al. (2018), Mexico should experience an increase of 1.5–2°C between 2035 and 2055, and between 2°C and 5.8°C by 2070 and 2099, respectively, in the RCP4.5 and RCP8.5 scenarios. By 2070–2099, the mean annual precipitation may decrease between −11 per cent and −16 per cent in Southern Mexico, with major reductions during the winter and summer, and small increases in the autumn. Projections of hurricane activity have shown that tropical cyclones of high intensity, i.e. categories 4 and 5, will be more frequent in the coastal regions of the Gulf of Mexico and Caribbean Sea and even

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more frequent and intense on the Pacific coast of Mexico by the late 21st century (Knutson et al. 2015).

According to the World Bank Groundswell report (Rigaud et al. 2018), up to 16.1 million people may need to migrate due to slow-onset natural hazards in Latin America by the year 2050. For Mexico and Central America, the report estimates that the number of migrants will vary from 1.4 to 2.1 million by 2050, depending on the implemented actions in relation to the root causes of climate change. Agriculture provides employment to 13 per cent of Mexicans. Climate change influences especially smallholder farmers, such as farmers involved in market crops like coffee. Internally in Mexico, climate out-migration is expected to take place especially in rainfed croplands due to the increasing agricultural marginality of these areas, particularly in mountainous zones. Climate in-migration, on the other hand, is estimated to affect dense settlements and pastoral and rangeland areas. Climate out-migration hotspots will develop in the Central Plateau of Mexico, where people will leave hotter, lower-lying areas and move towards climatically more favourable highland areas. Cities like Monterrey and Guadalajara are predicted to be out-migration hotspots, whereas Mexico City will be a hotspot for in-migration.

As the urbanisation rate is already high in Latin America, climate migration will at least partially take place as urban to urban or urban to peri-urban migration. As Mexico is an upper-middle-income country, with sustained development and a stronger economy, it has a relatively high adaptive capacity and financial means to assist the most vulnerable areas and groups. This, however, demands anticipatory development policies that respond to the issue over medium and long-term periods. Also, good management of demographic transition and investment in human capital can reduce climate vulnerability (Rigaud et al. 2018). Mexico has long experience in urban displacement and responding to poor communities in cities such as Mexico City. The urban poor and marginalised communities are disproportionately affected by disasters and often have not received adequate support from the governments to recover and rebuild. However, civil society engagement can be significant in addressing these vulnerable populations with practical work at the root level, for instance, in finding housing and providing health and other basic services. In order for non-governmental organisations and other civil society actors to assist those in need due to climate migration, it will naturally demand good financial support, especially if the number of migrants and those displaced increase rapidly due to climate and environmental change, and the state governments are not able to provide enough assistance through their own measures to those who are vulnerable.

Mexico's geographical location between Central America and the United States makes it both an immigration and emigration country. There is a long history of migration between these regions and through routes which are also currently in use

and which are likely to have importance due to climate and environmental change-induced migration. Mexican and other Latin American migration has created various legal and illegal ways of entering the United States. Countries such as Honduras, Guatemala, El Salvador and Nicaragua are challenged with poverty, violence and a lack of health and educational services. Honduras, for instance, is greatly affected also by extreme natural events. Due to reasons like those mentioned, Mexico has become both a destination and a transit country for many Central Americans (Casillas 2020). In addition, movements from South America, like those of Venezuelans seeking protection from torture, persecution and arbitrary imprisonment, affect Mexico.

There is a great gap between the rich and the poor in Mexico. This also means that migration opportunities for Mexicans vary significantly, especially to the United States. In 2019, there were about 10.9 million Mexican-born individuals living in the United States, making them the largest group of immigrants in the country. The Mexican diaspora is comprised of approximately 38.5 million U.S. residents who were either born in Mexico or reported Mexican origin or ancestry (Israel & Batalova 2020). These Mexican immigrant networks can function as facilitating a large-scale climate migration from Mexico to the United States, but they may also weaken the effect of climate change on international migration as they facilitate the possibility for households and communities to stay especially in rural Mexico (Nawrotzki et al. 2015). It should be noted that migrants accessing the United States from southern countries may also increase the number of people displaced in the United States due to climatic events. Coastal areas and cities in the United States are already impacted by rising sea levels, hurricanes and other hazards.

2.3.2.6   Republic of Sierra Leone

Land area: 72,180 km2

Population: 7,813,215 (2019)

INFORM ranking: 34 out of 191
(high vulnerability)

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Situated on the West Coast of Africa, Sierra Leone is one of the poorest countries in Sub-Saharan Africa (World Bank 2018b). Sierra Leone has a tropical monsoon climate with an average annual temperature of nearly 26°C and an extended rainy season from May to November, which brings heavy torrential rainfall with over 4,000 mm of annual precipitation. The country is highly exposed to floods and landslides, and coastal erosion caused by sea level rise (Sawaneh & Fan 2021). In the last 15 years, four major floods have affected over 220,000 people (World Bank 2018b). The 2017 floods, for example, killed around 1,000 people and left 10,000 people homeless and displaced. Urban floods have also become a serious development challenge in Sierra Leone and other West African countries, and constitute a real threat to urban populations (Adegoke et al. 2019).

Annual mean surface temperatures are projected to increase by 3–4°C (Janes et al. 2015), and the length of the dry season by 30–50 per cent (Sylla et al. 2016) under the RCP 8.5 scenario by the end of the 21st century. These are likely to have considerable negative impacts on agricultural activities. The projections for seasonal rainfall predict an increase of 10–20 per cent (Janes et al. 2015), although some studies limit this increase to 10 per cent by the end of the 21st century (Sylla et al. 2016). Such an increase in precipitation could, on the one hand, enhance water availability but, on the other hand, increase the risk of flood events.

Climate change has affected agriculture, fishery and food security, water resources, forests and natural resources, land erosion, human settlement, coastal regions and human health. In some parts of the country, including the country's capital area of Freetown, impoverished communities have suffered from floods and seasonal drought, which have destroyed their crops and made food production difficult. Strong winds have destroyed houses, damaged energy transmission lines and obstructed communications with remote areas of the country. Thunderstorms and heavy rain

have caused accidents at sea and shifting rainfall patterns have caused water shortages (Government of Sierra Leone 2007). There are several development-related challenges such as the lack of clean water and proper sanitation—for example, 2.9 million people lack access to clean water and 6.3 million to decent toilet facilities—with over 1,400 children under the age of 5 dying each year from diarrhoea (WaterAid 2021). COVID-19 has made these clean water and sanitation challenges even more visible, especially in natural disaster-induced displaced communities that have been struggling to cope with preventing COVID-19 with basic measures such as handwashing (IOM 2020a). Climatic changes have also affected livestock as pest and disease outbreaks have become more pronounced. These challenges are compounded by the fact that the state's meteorological department is understaffed and has poor facilities, which undermine its ability to provide adequate support information to various sectors of the economy so that they can better adapt to the impact of climate change.

Climate change has thus contributed to the difficulties of especially the rural poor to maintain existing livelihoods in a country that faces grave challenges dealing with climate change (Government of Sierra Leone 2007). To tackle the challenges brought about by climate change, poverty and environmental sustainability, the Government of Sierra Leone has set goals to reverse the loss of environmental resources, reduce the proportion of the population without access to sustainable safe drinking water and to achieve significant improvement in the lives of slum dwellers, including displaced persons.

As conditions in Sierra Leone's rural areas are becoming more difficult due to climate change and people are moving to cities, it is crucial that cities find solutions to meet the needs of migrants and prevent the negative urban environmental and social impacts. An interesting example of an inclusive and integrated approach to urban development is the Transform Freetown plan. Freetown is home to approximately 1.2 million people (15 per cent of total population) who live in an area of less than 0.1 per cent of the country's landmass. Freetown is one of the most crowded cities in the world, with 8,450 people per square kilometre. Freetown experiences both climate- and economic-related migration and the city's informal settlements house 35 per cent of the residents, mainly in disaster-prone locations along the coastline and on the once forested hillsides. Freetown is expected to host 535,000 new residents in the next decade, which puts further pressure on the city's infrastructure, natural resources and demand on government services and settlements exposed to landslides and other natural hazards. To alleviate these challenges, multiple stakeholders work together to achieve the Transform Freetown plan's 19 targets and 37 initiatives for 11 priority sectors covering resilience, human development, healthy city and urban mobility. Transform Freetown also aims to improve the lives of rural migrants and upgrade informal settlements. With the help of the Freetown City Council, rural

migrants have established waste management micro-enterprises to meet Freetown's sanitation needs, whilst also providing skills and employment. Other urban plans include planting and growing one million trees to increase vegetation cover by 50 per cent, and to protect water sources and prevent landslides (Freetown City Council 2020; Aki-Sawyerr 2021).

Even though Sierra Leone does not currently contribute with great numbers to emigration from the country compared to some other West African nations, unemployment and underemployment among the country's youth is a serious phenomenon, which affects the need and desire to migrate. Almost 20 years after the civil war, which took place from 1991 to 2002 and destroyed the country's economy, Sierra Leone has one of the highest youth unemployment rates in Africa. Families who were affected by the 2013–2016 Ebola crisis are still struggling to earn enough to put food on the table and send children to school. Human trafficking exists in the country and many young people are cheated to pay money to work abroad in slavery-like conditions without pay (see e.g. IOM 2019c). When climate change and environmental challenges increase difficulties to survive in Sierra Leone in the future, there is a possibility that emigration will increase and young people will pay human smugglers to reach destination countries and be trafficked in greater numbers. State administrations in West Africa are working with agencies such as the International Organization for Migration to combat trafficking, to understand the consequences of migrant debt and assist those being trafficked and being stranded in other countries. Sierra Leone is part of the free movement area of the Economic Community of West African States (ECOWAS). ECOWAS migration trajectories are discussed later in this report.

2.3.2.7 Republic of Kiribati

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Land area: 811 km2

Population: 118,700 (2020)

INFORM ranking: 99 out of 191
(medium vulnerability)
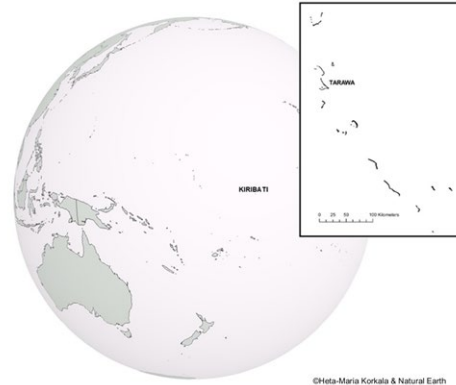
The population of Kiribati is 118,700 (2020), with population growth of 1.69 per cent
(SDD 2021). The United Nations projects that Kiribati will experience significant
population growth, with an estimated total population of nearly 180,000 by 2050. In
addition to climate change, Kiribati faces several development-related challenges,
such as health and educational issues (SDD 2021).

Kiribati is composed of three major island groups: the Gilbert Islands in the west, the
Phoenix Islands, and the Line Islands in the east. It is located on the equator, and the
international date line runs through it. The land area of Kiribati is 811 square
kilometres, with 32 atolls scattered over a vast area of ocean (about twice the size of
Alaska). There is no comprehensive topographical data on Kiribati, but studies of the
atolls in the Gilbert Islands suggest that two-thirds of the land area is less than 2 m
above sea level, and the maximum elevations are about 3 m (Donner & Webber
2014). Climatically, Kiribati falls under a hot and humid tropical climate with almost no
seasonal variations in temperature (27–28°C) and between 1,000 and 3,000 mm of
annual precipitation across the country (Storey & Hunter 2010; World Bank Group
2021). Kiribati is among the most vulnerable nations to climate variability and sea
level rise. Indeed, the IPCC SR Ocean and Cryosphere reported a likely range of 0.5–
0.9 m sea level rise by 2100 in the Central Pacific in the RCP8.5 scenario
(Oppenheimer et al. 2019). Whereas the global sea level rise is mainly driven by the
melting changes in the surface mass balance of glaciers and ice sheet, especially
from the Arctic and Antarctica, the annual sea level variability in Kiribati is mainly
driven by the El Niño/Southern Oscillation (ENSO) (Donner & Webber 2014).

Sea level rise not only results in the displacement of people from the coast to more
inland locations but also has an impact on freshwater resources, which are vulnerable
to saltwater intrusion and pollution permutation. On Tarawa atoll, the availability of
potable water is a serious constraint and a threat to development and health. Water

security in Kiribati is threatened also by a predicted increase in the intensity and frequency of tropical storms and droughts (Storey & Hunter 2010).

Kiribati has no long-term sustainable internal migration option due to the country's lack of higher ground to which people could move, and there are no policies or guidelines on relocation. Kiribati has, however, established and strengthened coordination mechanisms, institutions and legal frameworks for climate change and disaster risk management (Redfern 2021). The government has taken measures in relation to internal migration to curtail migration to South Tarawa, where slightly over half of the atoll nation's population live. South Tarawa, the country's rapidly urbanising administrative centre, is located on a strip of land to which people from the outer islands are moving for work and to study but where social vulnerabilities such as unemployment, disease, the escalating costs of living and pressure on natural resources are rising. President Taneti Maamau (presidency 2016–) and the Kiribati Government promote the expansion of the coconut trade and manufacturing to help people out of poverty and as one way of encouraging people to stay on other islands rather than migrating to South Tarawa. However, exposure to climate shocks, the effect of climate change on coconut trees and other plants and the lack of rain and undrinkable groundwater all influence people's ability to gain a livelihood and live on the outer islands.

The government's development plan, Kiribati 20-Year Vision or KV20 (COP23 2017), aims to develop Kiribati into the "Dubai or Singapore of the Pacific". Fisheries and sustainable tourism are two key sectors which are supported by the country's administration to increase incomes. The president and the government both call for cooperation with development partners and others who are able to assist Kiribati. The governments of Kiribati and New Zealand are working together to implement a development project to elevate swampy inhabitable land in South Tarawa in response to the need for more land for the use of the growing population. The Temaiku land and urban development project (Jacobs 2020) plans to provide up to 35,000 people with space to live and necessary facilities such as schools and shops. Resilience to climate change has been taken into consideration when planning the area. In addition to land development, clean drinking water and sanitation development projects and education-related projects are carried out with financial support from New Zealand, Australia, the Asian Development Bank and the World Bank (UN 2019a). The interest in preserving islands, maintaining cultural identity and the legacy of ancestors as well as strong religious beliefs affect climate change resilience and the actions taken. A Blue Pacific future with sustainable development is being advanced, keeping in mind the resilience of young people and citizens, which is furthered with the motto "we are not sinking, we are fighting" (NAP Global Network 2019).

Kiribati has very limited migration access to other nations. For example, there is a possibility of moving to New Zealand, which makes 75 places available each year for applicants selected by ballot. However, due to COVID-19, this option is currently suspended. The limited migration possibility sets Kiribati apart from other similar small nations in the Pacific, whose citizens are able to freely migrate to wealthy larger countries with which they have a special relationship. Kiribati has low numbers of emigration, and diaspora in other countries is relatively small (Curtain & Dornan 2019). Even though most citizens of Kiribati now wish to stay in their country, even with climate-related events taking place, interest in migrating is expected to grow in the future. Although Kiribati is currently promoting its resilience to climate change and not actively encouraging its citizens to move abroad, during Anote Tong's presidency (2003–2016) the country made plans for international solutions and Kiribati's migration with dignity policy was developed. The policy targeted the creation of possibilities for those Kiribati citizens who wished to migrate abroad. The policy aimed to activate communities that already live abroad in countries like New Zealand and Australia to support newcomers. The policy also promoted improving the levels of education and vocational qualifications available for islanders in Kiribati, thus promoting the ability to match the skills needed in countries of destination (Niemi 2020). There has been criticism of the policy, stating that it is not inclusive enough of, for instance, those with a low-level of literacy, and those with largely subsistence livelihoods were left out altogether. Consequently, the policy cannot equitably ensure protective migration mechanisms for all (McNamara 2015).

In 2012, Kiribati acquired a piece of land in Fiji. This land was bought in order to secure food security for Kiribati's citizens; however, it has been seen as a place to which Kiribati's nationals can move in the future when life in Kiribati becomes impossible due to climate change impacts (Republic of Kiribati 2014). Many other island states and larger, wealthier nations, such as Australia and New Zealand, are also suffering from climate change impacts. There is cooperation within the Pacific region to make the voice of Pacific island states heard internationally. The islands in the Pacific region, including Kiribati, have called for developed states to take responsibility for climate change-related actions. Countries in the Pacific region have often expressed their disappointment in the lack of interest in their situation from developed states.

2.4 Concluding remarks: the key drivers and vulnerability

Environmental change, especially climate variability and extreme weather events, is one of the key causes of humanitarian crises (WMO 2020). However, when it comes

to migration, climate and environmental changes are just one of the factors contributing to people's decision to migrate, even though environmental hazards clearly have the potential to generate migration (Ionesco et al. 2017; Piguet 2020). The migration decision is also impacted by various social, economic, political, cultural, technological and demographic factors that promote or prevent mobility. In addition, intervening factors related to the characteristics of individuals, households and communities influence the migration decision. These factors can have a different significance even for those who live in the same region and who are contemplating whether to move or not. Three possible outcomes of environmental hazards can be identified in terms of population movements: long-term migration, short-term displacement and immobility when populations are trapped without the resources to move. **The decision to migrate or to stay in place is often complex** (Niang et al. 2014; Piguet 2020; WMO 2020).

In this study, the INFROM Risk Index was utilised to identity the most vulnerable countries regarding climate change. The examination of the vulnerable countries shows that **climate and environmental change cause serious and multiple risks as well as heighten existing vulnerabilities**. The vulnerability of environmentally affected populations depends on their level of responses, resilience and adaptation to a climate-related event. A favourable approach to decrease vulnerability and deal with migration is to implement adaptation strategies, which means policy responses are important (Gemenne 2011; Hijioka et al. 2014). However, **migration is increasingly considered as a way for populations to cope with environmental degradation rather than a failure to adapt** (Piguet 2020). **Vulnerable groups should be taken into consideration in policy formation and practical actions before, during and after climate and environmental changes induce migration and displacement.**

The vulnerable countries presented in this chapter demonstrate that climate and environmental changes and related migration and displacement affect diverse geographical areas in many ways. Migration and displacement that takes place in these countries are intertwined with local, regional, state and global political and legal frameworks. The existing vulnerabilities, such as in the case of Somalia and Afghanistan where conflict has already displaced many people, climate and environmental changes increase vulnerability. Mixed migration and the varying root causes and drivers create at times large movements where climate and environment-related reasons are just one aspect. For instance, Mexico already has an important role as an immigration, transit and emigration country, and the current migration routes may have even more significance in the future when the climate change impacts increase. It is challenging to differentiate the exact factors that have affected the migration decisions of individuals, families and communities. The reasons for moving include poverty, employment opportunities, safety and family reunification.

The impact of migration and displacement influences different levels of society. Large migration and displacement movements affect families, communities and state alike.

There are various ways to address climate and environmental change-induced migration and displacement which will take place or has already occurred. For instance, Bangladesh aims to reduce the risk of displacement before hazards strike and when displacement cannot be prevented, put in place rights-based measures that protect people during evacuation and throughout displacement until durable solutions for return, local integration or further relocation or resettlement are in place. In Sierra Leone, the Transform Freetown plan has taken into account those migrants who have moved to the city and are struggling in the informal settlements by aiming to improve the life of the city's population as a whole through urban planning. International cooperation can provide support in relation to climate migration, as is the case of Kiribati's land purchase in Fiji. Diaspora can have a significant role in supporting 'homeland' suffering from climate-related problems, as is seen in the case of Somalia and diaspora humanitarianism. On the other hand, neighbouring countries can face disputes related to climate and environmental changes, which can cause mobility, as may be the case of the Grand Ethiopian Renaissance Dam in Ethiopia.

3 Routes and dynamics of climate migration

This chapter examines migration corridors and routes with the focus on vulnerable countries, transit countries and host communities for climate migrants. It investigates the current figures of people living in displacement due to natural disasters and the factors that affect migration routes. The chapter examines the global migration corridors and routes through which most climate migrants are expected to migrate and the routes that are of particular interest in Europe and Finland. It recognises that the top destination countries for all migrants are different from countries that currently host most displaced people and refugees, and many countries serve as both a transit country and a destination country. Climate-induced displacement and migration via global corridors potentially affects Europe also via its diaspora communities. The European migration experience of 2015–2016 offers knowledge of potential migration routes. The prediction of climate migration and its dynamics is challenging, however, and the future pathways of migration may differ from the current routes.

3.1 Migratory trajectories from vulnerable regions

The investigation of the routes and trajectories of climate migration usually relies on two different, but nevertheless mutually supportive, approaches (Cattaneo et al. 2019). The first and **prevailing method is to find out which areas are most vulnerable to changes brought by climate change**, such as long-term drought, rising water levels, floods, storms and other environmental hazards. The INFORM Risk Index shows that most countries that are highly vulnerable to climate and environmental change have simultaneously low adaptation capacity. This means that these countries have low capacity to respond and adapt to climate and environmental change and provide protective security for displaced populations. High vulnerability and low adaptation capacity mean that these countries become potential sources of cross-border climate migration.

Another way of approaching climate migration is to look at existing and possible migrations and routes and destination areas based on current migration data. This perspective is multidimensional and takes better into account human behaviour and agency, which is central to understanding human mobility (Foresight 2011). Moreover, the routes taken by climate migrants will most likely follow the trajectory of mixed migration. Mixed migration refers to a situation "where

refugees and other migrants move alongside each other, making use of the same routes and means of transport" (Van Hear et al. 2009: 9). If the regular routes (employment, study and family ties) are closed, some migrants are forced to travel by more dangerous routes and rely on smugglers. The routes may be affected by changes in country of origin, transit and destination as well as by changes in the relationships between them. The routes usually change when states change their migration and asylum regulations and increase or decrease border patrols and surveillance.

Migration to the EU area and Finland occurs via various regular and irregular routes, and similar routes can be used by climate migrants. The same routes are used by people who have moved for very different reasons, as well as people who have taken off in anticipation of deteriorating living conditions and opportunities (van Hear et al. 2009; Martin et al. 2014).

In this report, the question of which corridors and routes climate migrants might use is approached by scrutinising past and present migration trajectories and routes, and simultaneously considering the vulnerability of the countries (Figure 5). Numerous studies are available on the pathways and experiences of individual migrants and through which a multidimensional picture of the routes and root cycles of migration is drawn. Many countries serve as both a transit country and a destination country. In addition, the departure areas for migrants may simultaneously be transit routes for new migrants. In this study, attention is drawn to the potential departure, transit and destination areas for climate migration.

Knowledge of earlier migration trajectories and routes makes it possible to imagine potential future migration routes from vulnerable countries and at-risk areas. Based on existing research, we know that many factors influence migrants' decision making about their destination and the formation of migration corridors: economic possibilities, the presence of diaspora, social networks, travel infrastructure and connections, historical ties and educational links, knowledge and social media communication. **Migration routes and migrant numbers are also significantly affected by the ability and will of states and regions to receive migrants** (visa policies, immigration policies, border surveillance) as well as wider geo-economic environments that may change suddenly (Massey 1999; Gabriel & Pellerin 2008).

Figure 5. Climate migration is examined by identifying the regions that are most vulnerable to climate and environmental change and ill-equipped in terms of adaptation and then by examining historical migration trajectories from these regions.
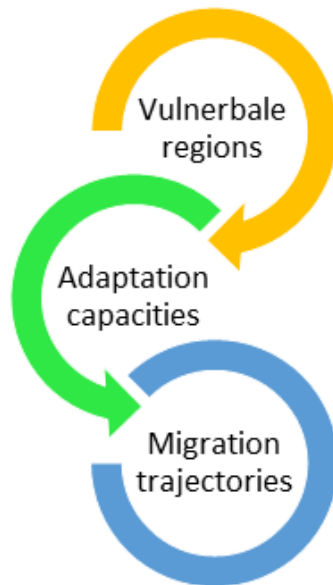
3.2 Migration and displacement due to disasters

According to the Internal Displacement Monitoring Centre (IDMC 2020a: 2), in 2019 an estimated 24.9 million people were forced to move within their country due to natural disasters. The total number of people **living in displacement** due to natural disasters in 2019 was 5.1 million (Figure 6). Across altogether 140 countries where displacements occurred, the number of people displaced by natural disasters was highest in Afghanistan (1.2 million), India (590,000), Ethiopia (390, 000), the Philippines (364,000) and Sudan (272,000). However, especially for Africa, the data is incomplete. The IDCM statistics from past years show that many countries are vulnerable to climate-induced environmental hazards and displacement, including many populous countries such as China, India, the Philippines, Bangladesh, Indonesia, Somalia, Ethiopia and the Democratic Republic of Congo. Changes in the climate responsiveness of livelihood strategies may impact the climate-migration relationship; for example, in China, temperature anomalies increased permanent movements prior to 2000 but since then the effect has been reversed. The change in China is explained by the declining vulnerability of households to temperature in the agricultural sector.

Figure 6.   The total number of people living in displacement due to natural disasters in 2019 was 5.1 million. The countries with the highest numbers of people living in displacement due to natural disasters in 2019 were Afghanistan, India, Ethiopia, Philippines, Sudan, South Sudan, China, Iran, Dem. Rep. Congo, Nigeria, Mozambique, Niger and Indonesia. Data source: IDMC 2020a: 102–104.
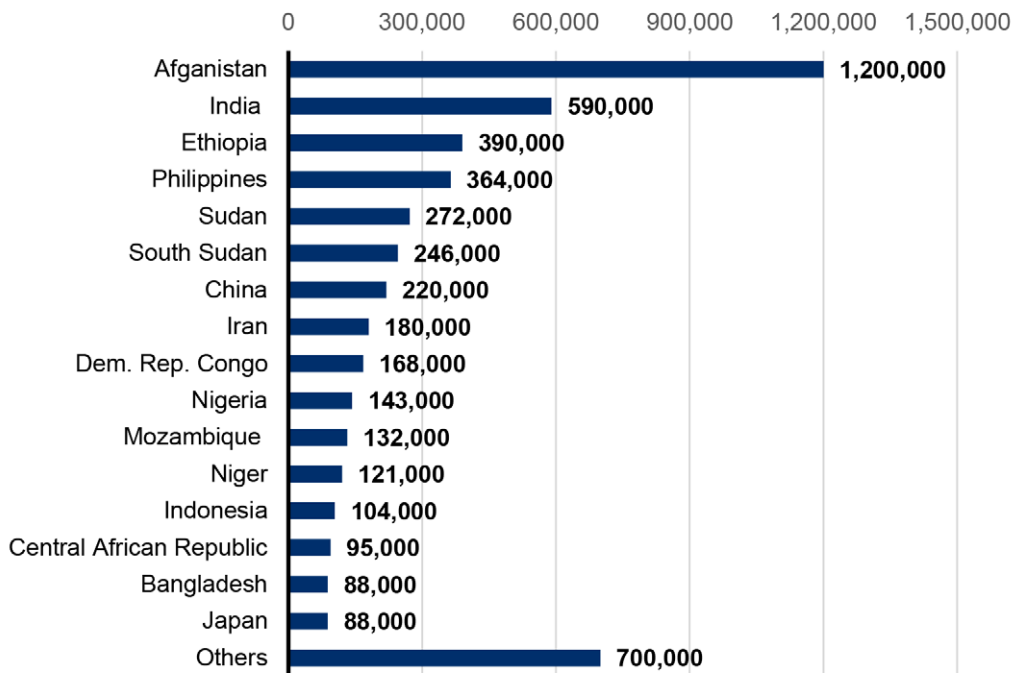
The numbers above describe internal displacement due to natural disasters, but millions of people have also crossed international borders to seek protection for these and other reasons. In 2019, there were an estimated 26 million **refugees** and 4 million **asylum seekers** worldwide (UNHCR 2020a). The largest groups of refugees currently are from Syria (6.6 million), Venezuela (3.7 million), Afghanistan (2.7 million), South Sudan (2.2 million), Myanmar (1.1 million) and Somalia (0.9 million) (UNHCR 2020a). These countries are also vulnerable to climate and environmental changes and increasing natural hazards. In total, there are currently 50.8 million people who have fled their homes due to conflicts and natural disasters worldwide (Gray et al. 2020).

The conflict in the Syrian Arab Republic provides a fitting example of the problem of drawing a connection between climate change, conflict and displacement. There is an ongoing scholarly debate on whether climate and environmental change had an indirect influence on the unrest and protest in Syria for which the Syrian government reacted with violence. Several studies have argued for the links between climate change, environmental conditions and decreasing agricultural production and economic instability, and how inherited vulnerability triggered drought-related

displacement and migration prior to the Arab uprisings in Syria and Egypt. Others maintain that the research evidence on anthropogenic climate change verifiably contributing to the initial unrest in Syria is thin, highlighting the importance of not overemphasising links between climate change and the war in Syria, which is first and foremost "a man-made humanitarian nightmare" (UN Secretary-General 2020), caused and maintained by political and military actors (Selby et al. 2017; Werrell, Femia & Sternberg 2015; Ülker, Ergüven & Gazioğlu 2018). The 6.6 million Syrian refugees are predominantly hosted in Turkey, Lebanon and Jordan (UNHCR 2020a).

Internal and cross-border migration induced by climate and environmental change can be temporary or permanent. Long-distance migration is often permanent, but many people also return to their home regions if the conditions change, or they may move to more attractive countries. Environmental cross-border migration usually takes place between neighbouring countries (Obokata, Veronis & McLeman 2014). Temporary cross-border migration serves as an example of a situation where, for people living in border areas, the shortest route to safety in the event of a sudden environmental disaster is to the other side of the border. After a temporary incident caused by a sudden natural disaster, some may be able to return to the place of origin. In turn, slower and persistent environmental changes may lead to migration to another region or another country (IPCC 2014: 88).

Many urbanised low coastal areas are considered especially vulnerable to sea level rise, and climate-induced rural-urban migration is predicted to become more common in low-elevation coastal areas in the future (Neuman et al. 2015; Hauer, Fussell & Mueller 2020). **Many of the world's megacities are in low coastal areas, and all of the most affected megacities in terms of total population are in Asia**. Some populous Mediterranean and Northern African cities, such as in Egypt, are also highly vulnerable. Globally, Egypt is considered to be one of the countries most impacted by a seal level rise of one metre and the city of Alexandria is highly exposed to sea level rise and associated storm surges and inundation. Kloos and Baumert (2015) have investigated the preferences of vulnerable people in the densely populated Nile Delta and in Alexandria regarding preventive voluntary resettlement initiatives in response to sea level rise. They found that the choices of people are influenced by the transparency of the resettlement process, social infrastructure, financial compensation, housing and income security. However, a large share of the respondents did not consider resettlement as an option.

3.3 Displacement and cross-border migration continuum

The division between cross-border migration and internal migration or internally displaced people is entrenched in the political terminology. Internal and international migration are, however, often part of the same continuum. A survey conducted by IDMD (2020b) in seven countries (Afghanistan, Colombia, Iraq, Myanmar, Nigeria, South Sudan and Yemen) between 2018 and 2019 found that more than half of all refugees and returned refugees in these countries had been in internal displacement prior to international travel. The recognition of the displacement continuum is important for understanding climate migration and displacement caused by both sudden and slow-onset environmental changes (Foresight 2011). **The displacement continuum suggests that the potential origin areas for cross-border climate migration are those with high numbers of displaced people due to climate and environmental change**. The internal displacement may be followed by cross-border migration, which means the statistics on internal displacement and refugees help in assessing future migration trajectories. It is probable that secondary movements of asylum seekers are partly because of climate and environmental changes, which impede the return to the country of origin.

There is also evidence that environmental and climate-induced migration to cities and urban areas indirectly encourages out-migration of wealthier residents, whereas those most affected by climate change and environmental challenges in their home countries usually lack the financial resources to migrate abroad. Environmental change can therefore be understood as a "second- or third-order contributor" in a complex chain of interactions and relations in the migrant country of origin that may lead to long-distance international migration by highly skilled and educated urban residents (Veronis & Mcleman 2014; McLeman 2018). **The differentiation between climate migrants and other types of migration from vulnerable regions is difficult**. Both migration continuum and secondary migrations due to climate and environmental change are poorly understood (Veronis & Mcleman 2014). More information is needed about how many international migrants have been internally displaced in the past and whether they have been able to return to their home region, live in bigger cities or whether they have moved further to other countries.

3.4 Migration corridors and transit countries

3.4.1 Global migration corridors

Environmental and climate-induced migration and displacement are complex global phenomena, thus any attempt to understand them requires insight into global migration dynamics and local-global interconnectedness. Such as investigation will therefore focus on global migration corridors and routes and then consider the routes that are of particular interest for Europe and Finland.

The UN (2019b: 8) has identified **five major global migration corridors** through which most migration has occurred between 1990 and 2019: 1) Europe to Europe, 2) Latin America and the Caribbean to Northern America, 3) Northern Africa and Western Asia, 4) Central and Southern Asia to Northern Africa and Western Asia, and 5) the Sub-Saharan African corridor. In addition, the West African migration system ECOWAS (Economic Community of West African States) is an important regional corridor and of importance for Europe as well. On these corridors, reliable data on migration is available to developed states. In contrast, there is less reliable data on cross-border migration from south-south migration routes (Azoze & Raftery 2019). Besides the countries of origin and destination, the corridors are examined from the perspective of transit countries "through which a person or a group of persons pass on any journey to the country of destination or from the country of destination to the country of origin or of habitual residence (IOM 2021c)".

3.4.2 Europe to Europe corridor

Europe to Europe is the largest migration corridor with 41.9 million international migrants by 2019 (UN 2019b: 8). Europe to Europe migration occurs mainly within the EU Member States and has been considerably affected by the 2004 and 2007 enlargement processes. The direction of migration has been mainly from lower income Eastern European countries towards the Western and Central European countries where salaries are higher. To some extent, Brexit will impact the EU's internal migration in the future (Sredanovic 2020). However, Europe to Europe climate migration is difficult to predict and, according to the INFORM Risk Index, Southern European and Mediterranean countries such as Greece, Romania, Italy, France, Spain, Portugal and their agricultural sectors are more vulnerable to climate change than the Baltic countries and Eastern and Northern European countries, including Finland. The low coastal areas in the Netherlands are highly vulnerable to sea level rise, but the country has a considerably high adaptation capacity.

Besides Europe to Europe movement, **the European Union is a popular destination for migrants and is expected to attract migrants also in the future**. In 2019, 7.7% of all EU inhabitants were born outside the EU (Eurostat 2021a). Diaspora is a crucial factor explaining the selection of routes and destination countries for both regular and irregular immigration, and thus more migrants could come from the countries of origin of European diaspora populations. The EU territory is close to the crisis areas in the Middle East and North Africa—areas that are simultaneously highly vulnerable to climate change and lack economic opportunities for the growing populations—which drives migration towards the EU (Frontex 2020). The migration routes to Europe across the Mediterranean and via the Arctic route are discussed in more detail below (section 3.4.9).

3.4.3 Latin America and the Caribbean to Northern America

Climate-induced displacement and migration via the Latin America and the Caribbean to Northern America corridor and region potentially affects Europe via its Latin American diaspora communities. The migration history of the countries of the European Union has a significant impact on the direction of migration, and there is well-established migration between Latin American countries and Spain and Portugal, supported by a cultural heritage and language. In Italy, there is also a sizable Latin American community. In 2019, Spain received 40,305 asylum applications from Venezuela and 26,880 from Columbia (Eurostat 2021a).

The Latin America and the Caribbean to Northern America migration corridor is the second largest with 26.6 million international migrants (UN 2019b). Mexico serves as a transit country and country of origin for both regular and irregular migration to the United States from Southern America and the Caribbean. The Latin American and the Caribbean population living in Northern America has increased from an estimated 10 million in 1990 to 26.6 million in 2019. Another 5 million migrants from Latin America and the Caribbean live in Europe (IOM 2019b: 95). **Migration from Mexico to the United States constitutes the largest country-to-country migration corridor globally** and around 12 million Mexicans live abroad, most of them in the United States (after India, Mexico has the second largest number of nationals migrating). Similarly, many other Central American countries (Guatemala, Honduras and El Salvador) and South American countries (Colombia, Ecuador, Brazil and Peru) have large migrant populations in the United States. In 2019, more than one million Venezuelans lived in Colombia due to recent cross-border displacement from the Bolivarian Republic of Venezuela (IOM 2019d: 97).

Climate change appears to be impacting migration and mobility in Central America and the Caribbean; for example, drought in Central America in 2018 impacted the food insecurity of three million people. The Caribbean and Northern America are vulnerable to hurricanes that are estimated to increase in frequency and intensity due to climate change, increasing health risks and food insecurity. Climate migration dynamics are not similar in all countries and regions. **Bigger cities and metropolises are estimated to become the destinations for many climate migrants in Central and Northern America** (Lustgarten 2019). North American migration trajectories show how migration policies, visa practices and border controls affect people's decision making when it comes to migration. The attitudes towards immigration in the United States hardened during the Trump presidency, which has impacted migration trajectories in North America (Chattopadhyay 2019; IOM 2019b: 105–106).

3.4.4 Northern Africa and Western Asia (Arab region)

Northern Africa and Western Asia migration corridor is the third largest with approximately 19 million international migrants. Migration within this corridor increased by 7.3 million between 2010 and 2019, and is characterised by the mobility of male migrants to work in the Gulf oil-producing countries. Due to fast population growth in Africa, migration using this corridor is expected to increase in the future (IOM 2019b). The Arab region is also highly vulnerable to the impact of climate change, and especially to the shortage of freshwater sources. In 2019, over 80 per cent of the Arab countries fell below the quality water resources annual threshold, and 60 per cent fell below the absolute water scarcity threshold. Over the last decade, **urban displacement has been increasing in the Arab region within and across borders** (IOM 2019b: 68–69). In 2017, the most common countries and destinations for migrants and refugees from Arab countries were Turkey, Saudi Arabia, Jordan, France and Lebanon (IOM 2019b: 27). In the Northern Africa and Western Asia migration corridor, four differentiated yet interconnected sub-regional corridors, all with their own dynamics, have been identified: A) Gulf Cooperation Council (GCC) countries, B) Maghreb, C) Mashreq and D) Arab least developed countries (LDCs) (IOM 2019b: 16).

A) **Gulf Cooperation Council** (GCC), including Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates, is the destination for 74 per cent of migrants living in the Arab region. Saudi Arabia (13.5 million) has the third largest number of migrants globally after the United States (50.6 million) and Germany (15.8 million) (MDP 2021). The United Arab Emirates was the destination country with the second-highest number of migrants in the region (over 8.7 million migrants in 2020). **The GCC states are hosting millions of labour migrants from Northern Africa and Asia as well as refugees**, many of whom come from countries and regions that are highly vulnerable to climate change, such as India and Bangladesh.

B) **Maghreb countries** Algeria, Libya, Morocco and Tunisia host only 3 per cent of migrants and refugees from the Arab region; however, they are important transit countries. There is an increasing trend of transit migration through the sub-region, and the central **Maghreb countries Morocco, Algeria, Tunisia and Libya are the key transit countries to Europe from the southern Sahara region** (IOM 2019b: 71–72). The Maghreb countries are also important migrant senders, with their emigrants mainly destined for European countries, especially Spain, France and Italy, due to their colonial history. The few foreign migrants in the Maghreb are mainly from West Africa (IOM 2020c: 3). Libya, Morocco and Tunisia have been estimated to lose over 1,000 square kilometres of productive land to desertification each year (UNEP 2011: 32) and are likely sources for climate-induced migration in the next decades. The INFORM Risk Index indicates that the three countries have an equal risk of natural hazards and exposure. The civil war and human insecurity in Libya places the country in the high-risk category. Morocco is placed in the medium-risk category and Tunisia in the low-risk category.

Morocco is an important transit country to Spain and Europe. Morocco is also often predicted to become a new destination country and it is estimated that around 60,000–70,000 sub-Saharan migrants live in Morocco (Fargues & Rango 2020: 9). Since the mid-2000s, the **Maghreb countries' borders have seen increased security measures and migration from sub-Saharan countries to the Maghreb region has largely become unregulated**, that is, migrants are increasingly paying smugglers to reach their destination (Brachet 2011; Fargues & Rango 2020). The EU has reached an agreement with Morocco to regulate "transit migration" from Morocco to Europe via the European Neighbourhood Policy. According to Frontex (2020), Morocco detected more than 27,000 irregular migrants in 2019. Morocco has been criticised for not respecting the human rights of migrants and many sub-Saharan migrants experience hardship and violence in Morocco (Keygnaert et al. 2014). The poor economic prospects of North Africa are predicted to increase attempts to travel to the EU, even by taking dangerous routes. Similarly, Tunisia is an important transit country for irregular migration, and Tunisians have also been found to be present in the EU territory without proper documents and residence permits (Frontex 2020).

Libya forms a hub and transit route for irregular trans-Mediterranean migration from Africa to Europe. Until the recent decades, Libya was an important destination country for migrant workers in the oil industry. Libya has actively encouraged labour immigration since the 1960s and its economy relies on foreign labour. Early migration was mainly from Arab countries, then followed by sub-Saharan African migrant labourers in the 1990s. In recent years, **Libya's status as a destination country has changed and it is increasingly perceived as a route to Europe**. Migrants from the Horn of Africa usually enter Libya from Sudan and cross the country to reach the Mediterranean coast (ICMPD 2008). Libya and the Libyan Coast Guard are

cooperating with the EU border agency Frontex and Italy to predict and halt undocumented migration across the Central Mediterranean (Frontex 2020: 21). The Migration Policy Institute has remarked that during the post-Gaddafi period (2011–) Libya has gone from migration transit route to containment since Europe has hardened its border and migration policies after the 2015–2016 migration arrivals. The conditions of the roughly 650,000 migrants in Libya are insecure and they experience extortion, violence, forced labour, deprivation of food and water, sexual abuse and torture (Kuschminder 2020).

C) **Mashreq countries** Egypt, Iraq, Jordan, Lebanon, Palestine and Syria are hosting an increasing number of migrant and refugee populations. In the period from the 1990s to 2017, the number of migrants and refugees more than doubled from 2.9 million to 7.2 million. Most migrants and refugees from Mashreq countries live in other Mashreq countries and other Arab countries (more than 11 million), the second largest populations are found in non-Arab Asian countries (around 3.5 million), Europe (1.3 million) and Northern America (around 1 million). The main destination countries for migrants and refugees from Mashreq countries are Turkey and Jordan, with more than 3 million people. Also, Lebanon, Saudi Arabia and the United Arab Emirates have considerable migrant populations from the Mashreq countries (IOM 2019b; UN 2020b). The Mashreq countries are also highly vulnerable to climate and environmental change.

D) **The least developed Arab countries** (Arab LDCs), the Comoros, Djibouti, Mauritania, Somalia and Sudan had 1.7 million migrants and refugees in 2017. The refugees in these countries mainly came from the other Arab LDCs or from neighbouring countries, Eritrea and South Sudan. In 2017, Sudan hosted the largest migrant and refugee population among the Arab LDCs (736,000 migrants and refugees). Yemen forms a migration transit country between the Horn of Africa and the Gulf countries. Yemen is currently facing the largest humanitarian crisis in the world. Regardless of this fact, Yemen continues as a key country along the eastern corridor migration route from the Horn of Africa to the Arabian Gulf, where the main destination is often Saudi Arabia (IOM 2019b: 55–56; IOM 2021d). **There are many variations of the routes taken by migrants from the Arab LDCs, and they change frequently**. The COVID-19 pandemic has decreased migration along this route, as it has along many other routes (Fargues & Rango 2020).

Migration routes from Somalia provide an interesting case from the perceptive of Finland as Finland has a considerable Somalian diaspora. According to the research conducted by Saari (2014), Somalis use three routes to their preferred destination country or territory: an overland route from Somalia through Ethiopia and Sudan to the Mediterranean shore, mainly Libya. From Libya, the journey continues by boat to southern Europe. The second route runs from Somalia or Djibouti across the Red Sea

or Gulf of Aden to Yemen. Many migrants travel by land to other Middle Eastern countries and Europe. The third route runs from Somalia, mainly by land and sea, towards South Africa. Migration routes are circular and temporal as Somalis may travel to a new destination country after living for years in the previous country. The choice of routes is influenced by the targeted country, accessibility, availability and the wealth of the migrant, as well as the route and travel options provided by smugglers (Saari 2014: 10). Somali citizens have few opportunities for regular migration due to the lack of travel documents and restrictions set by other countries. Somali migration to European countries and Finland occurs mainly through family reunification or by gaining refugee status (Sutela & Larja 2015; EMN 2021).

3.4.5 Central and Southern Asia to Northern Africa and Western Asia

Migration from Southern Asia to other sub-regions, such as the Arab region, Western Asia, Europe and Northern America, is common. **Many temporary migrant workers from Central and Southern Asian countries like India and Bangladesh live in the GCC** (Gulf Cooperation Countries). International migration has relieved labour pressures and helps reduce poverty through remittances. The Central and Southern Asian region has a considerable number of internationally displaced populations (IOM 2019b). Afghanistan is the second largest country of origin of refugees in the world, with Pakistan as the host for most Afghan refugees. Bangladesh is hosting the majority of Rohingya refugees who have escaped the violence and persecution of the Myanmar security forces. Many citizens from Pakistan, Iran and Iraq are refugees and, at the same time, these countries are also themselves hosting a considerable number of refugees (IOM 2020b).

Major regional migration corridors in Southern Asia include Bangladesh–India, Afghanistan–Pakistan, India–Pakistan and Nepal–India. Millions of Bangladeshi and Nepalese migrants currently work in India. The India–Pakistan corridor is, for its part, characterised by mass displacement following the Partition of India and Pakistan in 1947. Migration within the countries of South Asia is voluminous and larger in scale than international migration (IOM 2020b). Temporary and seasonal migration from rural to urban areas has been partly driven by natural hazards. Southern Asian countries are especially vulnerable to slow-onset and sudden-onset hazards related to climate change and have the highest number of people at risk of displacement globally (Dasgupta et al. 2015; Kulp et al. 2019). Natural disasters have caused most displacements in Southern Asia. In 2018, there were over three million new displacements in Southern Asia due to sudden-onset hazards, with India, Afghanistan, Sri Lanka and Bangladesh being the most affected countries (IDMC 2019). Bangladesh, India and Pakistan have the highest disaster risk and they are

highly vulnerable to climate change (INFORM Risk Index). Migration and mobility are highly important coping strategies in response to climate-induced environmental change events in the region.

Labour migration from Southern Asia has been directed to Gulf countries in particular. Millions of people from India and China have also migrated to the United States. On a global scale, the key migration corridors from all Asian countries in 2019 included India–United Arab Emirates, Bangladesh–India, China–United States, India–United States, Kazakhstan–Russian Federation, Russian Federation–Kazakhstan, India–Saudi Arabia, Afghanistan–Iran and Philippines–United States. In 2017, nearly 9 million Indians were living in Arab countries. Bangladesh and Pakistan are also among the major countries of origin, with roughly 3.1 million migrants each (IOM 2019d: 23; IOM 2019b). It is important to recognise the routes from these vulnerable countries and potential changes in migration dynamics. Changes in this corridor could increase the popularity of migration from Southern Asia heading to Western Europe through Central Asia and the Russian Federation and through the Middle East into the Western Balkans (IOM 2019d).

3.4.6 Sub-Saharan African corridor

The Sub-Saharan migration corridor has an **increasing number of migrants**, most of them residing in Sub-Saharan Africa. The countries are highly vulnerable to climate change and a changing environment, and there is considerable evidence that people are forced to migrate temporally and permanently due to environmental changes. Such movement is distinct from traditional seasonal mobility and occurs as a result of changes in the environment when traditional and non-traditional livelihoods are no longer viable. Climate variability and insecurity have led to shifts in seasonal migrations in West and Central Africa. **The tradition of seasonal and circular migration as an adaptation strategy to climate variability in the region is increasingly being replaced by permanent migration** (UNEP 2011: 8). The unpredictability of cross-border herder movements due to climate variations have led to recurrent conflicts between mobile herds and farming communities that have extended their use of lands beyond traditional zones (Jusselme 2020: 127).

Border crossings in Sub-Saharan Africa are mostly undocumented along the long and unmarked boundaries of African countries, which means there is no exact knowledge or statistics on border crossings or migration routes (Adepoju 2001; Azoze & Raftery 2019). The movements are gradual and migrants rarely end up at the borders of Europe but in other African countries (IOM/UN Migration Agency 2020; Bruni et al. 2017; Afifi 2011). West and Central Africa have complex and fluid intraregional migration systems and migration trajectories to Europe and North America. The **ECOWAS** countries (Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, The Gambia,

Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal and Togo) are characterised by seasonal and mixed migration between the countries. Many of the ECOWAS states are simultaneously origin, transit and/or destination countries. ECOWAS countries introduced regional passports in 2000, which 9 out of 15 ECOWAS states have started issuing. The countries in the region have ratified the right of establishment in another member state protocol differently, which impacts mobility patterns within these countries. Moreover, there are challenges in the implementation of free movement in the region because people often lack the recognised documents for movement, making them unauthorised migrants in the region (Bruni et al. 2017).

The routes commonly used by migrants leaving West and Central Africa, mainly towards Northern Africa, but also towards Europe, are the Central Mediterranean route, the Western Mediterranean route, the Western African route (discussed in chapter 3.4.8). Migrants leaving West and Central Africa also use air routes to enter Europe with a valid visa (Bruni et al. 2017). Undocumented sea migration from Senegal to the Canary Islands has been of concern for Spain and the EU since early 2000 (Vives 2017). During recent years, many West African countries have established more comprehensive migration policies in cooperation with international actors, especially the EU and the IOM (Ilke et al. 2020; Schachter 2008). Different ECOWAS countries have adopted different approaches. Ghana, for example, does not grant specific residence permits to ECOWAS citizens (Bruni et al. 2017: 53). Ghana has an ongoing project with the aim of strengthening border and migration management and preventing irregular migration (ICMPD 2020).

3.4.7 Major migration corridors involving African countries

The most significant country to country migration corridors involving African countries include Algeria–France, Burkina Faso–Côte d'Ivoire, South Sudan–Uganda, Morocco–France, Egypt–Saudi Arabia, Egypt–United Arab Emirates, South Sudan–Sudan, Mozambique–South Africa, Morocco–Spain and Sudan–South-Sudan. The corridors involving North African countries, Algeria–Morocco, Tunisia–France, Tunisia–Spain and Tunisia–Italy, reflect post-colonial connections and proximity. The South Sudan–Uganda and Somalia–Ethiopia migration corridors for their part have roots in large-scale displacement due to conflict (IOM 2020b).

There are also significant labour migration corridors from Egypt to Saudi Arabia and the United Arab Emirates. The corridor from Burkina Faso to neighbouring Côte d'Ivoire constitutes the second largest migration route for Africa overall (IOM 2020b: 58). Côte d'Ivoire stands as the key destination for labour migrants originating from

the whole of West Africa and beyond (Fargues & Rango 2000: 6). In 2019, the majority of immigrants in the country came from its five bordering countries, Burkina Faso, Mali, Guinea, Ghana and Liberia (IOM 2020d: 12). Niger is the Central Sahara migration route for migrants coming from Ghana, Cameroon, Chad, Nigeria, Mali and directed towards Libya and Tunisia. The destinations for these migrants are often the Canary Islands, Spain and Italy (Afifi 2011).

3.4.8 Migration corridors to Europe

3.4.8.1 Crossing the Mediterranean

The Mediterranean countries are vulnerable to climate change and simultaneously there is increasing migration pressure towards the Mediterranean countries in Europe. During recent years, migrants and refugees crossing the Mediterranean Sea and the waters between **Turkey** and **Greece** have been predominantly from Arab countries, especially Mashreq countries, and from Sub-Saharan Africa. In 2019, the primary areas or countries of origin of those who arrived in Spain, Greece and Italy were Afghanistan, Morocco, Syria, Tunisia, Algeria, Pakistan, Guinea, Côte d'Ivoire, Mali, other Sub-Saharan African countries, Iraq, Congo and the Palestinian state (IOM / DTM 2020).

The European Border and Coast Guard Agency Frontex distinguishes eight different routes for irregular migration: the Eastern Mediterranean route, the Western Mediterranean route, the Western Balkan route, the Central Mediterranean route, the Western African route (Canary Islands), the Circular route from Albania to Greece, the Black Sea route and the Eastern Borders route (Frontex 2020).

The Central Mediterranean route from Tunisia and Libya to Italy is by far the most dangerous route for irregular migrants. **Thousands of migrants lose their lives every year attempting to cross the Mediterranean Sea by boat**. The highest numbers were reported in 2016 when 4,581 migrants lost their lives while attempting the Central Mediterranean route (IOM 2021a).

Migration routes are complex and flexible, and the intensification of border surveillance along one route can push migrations towards even more dangerous routes. Currently, the Central Mediterranean route is popular; however, in 2015–2016, many migrants travelled along the East-Mediterranean route. In 2016 and 2017, undocumented maritime migrants arrived in Europe in the greatest numbers via the Central Mediterranean route from Libya to Italy or from Turkey to Greece along the Eastern Mediterranean route. This trend changed in 2018 when the largest number of arrivals to Europe were documented using the Western Mediterranean route, which leads to Gibraltar and Spain (IOM 2020c: 96).

The Western Balkans and Turkey will remain the key regions along the Eastern Mediterranean route. In 2019, 4.9 million migrants were estimated to be present in Turkey, of which 3.6 million were Syrians (Frontex 2020: 20). A large number of migrants are continually seeking to cross the border through Turkey into Greece and from there to other countries in the European Union.

The European Union's 6,000-kilometre-long eastern land border between Belarus, Moldova, Ukraine, the Russian Federation and its eastern Member States, including Finland, provides a potential route for climate migration in the future. Although the numbers of people arriving via the Eastern Borders route have been moderate compared with the Mediterranean routes, the route is of special interest to Finland, which is responsible for controlling the EU's external Finnish-Russian border. In 2019, irregular migration from the climate-vulnerable countries of Vietnam and Afghanistan was documented at the Eastern border. Abuse of legal travel channels, such as overstaying the three-month Schengen visa, is more common along the Eastern land border than irregular border crossing. Frontex (2020: 22) estimates that Ukraine will form an attractive transit country for nationals who have visa-free travel to Ukraine, such as Turkish citizens (Frontex 2021: 21–22).

3.4.8.2   Russia and the Arctic route

The Russian Federation is one of the most popular destination countries and receives very large numbers of migrants. Higher wages and better employment opportunities attract people from Central Asia. In 2019, for example, approximately 5 million labour migrants born in Central Asia lived in Russia (IOM 2020b: 82). The economic recession of the last decade, changing labour markets and immigration policies as well as increasing xenophobia have affected lives of immigrants in Russia. Immigrants with African and Asian backgrounds are increasingly suffering from discrimination and uncertainty (Virkkunen, Piipponen & Reponen 2019; Piipponen & Virkkunen 2020). Russia is geographically close to Finland, and Finland has the main responsibility for governance and security of the EU's external Finnish–Russian border, which is 1,300 kilometres long. **The Arctic route** from Russia to Finland and the EU area is therefore of particular importance for Finland.

As the 2015–2016 migration influx demonstrates, **Russia is also a transit country**. During the European long summer of migration, the majority of asylum seekers arrived through the European corridor to Sweden and Finland, but approximately 1,750 asylum seekers arrived from and through Russia via the Arctic route. The majority of people applying for asylum after entering northern Finland from the Russian Federation were Afghans (a total of 632 Afghans) (Piipponen & Virkkunen 2020).

NORTHERN SEA ROUTE

Some of the experts raised the issue of how climate change might impact the Arctic Ocean and the accessibility of the Northern Sea Route (Arto Niemenkari 4 February 2021; Minna Piipponen 9 March 2021). Currently, the Northern Sea Route is dangerous due to unpredictable ice conditions. If traffic and transportation through the Northern Sea Route increase in the coming decades, northern ports and harbours may become nodes of climate migration. The logistics chain connecting Northeast China with European countries may utilise the shipping line that extends "from the port of the South Primorye to the North of the Western hub of the Northern Sea Route, presumably Murmansk, and then turns to transportation by land to Europe" (Lazarev & Fisenko 2017: 400). The transit of the Northern Sea Route between Europe and Asia, promoted especially by the Russian Government, could be accelerated also by the interruptions to the existing route through the Suez Canal (Blunden 2012; see also Schøyen & Bråthen 2011; Fedorov et al 2020). The navigation distance between the Far East and Northwest-European ports is approximately 40 per cent shorter via the Northern Sea Route than via the Suez Canal (Schøyen & Bråthen 2011). Accordingly, the strategic meaning of both the Northern Sea Route and the Arctic migration route can be expected to increase in the future.

3.5 Migrants and refugees have different destination countries

The United States has been the destination for migrants using four of the ten bilateral migration corridors, the biggest being from Mexico to the US. The United States hosts the largest number of international migrants (51 million). Besides the United States, a large number of migrants reside in Germany (13 million), Saudi Arabia (13 million), the Russian Federation (12 million), the United Kingdom (10 million), the United Arab Emirates (9 million), France (8 million), Canada (8 million), Australia (8 million) and Italy (6 million) (UN 2021b). Germany has been the main destination for migrants using two corridors. India has been the country of origin for migrants using three of the ten bilateral migration corridors (UN 2020a: 11). The net migration trend from countries in less developed regions to countries in more developed regions is expected to continue in the foreseeable future. Migrant populations are growing faster in Northern Africa, Western Asia and in Sub-Saharan Africa than in other regions (UN 2020a:19).

The host countries for refugee populations and asylum seekers differ considerably from the figure for all international migration. It is often misunderstood that European countries are hosting remarkably high numbers of refugees. In reality, **most refugees**

live in countries that are close to their home countries, either because they prefer to stay close to their homeland or because they have few options to move abroad. Accordingly, although there is some continuum between internal displacement and cross-border migration, the vast majority of people do not continue their journey. Northern Africa and Western Asia hosts approximately 46 per cent of all global refugees and asylum seekers. The sub-Saharan African states host around 21 per cent of all refugees (UN 2021b: vi), yet the figures are based on estimates as reliable data is not available in these countries (UN 2020a) At the individual country level, the highest proportion of refugees is in Lebanon (21% of total population), which is hosting an estimated 1.5 million Syrian refugees. Turkey has received 4.3 million refugees since 2010, more than any other country. Although Turkey is a geographically wide and populous country and thus better equipped to host refugees than smaller countries like Lebanon, it is very challenging to manage and provide protection to millions of people. In addition, Turkey is also vulnerable to climate change and has, for example, lost a considerable amount of farmland to soil erosion (UNEP 2011: 32; INFORM Risk Index 2021). The European Union is financially assisting Turkey to host these refugees, based on an agreement from 2016 (Council of the EU 2016).

3.6 European experience of 2015–2016

Migration to Europe and Finland occurs via various regular and irregular routes, and similar routes can be used by those who leave their homeland because of climate and environmental change and associated economic, social and political drivers. The existence of diasporas, economic opportunities, geopolitical events and migration and asylum policies will affect the selection of migratory routes.

In 2015, Europe had a record of undocumented border crossings, about 1.82 million detections along the EU's external borders. More than 1.6 million migrants, mainly from Syria, Afghanistan and Eritrea attempted to reach Europe using the Eastern Mediterranean and the Western Balkan routes (Parkes & Pauwels 2017: 26). Greece, Italy and Malta were the countries of first arrival, facing the burden of asylum reception. Germany and Sweden were popular destination countries, whereas Hungary, Slovenia and Croatia formed the transit route member states. Many countries acted as both transit and destination countries (Rózsa 2017: 7; Jauhiainen 2017). In 2015, Germany was the largest recipient country in Europe, receiving altogether 476,510 asylum applications. Sweden was the largest European recipient per capita, receiving nearly 162,450 asylum seekers (Eurostat 2021b).

The 2015–2016 arrival of migrants and asylum seekers has provided a considerable amount of new understanding and information regarding possible migration to the European Union and Finland. The migration and migration routes through Europe during the summer of migration changed earlier perceptions of which routes migrants could use when attempting to reach Finland. Asylum seekers arriving in Finland took advantage of the established migration corridor, travelling through Europe to the northern land border between Sweden and Finland and the Tornio border crossing (Prokkola 2020). This land border route was chosen because it presents the only potential point of entry for most asylum seekers given that ferry operators and airlines operating services to Finland require travel documents.

Jauhiainen (2017) provides a comprehensive study of asylum reception and governance in Finland in 2015. The research demonstrates how stakeholders, in partnership with third sector actors, established good practices for dealing with the large number of arrivals. The initial process of registering, distributing and maintaining over 32,000 asylum seekers was rather successful "compared to the possible tragic scenarios" (Jauhiainen 2017: 157). The arrival of asylum seekers in the European Union and Finland took place mainly from Turkey to Greece and from Libya to Italy and further to other EU countries. The third route for asylum seekers went through the Morocco–Spain corridor. A few thousand asylum seekers arrived in northern Norway and northern Finland via the Arctic route (Virkkunen & Piipponen 2020).

The process and routes were partly transforming during the "long summer of migration" (Scheel 2015) as many countries were hastily changing their visa and asylum procedures. Social media and other communication channels significantly impacted the aspirations and plans of some asylum seekers. Many arrivals had been in contact with their fellow nationals living in diaspora in Finland. More than half of respondents had received information about Finland before they entered the EU as well as during their journey through the EU. Some asylum seekers had acquired misinformation about Finland, especially from actors involved in smuggling activities (Jauhiainen 2017; Merisalo 2017). According to Wahlbeck (2019: 303), the knowledge of migration and asylum procedures as well as the diaspora community of Iraqis in Finland may also have impacted the selection of Finland as a destination. The Syrian diaspora, which had been living in Sweden for a long time, may partly explain why Syrians did not arrive in large numbers to Finland but stayed in Sweden. The arrival of Iraqi and Afghan asylum seekers continued until Sweden and Denmark introduced Schengen border controls at their southern borders.

3.7 Concluding remarks: dynamics of migration routes

Climate migration is a complex phenomenon and predicting the direction and routes of migration is challenging. The internal displacement of people due to natural and environmental hazards is well documented by the International Migration Monitoring Centre IMMC. Cross-border migration caused by climate change, for its part, is a quite poorly known phenomenon, and no statistical data are available on cross-border migration due to sudden or slowly progressing environmental changes and natural disasters. However, significant steps have been taken to increase awareness and knowledge about the impact of climate change on cross-border migration (Nansen 2015).

The Word Bank has predicted that if states fail to cut emissions, there could be more than 70 million internal climate migrants in Sub-Saharan Africa by 2050 (Rigaud et al. 2018). The current migration trajectories from vulnerable countries suggests that most of the refugees heading to Europe could come from Sub-Saharan states where climate and environmental change together with rapid population growth and poor living conditions drive people to move. Throughout Africa, desertification and the resulting decline in agricultural production is affecting ever greater numbers of people. An estimated 10 million people in Africa have been forced to migrate over the past two decades due to desertification or environmental degradation only (Priyadarshi 2018: 53–54). Studies also predict that climate change in Africa will cause increasing migration in some regions, while in other regions it is predicted to slow migration. Trapped populations are often the most vulnerable and the poorest (Cattaneo et al. 2019).

The future pathways of climate migration may also differ considerably from the current routes, and climate change may increase the attractiveness of some routes and destinations. It is possible that the transition towards a green economy changes migration trajectories. The Gulf Cooperation Countries are highly vulnerable to climate change and the transition away from fossil fuels, of which the European Green Deal is a part, may present a long-term threat to the Saudi Arabian model and its ability to afford its large public sector. The failure of Saudi Arabia to cope with the slow move away from fossil fuels could threaten stability in the Persian Gulf (Leonard et al. 2021: 13). This could weaken its capacity for climate adaptation and increase displacement and migration within and away from the region. The Gulf countries are important migration destinations for labour migrants from many countries that are highly vulnerable to climate and environmental change, such as India, Bangladesh, Pakistan and Egypt. A change in migration dynamics and remittances along these corridors

could increase pressure in Turkey and the European Union to receive more refugees from the Arab region together with Lebanon and Jordan (IOM 2020b).

Climate and environmental change may also open up new migration routes through the Arctic Ocean and the Northern Sea, for example, while making some routes even more dangerous and deadly. The attractiveness of the regions can change in the future if environmental, political and economic conditions change. Migration policies and images of safety and economic opportunities have a significant impact on migration (Cerna 2013; Ruhs 2013). Immigration and emigration policies in both origin, transit and destination countries impact migration trajectories. Currently, immigration policies in the Member States of the European Union, North America and Australia are the strictest in the world and those states are subject to irregular migration. In 2010, Finland's score on the migration control policy index is 0.7 on a scale of 0 to 1 (no control 0, strictest control 1). In the 1980s, the score was considerably lower at 0.2 (MDP 2020). This suggests that more political will would be needed to support migration as an adaptation strategy for those people who are most vulnerable to climate and environmental change.

4 Governance and security of climate migration

This chapter examines different aspects of governance and management in order to describe the approaches to and prerequisites for managing climate migration and displacement in the European Union and Finland. An important focus is the rights of climate migrants to protection and assistance. The chapter first provides a general overview of the legal and policy framework that guides and limits decision making at different levels of governance, and then offers a more detailed picture of how the issues of climate migration and displacement have emerged in global and regional policy arenas, and what approaches and instruments exist. Migration and asylum management and security management are examined in detail to analyse and highlight existing connections and implications to climate migration management. The examination shows that the EU is an important actor from the point of view of Finland, but there is still very little discussion and even less action concerning climate migration in the EU. The final section highlights the need for deeper cooperation between different actors, which is a cross-cutting theme for most issues discussed and analysed in this chapter.

4.1 Managing climate migration and displacement

4.1.1 General framework and levels of governance

The governance of climate migration and displacement happens on many levels. One of these is the global or international level. Another is the regional EU level. While the third is the national Finnish level. These different levels are illustrated in Tables 2 and 3, which present the legal and policy framework. The tables also highlight that there are different but parallel fields of law and policy that regulate climate migration and that **climate migration law and policy are fragmented between climate change and migration fields** (Nash 2019). In addition to these, disaster and crisis management is an important policy field (Cubie 2018); however, in this report it is presented together with climate change related instruments. Although the law and policy on internal and cross-border displacement is often connected to climate change and to disaster risk management fields, cross-border displacement especially should also be treated within the field of international migration law and policy. This fragmentation has been one of the greatest challenges in the global governance of human mobility induced by climate change.

The Tables 2 and 3 compile the law and policy on the climate change and migration nexus, illustrating the fragmentation between the fields of climate change management and migration management. There are both soft law and hard law instruments. Hard law means agreements establishing legal obligations, while soft law means recommendations and policy objectives. However, they are equally relevant for global, regional or national governance. The tables show that there are many instruments in the field of international climate change law that mention climate migration and displacement, but they do not create explicit binding rules on protecting people. Concrete protection and rights related to climate-induced displacement are mostly found in the field of migration law, but explicit binding rules are also missing. Therefore, there is a **protection gap** in law and policy with regard to displacement induced by climate or environmental change. Therefore, it is very important to explore, in more detail, what legal, political and moral obligations states might have towards climate-induced migrants and displaced persons, and especially what legal obligations might implicitly apply to people in this situation. This will be assessed in section 4.4.

Table 2. Law and policy framework for climate change context.

International law and policy			
COP16 Cancun 2010 Adaptation Framework, para. 25–29 Loss and damage Decision 1/CP.16, para. 14(f) "climate change induced displacement, migration and planned relocation"	COP18 Doha 2012 Decision 3/CP.18, para. 7(a) (vi) "Migration, displacement and human mobility" as elements of loss and damage.	COP19 Warsaw 2013 Establishment of Warsaw International Mechanism (WIM Excom) as institutional arrangement on loss and damage.	COP21 Paris 2015 Decision 1/CP.21, para. 49 Creation on Task Force on Displacement under WIM to "avert, minimize and address displacement".
Nansen Initiative 2015 Agenda for the Protection of Persons Displaced Across Borders in the Context of Disasters and Climate Change. Continuing the work: Platform on Disaster Displacement	Sendai Framework for Disaster Risk Reduction 2015 Agreement, para. 30 (l) "adoption of policies and programmes addressing disaster-induced human mobility"	COP23 Bonn 2017 Decision 5/CP.23 Invitation to the Task Force to take into consideration both cross-border and internal displacement.	UN High-Level Panel on Internal Displacement 2019 Based on: UN Guiding Principles on Internal Displacement 1998
EU law and policy			
Action Plan on the Sendai Framework for Disaster Risk Reduction SWD(2016) 205 final/2			

Table 3.   Law and policy framework for migration context.

International law and policy			
European Convention on Human Rights 1950 Art. 2 right to life Art. 3 prohibition of torture non-refoulement	Refugee Convention 1951/1967 Art. 1 persecution Art. 33 non-refoulement	International Covenant on Civil and Political Rights 1966 Art. 6 right to life Art. 7 prohibition of torture non-refoulement	Global Compact for Migration 2018 Obj. 2, para. h-l "Natural disasters, the adverse effects of climate change, and environmental degradation" Global Compact on Refugees 2018 Para. 8 "interact with the drivers of refugee movements"
EU law and policy			
Charter of Fundamental Rights 2000 Art. 18 right to asylum Art. 19 non-refoulement	Directive on Temporary Protection 2001/55/EC "mass influx of displaced persons"	Qualification Directive 2011/95/EU Art. 13 refugee protection Art. 18 subsidiary protection Art. 21 non-refoulement	European Agenda on Migration COM/2015/0240 final Mobility Partnerships III.1 Reducing the incentives for irregular migration: Prevention and mitigation of climate change
Finnish law and policy			
Finnish Constitution 1999 § 9 non-refoulement	Aliens Act 2004 § 87 refugee status and asylum § 88.1.2 subsidiary protection	Aliens Act 2004 § 52 individual, compassionate grounds § 90 resettlement (quota refugees)	Aliens Act 2004 § 93 other humanitarian protection § 109 temporary (collective) protection e.g. for reasons of "environmental disaster"

How should the climate migration phenomenon and people's mobility be managed in such a situation? In the academic literature, there are various approaches to solving the protection gap for climate migrants and displaced people. Many specialists believe the UN Refugee Convention (1951/1967) is not a suitable response to climate migration (McAdam 2011a; 2011b). Some support amendments to the Refugee Convention to include climate change and environmental change-induced displacement (Prieur 2008). Some believe there should be a specific legal instrument on climate migration and displacement (Biermann & Boas 2010), but others see problems in having a specific legal instrument just for climate migrants (McAdam 2011b; Mayer 2017). One great challenge is the lack of political will in many countries to create new binding obligations towards migrants or displaced people. However, there is wide agreement that developed countries have an obligation to help developing countries protect their inhabitants from the adverse effects of climate change and to fulfil their human rights obligations (Willcox 2012). In this regard, McAdam (2012) suggests concentrating on the following three aspects:
1) strengthening in-country adaptation to climate change, 2) implementing international standards in internal displacement and 3) encouraging international labour mobility and lawful migration pathways.

It is clear that the effective management of climate migration and displacement for the benefit of affected people requires many different measures at different levels of governance and in different policy fields. Therefore, it is crucial to build structures for cooperation and forums for discussion, which is a cross-cutting theme in many of the topics dealt with in this chapter. One of the basic tenets is that most aspects relating to climate migration cannot be managed at the national level but need to be managed globally and regionally in order to be effective and comprehensive, and because individual countries alone are hesitant to take a leading role.

4.1.2 Climate change negotiations

As seen in many reports and from the legal framework (Tables 2 and 3) in this report, climate change-induced migration and displacement have been an important part of the climate change discussion for over ten years. From the point of view of climate migration, the breakthrough in climate change negotiations took place at the Cancun 2010 meeting (COP16), where the Adaptation Framework was launched and **managing human mobility was seen as part of managing loss and damage caused by climate change**. The assembly called for:

> "Measures to enhance understanding, coordination and cooperation with regard to climate change induced displacement, migration and planned

relocation, where appropriate, at national, regional and international levels" (decision 1/CP.16, para. 14(f)).

In the negotiations in Warsaw 2013 (COP19), the management of loss and damage was institutionalised by the establishment of the Warsaw International Mechanism (WIM Excom) and the further developments in the area of human mobility have taken place mainly in the context of WIM Excom. In Paris 2015 (COP21), the work on climate migration was concretised through the creation of the Task Force on Displacement under WIM to "avert, minimize and address displacement" (decision 1/CP.21: para. 49). In the 2017 Bonn meeting (COP23), the Task Force was invited to take into consideration both cross-border and internal displacement (decision 5/CP.23). The Task Force has published an output in close cooperation with the IOM on mapping human mobility and climate change, where the need for collective measures and new policy initiatives are called for to:

1. "minimize forced and poorly managed forms of human mobility;
2. provide assistance and protection to migrants moving in the context of climate change;
3. facilitate migration in the context of climate and environmental changes;
4. foster regular pathways for migration taking into account labour market needs; and
5. promote decent work and job creation, including creation of green job opportunities." (IOM 2018: 12)

It is important to note that these decisions made in the international climate change negotiations do not create strong legal obligations but rather form a programmatic recommendation for future policies due to the lack of forum's mandate when it comes to the management of migration. At the same time, as there does not exist a global approach to climate migration, there is a need to address this issue in other fora, such as at the regional EU level (see section 4.1.3) as well as globally in state-led negotiations, such as the Nansen Initiative (see section 4.2.2).

4.1.3 European Union

EU policies on climate migration and displacement are under discussion. The EU opened the discussion somewhat late, but now it is enhancing its efforts also in the area of managing climate migration and displacement. The EU Parliament and its Committee on Civil Liberties, Justice and Home Affairs (LIBE) commissioned a study in 2020 on legal and policy responses to environmental migration and displacement (Kraler et al. 2020). The LIBE report offers recommendations on ways to better address the root causes and consequences of the climate change-migration nexus. **The report emphasises that the starting point for new policies on solutions**

must be the protection needs of migrants and displaced persons, highlighting the need to address the protection gap. The report states that it is not purposeful to limit the focus responses narrowly to the field of environmental migration and displacement or concentrate too much on the causality between climate change and protection needs, but address the challenges to international protection in general (Kraler et al. 2020: 24, referring to Betts 2013). The report makes three policy recommendations. The EU should: **1) "contribute to conceptual clarity", 2) "develop a coherent policy on the nexus of climate change and natural disasters and mobility in the external dimension" and 3) "develop a strategy for providing solutions for asylum and migration claims connected to environmental change"**.

The LIBE report thus recognises the need to define common concepts in order for different actors to have meaningful discussions and negotiations on climate migration and displacement (see also Nash 2019 in the context of climate negotiations). **The report urges the EU to participate in climate change negotiations and on other platforms promoting the discussion on how to address climate-related migration and displacement**. The report also seems to suggest that the management of climate migration and displacement has to be done in cooperation with international organisations and third countries (i.e. countries outside the EU), which is already an established practice in the implementation of the EU Commission's Global Approach to Migration and Mobility (GAMM, COM(2011) 743 final) and its external dimension. The second recommendation in the LIBE report refers to developing the **external dimension** of migration policy and the external relations policy so that environmental migration and displacement would be a cross-cutting theme in policymaking. Different tools presented by the report for advancing this objective include: partnerships, such as the Africa–EU Migration and Mobility Dialogue; EU Delegations in key countries; cooperation with the Immigration Liaison Officers Network; and cooperation with local authorities and civil society in key countries (Kraler et al. 2020: 7–8).

The third recommendation in the LIBE report asks for the development of a legislative strategy for addressing the protection gap for environmental migrants and displaced persons. Currently, there is no EU legislation that explicitly addresses the question of climate and/or environmental migration and displacement. The LIBE report sees three alternative legislative avenues: 1) "A Brave New Instrument", 2) "The Piecemeal Approach" and 3) "The Status Quo, Wait & Observe" (Kraler et al. 2020: 89–93). One solution would be to create such a directive or regulation. However, considering the political and practical challenges this would entail, a more **realistic solution would be to develop the "Piecemeal Approach"**. This would mean interpreting the existing legal instruments more creatively or amending them in order to allow a wider scope for protection. The possibility of providing international protection based on already existing EU migration and asylum law is discussed in section 4.4.3.

Although there are no specific EU law or policy for climate migration and displacement, there are already EU policies concerning **disaster risk management**. The UN Sendai Framework is implemented in the EU by the Action Plan on the Sendai Framework for Disaster Risk Reduction (SWD(2016) 205 final/2). The overall goal of the Action Plan, expressed in the first page of the document, is to "prevent new and reduce existing disaster risks, through an all-of-society and all-hazards risk approach across economic, social, and environmental policy areas, with a view to reduce vulnerability and increase resilience". One of the plan's sub-goals is to "strengthen the links between disaster risk management, climate change adaptation and urban policies and initiatives" (Key Area 2). The plan's emphasis is thus on adaptation and resilience. The Action Plan does not outline any goals or plans regarding disaster-induced human mobility, which is one of the issues in the UN Sendai Framework. The EU also has the Civil Protection Mechanism to improve response to disasters.

The EU seems to count a lot on the new **Partnership Instrument** and partnership agreements with third countries envisaged in the European Agenda on Migration (COM/2015/0240 final). There are already partnerships on sustainable environment as well as on migration management and mobility with countries all over the world (EEAS: The Partnership Instrument). These partnerships could be strategically established with the countries that are most vulnerable to climate change impacts. It remains to be seen how these partnerships will be operationalised and what kind of cooperation they create. It could be a fruitful platform for innovative projects, but they need to be applied in a sustainable way. **The future success of this cooperation also depends on the true reciprocity of the actions taken**. For example, the human rights approach of the partnership agreement establishes a set of expectations towards the third country to ensure the human rights protection of its citizens and becoming party to certain international agreements. However, nothing is mentioned, for example, about the possibility of the EU Member States becoming parties to the UN Convention on Migrant Workers' Rights (1990).

4.1.4 Whole-of-government approach

Considering the challenges in adopting migration and asylum law and policy that would benefit climate migrants and displaced persons, it is necessary to involve all fields of governance. In other words, it is important to have a **whole-of-government approach**. This is closely related to the **whole-of-society approach** advocated in the UN Global Compacts (see more in section 4.2.4) as well as in the climate change negotiations (Nash 2019). There are many common aspects and connecting points between different policy fields which require coordination. For example, mitigation and adaptation policies and measures related to climate change governance are, or can be, connected to development aid given to vulnerable countries. **In practice, this**

climate-change-focused development aid could support the implementation of National Adaptation Plans (NAPs) of vulnerable countries. Supporting adaptation measures is considered to be cost-efficient, reducing significantly the residual damage. Although estimations vary, economic damages are eliminated to a large extent by low-cost adaptation (Parry et al. 2009). Financing adaptation measures in developing countries is thus important and the instruments are explored in more detail in section 4.3.

Supporting mitigation and adaptation measures as well as the wellbeing of people in general in the potential origin countries, is in line with the so-called containment policy for migration and displacement (Landau 2019; Carrera 2021). The European Agenda for Migration (COM(2015) 240 final), which is a Commission proposal for new policy objectives in the field of EU migration and asylum management, suggests reducing the incentives for irregular migration as well as addressing the root causes of irregular and forced displacement in third countries. However, there does not seem to be research on the possible containing effect of adaptation measures. Research on the migration and development nexus shows that this is a complex issue where not straight forward theories exist. Development aid can also increase migration in short run and migration itself can be seen as development aid and adaptation strategy. A fact is that remittances to developing countries are higher than development aid, but this does not necessarily mean development in a structural level (de Haas 2010).

The EU has developed an external dimension of migration and asylum policy, mentioned above, that uses so-called migration diplomacy (see e.g. Geddes & Maru 2021) to reach legal or political agreements with origin or transit countries outside the EU. **One of the tools for external policy implementation is the Mobility Partnership, which can be a part of a wider partnership programme**. These partnerships include various policy aspects, which require multisectoral cooperation, and where the whole-of-government approach is central. Partnerships can be used to promote different types of climate change adaptation and disaster risk management strategies, including strategies for addressing migration and displacement. The existing EU partnerships with its neighbouring countries include agreements that delegate migration control responsibilities to countries of transit. This externalisation of migration and asylum policy has, however, also raised concerns about human rights and the treatment of irregular migrants (Vives 2017: 190).

The Africa–EU Migration, Mobility and Employment Partnership is a good example of a programme that implements a comprehensive approach to migration and asylum management, and that could be a potential platform for climate migration management. However, Geddes and Maru point out that a lot depends on the practical implementation in the origin and transit countries. Further, "African-European migration diplomacy should go beyond a response to irregular migration and

displacement", and it should be linked to the African development agenda and to creating social stability (Geddes & Maru 2021: 285–286). This kind of partnership programme is a challenging concept; comprehensive policies need a whole-of-government approach, **common goals and good coordination**. All the actors need to be involved on an equal footing.

Finland's Africa Strategy is an example of a whole-of-society approach as it recognises the need and call for the involvement of all relevant actors, such as officers, political decision makers, the trade sector, civil society and researchers in policymaking. In addition, the importance of involving African actors in policymaking is also mentioned, pointing out diaspora in Finland and embassies in Africa (Ministry for Foreign Affairs of Finland 2021a: 2). In addition to this whole-of-society approach involving different actors in policymaking, Finnish policymakers should pay attention to the whole-of-government approach when implementing the Africa Strategy. A truly comprehensive and concerted approach to climate-induced migration and displacement would require common agenda-setting between all relevant fields of governance so that, for example, the migration management aspect is not detached from other policies. Fragmented action on the ground does not build trust between different actors in the target countries. Coherent policies require cooperation, but also education and training of actors and policymakers for better understanding of different governance fields. For example, Geddes and Maru (2021: 287) argue that migration diplomats involved in the EU Partnership negotiations could benefit from training in migration governance.

FINLAND'S NEW AFRICA STRATEGY

Finland's new Africa Strategy developed by the Ministry for Foreign Affairs of Finland (2021a) is a good example of a comprehensive approach to global and regional challenges. Although the strategy is for bilateral relations between Finland and African countries or the African Union, and it is not directly connected to the Africa–EU Migration, Mobility and Employment Partnership, it addresses similar questions. The focus areas in the strategy are developing political relations and enhancing economic cooperation between Finland and countries in Africa, and building peace and security in Africa. Climate change, the environment and resource scarcity are mentioned as challenges to security in Africa. Managing migration, human trafficking and deportation are also mentioned in the strategy but, in this regard, it clearly points to EU cooperation and to following common EU policies. A new issue related to earlier migration policy in Finland is the emphasis on providing more legal migration avenues for Africans to migrate to Finland (Ministry for Foreign Affairs of Finland 2021a).

4.2 Platforms and global frameworks for transnational climate migration governance

4.2.1 Sustainable development and climate migration

The UN's Sustainable Development Goals offer a strong basis and justification for national and inter-governmental work for climate migration governance. Since 2015, the UN Sustainable Development programme has been put into practice through the United Nations' Agenda2030. **Agenda2030 emphasises that the sustainable development goals are to be advanced through global partnerships**.

Agenda2030 addresses climate change mitigation and adaptation to environmental changes, inclusive climate mobility, in many different ways. It recognises that vulnerable regions of the least developed countries tend to be most affected by the climate change impacts caused by carbon-intensive growth and development in the more developed countries (Mair 2014). Therefore, the more developed countries have a responsibility to address climate and environmental changes and advance climate change adaptation in less developed countries. This is referred to as **climate fairness** (Viñuales 2011).

Agenda2030 has been formulated into 17 Sustainable Development Goals (SDGs) (UN 2020, Figure 7). SDGs are designed to enable focusing on both strengthening positive development outcomes and reducing the negative environmental and societal outcomes. In Agenda2030, the need for sustainable development is not restricted to less developed countries as transformations are also needed in more developed countries.

Figure 7.   The Sustainable Development Goals of Agenda2030 (UN 2019b).

When addressing climate mobility from the sustainability perspective, multiple viewpoints call for attention. For development to be truly sustainable it has to touch all segments of society. In Agenda2030, special attention is paid to addressing current national and global inequalities. The pledge "**leave no one behind**" requires that the needs of vulnerable groups, such as children, youth, persons with disabilities, people living with HIV, older persons, indigenous peoples, refugees, internally displaced persons and migrants are addressed in sustainable development work. Agenda2030 calls for reaching first those who are furthest behind (UNSD 2020). Thus, the pledge of leaving no one behind links to the notion of climate justice that calls for attention that climate change challenges the life of certain social groups more than others (see Mohai et al. 2009: 421).

Climate change mitigation is the baseline for climate migration governance as it lessens the need for further climate change adaptation. Government actions and international agreements need to guarantee that sufficient efforts are made for climate mitigation (SDG 13, climate action). This calls for transforming the current CO2 intensive industries and national economies and building new sustainable livelihoods and consumption in all countries (SDG 12, responsible production and consumption).

The sustainability perspective on climate migration also calls for attention to climate change adaptation in vulnerable areas. This means that living conditions are maintained and improved in those areas impacted by climate change. This involves working on issues such as sustainable livelihoods and agriculture, food security, inequality, housing, disaster risk reduction, education, and conflict resolution and addressing both slow-onset and sudden-onset natural hazards through adaptation and risk-reducing strategies (see e.g. SDGs 1, 2, 6, 10 and 11). **The efforts for**

climate change mitigation and adaptation in vulnerable areas do not take away the need to facilitate and address migration caused by environmental drivers.

SDGs need to be considered also in migrant journeys (IOM 2017: 29–30). As defined in SDG 10 (reduced inequalities), under target 10.7, it is necessary to facilitate "orderly, safe, and responsible migration and mobility of people, including through implementation of planned and well managed migration policies" (UN 2020). In the context of climate migration, this means that when climate change alters the natural environment in a way that it no longer supports decent living conditions, people need to be able to migrate in an orderly and safe way. In addition, the IOM (2017) draws attention to the environmental impacts of migration mobilities (SDGs 13, 14, 15). It highlights that **migration governance practices must be in line also with environmental standards, such as in camps and transit centres**.

SDGs are to be considered also in integration policies in the destination areas and host countries such as Finland. A variety of the SDGs are to be considered regarding migrants' future lives, such as goal 10 (reduced inequalities) or goal 8 (decent work and economic growth). Overall, with socially just and sustainable asylum and integration policies it can be ensured that the most vulnerable groups are taken care of, also inside Finland.

4.2.2 Nansen Initiative and Platform on Disaster Displacement

The Nansen Initiative is a state-led advisory process that draws attention to climate migration as a global challenge. Its overall aim is to build consensus among states on the need for the protection of people displaced across borders due to natural hazards, including those linked to climate change. The proposal to launch the Nansen Initiative came from Switzerland and Norway in 2012 and was deemed necessary as international law does not guarantee sustainable migration solutions for people fleeing from one country to another due to natural disasters (Kälin 2012, 2015). The initiative's **goal is to assist countries and other actors in improving preparedness and response capacity to cross-border disaster displacement** and to better integrate the actions of different states and (sub-)regional organisations (Nansen Initiative 2015b: 7). The Nansen Initiative is primarily funded by the governments of Norway and Switzerland as well as the European Commission, Germany and the MacArthur Foundation (Nansen Initiative 2021).

The Nansen Initiative emphasises a holistic approach and draws attention to the possibility of **preventing irregular migration due to natural disasters and planning for regular migration and relocation instead** (Nansen Initiative 2015b). The

objectives of the Nansen Initiative during the period 2012–2015 can be summarised in three main points: 1) increase international cooperation and solidarity; 2) create standards for the treatment of those who have moved because of climate change and environmental disasters; and 3) establish relevant operations, including financial mechanisms and international humanitarian aid and development responsibilities (IOM 2020e).

The main output and final document of the Nansen Initiative is the Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change (i.e. the Protection Agenda) (Nansen Initiative 2015a, 2015b), which is currently endorsed by 109 states. **The Protection Agenda draws attention to cross-border mobility as a result of environmental changes and disasters and the protection and assistance of migrants**. Particular attention is to be paid to solidarity and voluntary actions by states in assisting and resettling displaced persons. The Protection Agenda covers three phases, each of which needs to be addressed: preparedness before a hazard occurs, protection and assistance during displacement and transition to solutions in the aftermath of a disaster (Nansen Initiative 2021).

The Nansen Initiative and the Global Compact on Migration (see 4.2.4) both raise the issue of **supporting managed cross-border mobility to help climate migrants** (see also IPCC 2014). The Nansen Initiative underlines the importance of creating solutions and routes for permanent migration, especially for the inhabitants of small low-lying island states threatened by sea level rise as well as people living in low-lying coastal areas or areas that are becoming uninhabitable and where resettlement or relocation within the country is not feasible. In such cases, migration should take place in a controlled and organised manner along the travel routes using air, shipping and train services provided by international passenger carriers.

The Nansen Initiative brought attention to disaster-induced migration within the international policy framework (Kälin 2018; Nash 2018) and it has served as a ricochet for new measures and initiatives, such as the Platform on Disaster Displacement. **The Platform on Disaster Displacement** is a state-led initiative that seeks to improve the protection of people who have been forced to move to another country because of natural disasters and climate change. Its activities aim to ensure that the Protection Agenda is considered in decision making. With the Nansen Initiative, more attention has begun to be paid to disaster-induced migration within the International Policy Framework (Kälin 2018; Nash 2018). In 2019, a Group of Friends (co-chaired by the EU and Morocco) was established for those countries and regional organisations that are interested in supporting the objective of the Platform on Disaster Displacement, would like to follow the platform's work and would like to contribute to the work of the platform (Platform on Disaster Displacement 2021b).

4.2.3 Guiding Principles on Internal Displacement

The governance of internal migration is part of climate migration governance and requires international attention alongside cross-border migration. The Global Protection Cluster (GPC) is a network of nongovernmental organisations (NGOs), international organisations and UN agencies led by the United Nations High Commissioner for Refugees (UNHCR). The purpose of the GPC is to ensure protection in humanitarian crises linked to armed conflict, climate change and other natural disasters (GPC 2021a). In 1998, the GPC introduced the 30 **Guiding Principles on Internal Displacement** (see UN 1998). These principles define the rights of internally displaced people (IDPs) as well as the responsibilities of national governments to protect and assist them. **The GPC has tailored the existing norms so that they better apply to the situation of internally displaced persons**. The Guiding Principles reflect relevant international human rights, humanitarian and refugee law. The principles address protection against displacement, protection during displacement and protection during return, reintegration or settlement elsewhere in the country (GPC 2021b). The Guiding Principles provide that the national authorities are primarily responsible for assisting IDPs, regardless of the cause of their displacement.

The Guiding Principles on Internal Displacement is not a binding legal instrument. However, some states have incorporated the principles in their laws and policies (GPC 2021b). The GPC emphasises that long-term development planning is needed to secure the peace, stability and prosperity of countries that have IDPs. Here, the positive contribution of IDPs to the host communities is to be recognised. The GPC emphasises that it is only in this way that the Sustainable Development Goals can be supported. To realise such circumstances in countries with IDPs, international support can play a big role (GPC 2021c).

The African Union (AU) has given the Guiding Principles the force of law on the continent by ratifying the African Union Convention for the Protection and Assistance of Internally Displaced Persons in Africa (the Kampala Convention) in 2009. In 2019, the treaty had been adopted by about half of the Member States of the African Union. The convention focuses on the role of individual states in prevention, protection, and assistance obligations during displacement as well as countries' obligations in the phase of return and compensation. However, the convention highlights that state actions must be conducted in cooperation with international organisations, humanitarian agencies, civil society and other relevant actors (UNHCR 2019).

4.2.4 Global Compacts

The Global Compact for Migration is the first UN global agreement that aims to improve cooperation on international migration. It was adopted in 2018 by a majority of UN Member States. As stated by the IOM (2018: 12), the inclusion of climate change issues in this Global Compact is a major achievement and it reflects the rise of migration issues on the climate agenda. The Global Compact is not legally binding, which means it does not create legal obligations under national or international law, but it does guide states and other global actors towards better governance.

The Global Compact for Migration recognises that cooperation is vital to maximising the benefits of migration, while addressing its risks and challenges for both individuals and communities in countries of origin, transit and destination. **The emphasis is on the notion that the challenges and opportunities of international migration should unite countries, rather than divide them** (UN 2018a: para. 9). The Global Compact is based on the values of state sovereignty, responsibility-sharing, non-discrimination and human rights. The Global Compact is consistent with Agenda2030 concerning sustainable development and its target of cooperating internationally (IOM 2021b).

THE GLOBAL COMPACT FOR MIGRATION

The Global Compact for Migration has 23 objectives (UN 2018a) that deal with better governance of migration on the local, national and global levels. In summary, the Global Compact

1. "Aims to mitigate the adverse drivers and structural factors that hinder people from building and maintaining sustainable livelihoods in their countries of origin;

2. Intends to reduce the risks and vulnerabilities migrants face at different stages of migration by respecting, protecting and fulfilling their human rights and providing them with care and assistance;

3. Seeks to address the legitimate concerns of states and communities, while recognizing that societies are undergoing demographic, economic, social and environmental changes at different scales that may have implications for and result from migration;

4. Strives to create conducive conditions that enable all migrants to enrich societies through their human, economic and social capacities, and thus facilitate their contributions to sustainable development at the local, national, regional and global levels." (UN 2021a)

The Global Compact recognises that natural disasters, the adverse effects of climate change and environmental degradation are potential drivers and structural factors that force people to leave their country of origin (UN 2018a: obj. 2 para. h - l). Objective 2 of the Compact highlights that it is necessary to "develop adaptation and resilience strategies to sudden-onset and slow-onset natural disasters, the adverse effects of climate change, and environmental degradation, such as desertification, land degradation, drought and sea level rise". This is necessary as the Compact frames adaptation in the country of origin as a priority. In addition, the Compact calls for developing a coherent approach that addresses the challenges related to migration and consider the relevant recommendations from state-led consultative processes, such as the Nansen Initiative's Protection Agenda and the Platform on Disaster Displacement (UN 2018a: obj. 2 para. l).

As the Global Compact for Migration is the result of multi-state negotiations, it is often seen as a compromise outcome. The Migration Compact has been criticised, among other things, for not prohibiting the detention of children.

In 2018, **the Global Compact on Refugees** was also affirmed by the UN. The Compact was developed by the UNHCR together with the UN Member States and other stakeholders (UNHCR 2021a). The aim of the Compact is to promote more predictable and equitable responsibility-sharing and international cooperation in refugee situations. **The Compact offers a framework that helps governments, international organisations and other stakeholders ensure support for host communities and refugees**. The Global Compact on Refugees is not legally binding, nor does it overstep previous refugee agreements (UNHCR 2021b). In the Compact, it is stated that "national ownership and leadership are key to its successful implementation" (UN 2018b: para. 5). The Compact has four objectives:

- Ease pressures on host countries
- Enhance refugee self-reliance
- Expand access to third country solutions
- Support conditions in countries of origin for return in safety and dignity.

The Global Compact on Refugees (UN 2018b: para. 8) acknowledges that "climate, environmental degradation and natural disasters increasingly interact with the drivers of refugee movements". The Compact states that addressing such root causes is primarily the responsibility of the countries at the origin of refugee movements. However, it is also states that prevention and addressing the root causes requires the attention of the international community as a whole and the **Compact calls for cooperation between political, humanitarian, development and peace actors** (UN 2018b: para. 8).

4.2.5 Mayors Migration Council platform

There has been a call for better cooperation at the state and city levels in many countries. There can be tension between national and local approaches to mixed migration. There is often a more practical approach to migration at local level, which diverges from the more ideologically driven and increasingly securitised approaches and policies at the national level. It has been recognised that the relative lack of sovereignty of cities compared to nation states actually makes cities more powerful. City authorities do not have to worry about giving up sovereignty, which means they are better able to seek common interests and cooperate across borders on global issues such as migration. With the increasing importance of the role of cities and mayors in global migration governance, there has been a growing number of new initiatives in which cities across the world are directly cooperating with each other on migration issues (Horwood et al. 2020: 8).

One form of collaboration on migration issues is the Mayors Migration Council (MMC), which was established in 2018. The MMC (2021) works to empower and enable cities with access, capacity, knowledge and connections to engage in migration diplomacy and policymaking at the international, regional and national levels. The MMC wants to ensure that global responses to migrant and refugee issues both reflect and address realities on the ground for the benefit of newcomers and the communities that receive them. To fulfil its mission, the MCC aims at the following: 1) institutionalising the formal access of cities to national, regional and international policy deliberations on refugees and migrants; 2) building the diplomatic skills and advocacy capacity of cities so they can effectively shape decisions at the national, regional and international levels; 3) unlocking, directing and redirecting resource flows to cities so they can deliver better outcomes on the ground; and 4) helping cities implement local solutions concerning migrants and refugees efficiently and at scale to accelerate global commitments.

The MMC provides a good platform for sharing not just ideas but also practical measures on how to welcome and build the resilience of those who move to cities due to climate change impacts elsewhere (Bryce 2020). Since its establishment, the MMC has formed a strategic partnership with C40 Cities Leadership Group (C40), the global network of mayors committed to urgent action on climate change. C40 connects 97 of the world's largest cities, representing more than 700 million people and one quarter of the global economy (C40 Cities 2021; MMC 2021). The MMC works in close connection with established and recognised city networks, most notably United Cities and Local Governments (UCLG) and the International Organization for Migration (IOM).

4.3 Funding mechanisms for climate migration governance

4.3.1 International funding tools

To enable efficient climate migration governance, public and private funding is required. Various funding agreements and mechanisms can be used as a means of addressing climate migration. The **Green Climate Fund** (GCF) is the largest global climate fund. It was established by the United Nations Framework Convention on Climate Change (UNFCCC) in 2010. The strategic vision of the GCF is to promote a paradigm shift **towards low-emission and climate-resilient development pathways in developing countries** (Green Climate Fund 2020: 2). The GCF is mandated to invest 50% of its resources to mitigation and 50% to adaptation. The fund prioritises activities in the most climate vulnerable countries, meaning Least Developed Countries (LDCs), Small Island Developing States (SIDS) and African countries. The financial support is given "through a flexible combination of grant, concessional debt, guarantees or equity instruments to leverage blended finance and crowd-in private investment for climate action" (Green Climate Fund 2021).

As GCF supports climate change adaptation in those developing countries that are most vulnerable to climate-induced environmental changes, its work can be seen as dealing with climate migration governance. Projects that support climate-friendly and sustainable economies can support local economies and employment. The IOM, which reviewed the extent to which the GCF links to human mobility in the context of climate change, notes, however, that **the fact that the GCF does not explicitly refer to human mobility may hinder its use in financing large-scale climate migration-related action** (IOM 2018). In 2018, for example, no GCF projects had a primary focus on human mobility. However, the 2018 IOM report finds that the goal of "increasing climate-resilient sustainable development" is relevant to migrant communities as well as communities of origin and destination (2018: 54–56). In addition, many of the projects being funded in 2018 looked into diverse issues related to displacement, relocation and migration of individuals and communities. Thus, the IOM report states that "the GCF offers a strategic opportunity to develop large scale projects that seek to reduce or avoid instances of climate-related displacement and explore the potential of migration management measures to support adaptation to climate impacts" (2018: 56).

Through its developed country parties representation on the GCF Board, Finland can influence GCF decision making. To enhance climate migration governance on the global level and funding of relevant climate migration-related actions, **the human**

mobility dimension should be incorporated more explicitly into the GCF's strategic plan.

The Global Environment Facility (GEF) was established in 1991 by the World Bank. Funding from the GEF Trust Fund is available to developing countries and countries in economic transition to support their efforts to meet the objectives of international environmental conventions and agreements (GEF 2021). Finland is one of the GEF donor countries. Currently, Finland promotes an equality perspective and the role of private sector partnerships in GEF operations (Ministry for Foreign Afffairs of Finland 2021b).

Several other trust funds exist under the GEF's administration. These include, for instance**,** the Least Developed Countries Trust Fund (LDCF), the Special Climate Change Trust Fund (SCCF) and the Adaptation Fund established under the United Nations Framework Convention on Climate Change (UNFCCC). The LDCF's objective is to address the needs of the Least Developed Countries (LDCs) that are especially vulnerable to the adverse impacts of climate change. To do this, attention is paid to sectors and resources that are closely connected to development and livelihoods: water, agriculture, food security, health, disaster risk management and prevention, infrastructure and fragile ecosystems. The SCCF supports adaptation and technology transfer in developing countries in contexts such as water resources management, land management and agriculture. The Adaptation Fund finances concrete adaptation projects and programmes in developing countries (GEF 2021). On its list, there are **funded projects and programmes that are linked to natural disasters, risk reduction and displaced groups** (Adaptation Fund 2021).

The recent World Disasters Report by the International Federation of Red Cross and Red Crescent Societies (IFRC) highlights that none of the 20 countries most vulnerable to climate change and to climate- and weather-related disasters were among the 20 highest per person recipients of climate change adaptation funding from global public contributions (IFRC 2020a: 295–306); therefore, smart financing is called for. This means "deliberately directing money to the countries and communities most at risk of climate change crises and designing holistic funding strategies from a starting point of what these people and places really require" (IFRC 2020b: 9). In 2020, the Human Rights Network at the Finnish Parliament urged the government to **define clear criteria and objectives for Finnish climate funding**. In this way, it would be possible to systematically guide the selection of funding receivers. This would also make it possible to take human rights and gender equality into account in funding-related decision making (Debaattimedia 2020). Such explicitly defined criteria and objectives for climate funding would also bring to the fore the climate migration perspective in climate funding actions.

4.3.2 Private sector partnerships

The UN's Global Compact on Refugees (2018: 13) emphasises that apart from public-led development cooperation, it is necessary to maximise private sector contributions in managing refugee situations. Together with the UN Member States, the private sector could focus on, for instance, de-risking arrangements, opportunities for private sector investment, infrastructure strengthening, job creation and development of innovative technologies such as renewable energy.

The ongoing work of Finland in funding private business initiatives in less developed countries can be considered as part of climate migration governance enabling the business environment in vulnerable areas to contribute to climate change adaptation. By **developing new sources of employment and income in the areas where traditional local livelihoods are diminishing due to climate-induced environmental change**, the possibilities for local people to stay in their home areas can be supported. At the same time, building new and more sustainable economies contributes to climate change mitigation in cases where less carbon-dependent economies are advanced. Finnfund is one of the instruments in Finland's development policy. While Finnfund invests in sustainable private businesses in developing countries, its work can be seen as contributing to climate change adaptation and climate migration governance.

In its report (2017: 4–5), the Development Policy Committee noted that Finland should aim to strengthen the economies in developing countries both through development cooperation tools as well as business creation and partnerships. Public and private funding mechanisms can supplement each other. However, in the report, it is emphasised that in private sector-led development cooperation, attention must be paid to distributing the benefits of business development as widely as possible. In the context of climate migration governance, it is especially important that private sector-led development cooperation benefits those who live in the least developed areas and especially the groups that are most vulnerable to climate change-induced changes. From the perspective of climate change adaptation and climate migration governance, **the primary goal should be improving the living conditions of the local population**. Explicit attention must be paid to this point if a climate migration perspective were to be incorporated in the measures of action and decision making in private sector-led development work. Also, Finland's and the EU's ongoing work in planning the shared political framework for corporate social responsibility legislation contributes to ability of the private sector to foster sustainable development.

4.4 Legal aspects of protection and assistance of climate migrants

4.4.1 Human rights approach to climate migration

One of our goals in this report is to analyse the challenging nexus between climate change, migration and human rights, also called upon in the research literature (Nash 2019: 157–173). However, it is not easy to define what exactly a human rights approach to climate migration is (Palander 2020). Nash has commented that the international negotiations around climate change have lacked conceptual clarity (2019: 179), especially when discussing the **human rights and climate migration nexus** (2019: 166–168). Cubie comments that "we risk being separated by common language" as the term human rights has different connotations and implications depending on the disciplinary lens adopted (Cubie 2018: 330, referring also to Cannon 2008). In this chapter, the report takes a legal approach to human rights and therefore concentrates on determining the rights, and especially human rights, protected in international law in the context of climate migration.

The United Nations Office of High Commissioner for Human Rights (OHCHR) provided a report in 2018 on human rights protection gaps in the context of cross-border movement resulting from the adverse effects of climate change. **In the report, the High Commissioner calls for States to facilitate migration with dignity for all migrants and addresses their specific human rights protection needs**. According to this document, the protection needs include: water, sanitation, food, housing, health care, social security, education and decent work. The report also mentions rights more closely related to migration: non-refoulement, prohibition of collective expulsion, rights to liberty, personal integrity and family unity, as well as ensuring the best interests of children. In addition, those who are unable to return to their countries because of climate change should be provided with legal status (OHCHR 2018: para. 41). Decent work and the rights of labour migrants are also protected in the UN International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families (1990), but not many receiving countries have ratified it.

The 2018 OHCHR report addresses in a new way the need to **respect the human rights of all affected persons in a situation of planned relocation**. First, the relocation is a measure of last resort; however, when implemented, it should "involve the meaningful and informed participation of all effected persons, including migrants and receiving communities and maintain their previous living standards". The report also calls for empowering people to achieve effective climate action. **This empowerment includes the possibility to decide freely to move, which requires sufficient regular pathways for cross-border movement** (OHCHR 2018: para. 47,

55). Also, other actors, such as the IOM, have called for regular pathways as a method of adaptation for climate migrants (see e.g. IOM 2018). The right to migrate is not a human right, except in a narrow sense of international protection, but the entry rules are defined in national law. However, there are regional instances of legislation potentially relevant for climate migrants in the European Union as well.

4.4.2 Right to international protection

In international law, there is an exception to the state's sovereign right to determine the entry of foreign nationals in case of international protection and the **non-refoulement** principle, which prohibits the return of a migrant to a country where there is a real risk of them being subjected to persecution, torture, inhuman or degrading treatment or any other human rights violation (see e.g. Hathaway & Foster 2014). Every person, including climate migrants, has the right to leave a country and seek asylum or international protection in another country. The criteria for receiving such protection are determined under international, regional and national law. Most legal systems acknowledge the right to seek asylum, but it is also well recognised that there is **no legal category for a climate refugee in international law** (see e.g. Scott 2020: 1–6). However, this does not mean that climate migrants would never be entitled to international protection. Despite the lack of an explicit climate refugee category, there is a chance that the circumstances are such that a person meets the general definition of a refugee.

McAdam (2012) explains how the element of persecution in the refugee determination (Refugee Convention 1951: art. 1A(2)) is one of the challenges in applying refugee status to climate migrants. There is a need to identify a persecutor, which is difficult in the case of climate change-induced migration. **The climate or the nature cannot be considered a persecutor**. It is also relevant if the state is able or willing to protect its citizens. Even if it could be argued that the state has not done enough to protect its citizens, it is persecution only if it is discriminatory on the grounds enumerated in the Refugee Convention (race, religion, nationality, membership of a particular social group or political opinion). The harm caused by climate change is often indiscriminate and not directed at a certain group (McAdam 2011b: 12–13).

Hathaway and Foster (2014) write that a human rights approach to refugee determination means that, in addition to the situations of persecution prescribed in the Refugee Convention, severe human rights violations could require international protection. According to them, the UN Human Rights Declaration (1948) should be used as interpretative guidance for the Refugee Convention since the declaration is referred to in the convention's preamble. Reference to human rights law could provide a tool that helps inform whether the harm meets the severity threshold (Hathaway & Foster 2014: 200). **In other words, severe human rights violations related, for**

example, to climate change mitigation measures or environmental disaster response could require international protection.

Scott (2020) stresses that the Refugee Convention (1951) is distinct from the human rights instruments and being persecuted is not the same as being the victim of human rights violations. However, he seems to think that human rights violations, and especially discrimination, can amount to persecution (Scott 2020: 94, Chapter 6). **Scott introduces a different approach, a social paradigm, to natural disasters and emphasises the social aspects instead of natural aspects in a disaster** (2020: 15). If the state does not protect all inhabitants effectively and equally from the adverse effects of climate change, these people might need to seek and might even be able to receive international protection in another state (Scott 2020: 94).

In addition, there is a specific protection scheme developed through the non-refoulement principle which is applicable when the general situation in the origin country is so unsafe that forcibly returning people would be inhumane (Scott 2020: 91). This is also emphasised in a study recently requested by the EU Parliament (LIBE Committee). The authors of the study suggest that **the standards related to the deportation of sick migrants and their ability to return to their country of origin will be relevant also in the case of climate migrants** (Kraler et al. 2020). According to them, "socio-economic reasons in the broader context of Articles 2 and 3 of the European Convention on Human Rights could offer crucial bases for protection; however, the threshold is set very high" (Kraler et al. 2020: 15). The study concludes that the current human rights framework might help climate migrants and displaced people in some cases of sudden environmental disaster, but not so much in situations of slow-onset effects of climate change (Kraler et al. 2020).

There has not been a case in the international court or before the UN Human Rights Committee where a state would have been obligated to offer international protection on the grounds of climate change or an environmental disaster. However, there is a recent case Ioane Teitiota v. New Zealand (October 2019) in which the Human Rights Committee acknowledged that in some circumstances it could be possible, and went on to enumerate the criteria used by a tribunal in New Zealand for such an assessment. Although the applicants did not receive protection, this list of unmet criteria can serve as a reference point in future court cases for **factors that need to be taken into account**. It can also serve as a list of factors that need to be researched to provide information for decision makers.

IOANE TEITIOTA V. NEW ZEALAND

Ioane Teitiota and his family, originally from Kiribati, applied for protection in New Zealand, claiming that the effects of climate change and sea level rise forced them to migrate, and their deportation would be a violation of the right to life protected in the International Covenant on Civil and Political Rights (1966, Art. 6). They presented evidence of freshwater scarcity, saltwater contamination, overcrowding, land erosion, housing crises and land disputes that have caused fatalities. According to them, the government's attempts to combat these problems had been ineffective (para. 2.1).

The Human Rights Committee examined, if there was a risk of arbitrary deprivation of life upon the family's return to Kiribati. In this kind of assessment, it is necessary to consider the actions and omissions of the state in question, both concerning climate change mitigation and adaptation, as well as concerning the careful and individual investigation of applicants' claims. The committee seemed to be convinced of both aspects and did not see arbitrariness or an imminent threat to life. It went through the criteria used by the Tribunal in New Zealand in detail (para. 9.6), listing the missing evidence that:

a) "the author [i.e. Teitiota] had been in any land disputes in the past, or faced a real chance of being physically harmed in such a dispute in the future;

b) the author would be unable to find land to provide accommodation for himself and his family;

c) the author would be unable to grow food or access potable water;

d) the author would face life-threatening environmental conditions;

e) the author's situation was materially different from that of every other resident of Kiribati; or

f) the Government of Kiribati had failed to take programmatic steps to provide for the basic necessities of life, in order to meet its positive obligation to fulfil the author's right to life."

4.4.3 Protection of climate migrants in national and European Union law

Finland has been party to the Refugee Convention since 1968, and although there has been legal pathways to asylum since 1930, it did not really legislate on international protection and start receiving asylum seekers until the 1980s (Välimäki 2019). In 1990, Finland joined the European Convention on Human Rights, which has affected the development of international protection related to the non-refoulement principle. This has meant creating complementary protection categories. In 1995, Finland joined the EU, and since 2000 it has taken part in common visa, migration and asylum policy. Visa and asylum legislation is almost fully harmonised (at least in

theory), but there is still a possibility for Member States to determine rules for a national visa or offer more international protection. Other areas of migration policy have quite comprehensive EU legislation as well, but those directives leave much more space for national discretion (See more Kallio et al. 2018).

Both national and EU legislators need to take the obligations of international law into account. For this reason, the EU Qualification Directive (2011/95/EU) repeats the refugee determination criteria set out in the Refugee Convention, but also recognises the need for **complementary international protection** in the light of developments of the non-refoulement principle, and thus regulates the rules on subsidiary protection in case of serious harm. EU migration and asylum law also includes the Temporary Protection Directive (2001/55/EC) that provides more ad-hoc type of instrument to respond to mass influx of asylum seekers and, according to McAdam, could "potentially be activated to respond to a sudden influx of people on account of environmental or climate change impacts". However, when drafting both of the above-mentioned directives, an explicit mention of natural disasters was intentionally left out. (McAdam 2011b: 39)

The Qualification Directive Article 15(b) regulates that serious harm consists of torture or inhuman or degrading treatment or punishment of an applicant in the country of origin. It includes the possibility of receiving **protection based on health reasons**. However, the case law of the EU Court of Justice has emphasised the element of in-tentionality in the deprivation of health care by the authorities in the origin country (EASO 2018: 29). In the context of climate change impacts seriously affecting health, the applicant should demonstrate deliberate acts or omissions by the state authorities to even try to provide alleviation. Therefore, Article 15(b) of the Directive is unsuitable for the situation of most climate migrants, although it has been argued that international law requires wider interpretation of the real risk to health and life (Peers: Could EU law save…). The challenge is that international and regional European human rights law is constantly evolving through the practice of treaty bodies such as the European Court of Human Rights. States are obligated to follow these developments and make decisions respecting the obligations of international law.

Practical problems arise if EU law is not coherent and up-to-date with international law. Although the scope of protection of the non-refoulement principle might be wider than in the EU Qualification Directive, it does not secure immigration status. A national legislator would then need to use the possibility to provide a national protection status complementary to the Directive. Many EU Member States have created such residence permit categories in case of, for example, serious risks to health if forcibly returned to the origin country. For example, according to a newspaper in France, there is a recent court case prohibiting the deportation of a Bangladeshi man suffering from asthma (The Guardian: Man saved from

deportation…). As mentioned above, these **aspects of healthy environment** are relevant with regard to climate migration, although not all environmental threats to health are caused by climate change. There can also be complementary protection based on climate change impacts. Finland was one of the few Member States that had such a category (humanitarian protection) until 2016, when it was removed from the Aliens Act (law 332/2016).

As explained above, receiving international protection is highly improbable if there are no other reasons for displacement than environmental reasons. **There is no explicit category of environmental or climate change refugee in Finland for which a foreigner can apply**. However, there is the same slight possibility of receiving international protection in the Finnish asylum determination process as explained above in connection with the interpretation of the Refugee Convention, non-refoulement obligations or EU Qualification Directive. An interview with an official from the Finnish Immigration Service confirms that environmental and climate change factors are taken into consideration as well when determining the need for international protection. It is possible to give subsidiary protection (Aliens Act, section 88.1.2) or a residence permit based on individual compassionate grounds (Aliens Act, section 52). However, the interviewee admitted that **climate change or environmental reasons do not create a strong claim**, and it might well be that there are no cases that would have been decided favourably for the applicant based solely on those criteria (interview with Juho Repo, Finnish Immigration Service, 18.1.2021).

It is impossible to verify the amount of applications or decisions on international protection based on environmental or climate change reasons since there are no statistics that would disaggregate based on those grounds. However, the interviewed official from the Finnish Immigration Service confirmed that there have been some cases in the past where these aspects have emerged. A survey conducted in Finnish reception centers shows that environmental factors have been either primary or otherwise influential reasons to migrate for many asylum seekers (Lahnalahti 2019). An upcoming research from Sweden shows that although there is a specific international protection provision for people facing environmental disaster in Swedish migration law, there have been no more than 200 cases between 2006–2019 in which individuals or families directly relied on a fear of disaster or climate-related harm (Scott, @matthewscott111).

Since the actual possibility of climate migrants and displaced persons receiving international protection is small within the current legal framework, **the most relevant avenues for protection and adaptation would be normal legal migration routes** (complementary pathways, see more in section 5.3) or **resettlement** from camps or cities hosting refugees and displaced persons. It could be possible to select so-called quota refugees (Aliens Act, section 90) for resettlement by using criteria related to

climate migration. There is also a possibility of providing **temporary protection in case of environmental disaster** (Aliens Act, section 109), but that requires a political decision by the government. In general, responses to sudden-onset disasters seem to be easier than solutions to slow-onset environmental change. If legal avenues are not available and there are big protection gaps, climate migrants risk being doomed to irregular avenues and an irregular stay in the host country, which should be avoided. Not only because the states do not approve it but also because it does not allow for development towards a more prosperous future and life in dignity.

4.4.4 Reception and assistance of climate migrants

Determining the rights related to the reception and assistance of climate migrants is challenging since the law does not recognise such a category for international protection or for other kinds of migration. It can, of course, be said that, as human beings, they are entitled to universal human rights and basic rights secured for all in the national constitution. However, human rights protection also depends to some extent on nationality and immigration status, as well as on the determination of the duty-bearer, meaning the state responsible for securing the rights.

There are many possible approaches to looking at assistance of climate migrants, which depend on what is meant by 'climate migrant' and 'assistance', but also on the type of disaster. Assistance can occur in the country of origin or in another country. **In the origin country, the assistance is in principle organised and provided by the government of the affected country**. However, other countries or international organisations can be asked to help the affected country in emergency assistance. It seems, though, that regional and national adaptation and disaster risk reduction plans rely on continental, regional and national actors. In addition, the plans rarely discuss cross-border displacement. However, a lot of work is done for the protection and assistance of the internally displaced persons (IDPs) within the United Nations (UN). European donors have been supporting the work, for example, in Africa, but there seem to be challenges related to the role of foreign actors in the protection of the security and rights of IDPs and other vulnerable groups, instead of just providing material humanitarian assistance (Borton et al. 2005). However, it is important to monitor the treatment and access to assistance of, for example, minority groups.

The role of Finland in an affected origin country is thus limited, but according to international law, states are allowed and even obliged to assist their own citizens. The Finnish Consular Services Act (498/1999, section 2) stipulates that the Finnish authorities accredited to another country can assist Finnish nationals, permanent residents and EU nationals without representation of their own country in various situations. Apparently, the same assistance and protection is afforded to the citizens of Nordic countries (The Helsinki Treaty, 28/1962, Art. 34). **It is stated in the**

Consular Services Act that the mission may protect the personal safety "in the event or threat of a major accident, natural disaster, environmental accident, war, civil war or other crisis situation". In these crisis situations, the protection is extended to the family members, irrespective of their nationality (section 15). The law does not recognise a difference between those residing permanently or temporarily in the country (as in some other cases of distress, see section 11). This possibility of assisting certain people in a disaster situation is an invaluable asset to those people, but it can also be seen as a way to alleviate the disaster response work of the affected country.

Providing assistance to cross-border displaced persons (who might have fled for climate-induced reasons) is often organised by the UNHCR in a refugee or displacement camp near the origin country. The UNHCR tries to meet the basic needs of the people in the camps or cities, but the situation is often difficult. There are **three basic solutions applied to forced displacement by the UNHCR: 1) return to origin country, 2) integration in the host society or 3) resettlement to a third country** (UNHCR: Solutions). However, only a fraction of UNHCR refugees find such a solution to their situation. Many of them stay in camps for a long time, even for the rest of their lives. In addition, not all displaced people are accepted as UNHCR mandate refugees. The rights of refugees or other displaced people in the surrounding host society depend on the national legislation of that country, but often they do not enjoy equal or fair rights vis-a-vis nationals of and foreigners in the country. These issues might cause further mobility, so-called secondary movement.

In the case of cross-border displacement and seeking international protection, the first relevant right is the right to request asylum and access to asylum, and how effective in practice it is. Visa regulations, carrier sanctions and border control affect this avenue. When and if a foreigner has managed to arrive at the border or in the country to request asylum, rights related to reception services, stipulated in EU law and national law, are activated so that the basic needs of the applicant are met. When and if the applicant receives international protection, a wider set of rights apply (see e.g. Kallio et al. 2018). The rights of **resettled quota refugees** are the same as other refugees, but the reception and assistance is better organised, and even pre-departure integration measures are applied. The reception and assistance of climate migrants in Finland, and the related rights, depend thus on the immigration status of the foreigner. In the case of voluntary migration as adaptation to climate change (e.g., for work or study), the rights associated with the status can be found in EU law and national law (see e.g. Kallio et al. 2018).

4.5 Security aspects of climate migration

4.5.1 Different security perspectives

The climate migration and security nexus is a multifaceted issue that requires a holistic approach, but, at the same time, also a deeper understanding of specific security challenges. The different aspects include immobile and mobile people in origin, transit and destination countries. A common distinction is also to look separately at **internal** and **external security** threats as if they were detached. Today, the common understanding is that the functioning and security of a society is inseparable from wider international security questions (e.g. geopolitical, cyber and food security) (Scott et al. 2016). There are also important differences between state and human security. The United Nations defines security as "safety from the constant threats of hunger, disease, crime and repression. It also means protection from sudden and hurtful disruptions in the pattern of our daily lives" (UN 1994: 3).

The IOM (2014: 95) highlights that "the human security approach is all the more relevant in the context of climate change, which impacts multiple dimensions". **A human security approach** to climate change recognises the social, political, economic and ecological context in which individuals and communities meet and respond to complex challenges. Human security is "a condition in which people and communities have the capacity to respond to threats to their basic needs and rights, so that they can live with dignity" (O'Brien & Barnett 2013: 6–7). The concept of human security, first introduced by the United Nations Human Development Report in 1994, is closely connected with the sustainable development paradigm that puts people at the centre of all development instead of considering economic growth as the key indicator of development. The human security approach is also strongly present in the Global Compact for Safe, Orderly and Regular Migration. The Global Compact is people-centred and carries a strong human security and human rights dimension. It recognises the individual and wider societal impacts of migration, promoting migrant wellbeing as well as the wellbeing of the members of communities in countries of origin, transit and destination (Global Compact for Safe, Orderly and Regular Migration A/RES/73/195: 5).

The linkages between climate and environmental change, migration and insecurity are complex, thus any linear approaches should be avoided. Accordingly, it is a challenging task to define which security issues are related to climate change, environmental degradation and ecological threats. Due to challenges in verifying the climate migration and security nexus, the connection should not be overemphasized, but still it is important to try to prevent conflicts since the resolution of conflicts will be

much more difficult, also because of climate change impacts such as resource scarcity (Hynni & Martikainen 2020: 81).

Recognising the root causes of insecurities is important in order to proactively reduce insecurity. However, that requires very different measures than those traditionally used in security management, which remain equally important. These differences can be described as **preventive** and **reactive measures**, as well as soft and hard security measures, although the distinction is not always so clear-cut. In Finland, the current **comprehensive security approach** aims to take those soft security aspects into account both in internal and external security. According to Pyykönen and Kivinen (2020: 50), the movement of large numbers of people is a prime example of an issue requiring a comprehensive approach. This approach is also applied to peace building and crisis management; however, it still needs more attention and improved implementation (Pyykönen & Kivinen 2020). These comprehensive models make it possible to take human security better into account.

Another challenge emerges when we look at the climate and security nexus from the point of view of migration and displacement. There is consistency but also difference in approach and measures if the goal is to reduce insecurities or reduce migration and displacement. Migration and displacement can be both the result but also the cause of insecurities. Another question is what kind of insecurities trigger migration and displacement. With this question, we can resort to the research on migration drivers, and there we see that conflict is one of the strongest drivers (Aslany et al. 2021). Currently, there are more people displaced by natural disasters than armed conflict, and both numbers are predicted to grow in the future (IDMC 2020a; IEP 2020). Migration and displacement are adaptation measures to conflicts and environmental threats, but not everyone can move, and thus they need protection. In addition, those who move need protection, but for different reasons.

4.5.2 Security concerns in climate migration context

If we look at the existing security-related strategies of the Finnish Government, we see that the topics of climate change and climate migration already feature. The Government Report on Finnish Foreign and Security Policy (Finnish Government 2020a: 46) states that:

> "Finland is a solutions-oriented and responsible actor, which takes account of the importance of climate change mitigation and adapting to it and other factors causing migration in its development cooperation".

The strategies and policy papers look at the question from the internal and external security points of view. The internal aspect is centred on threats stemming from the large inflow of asylum seekers, and raises aspects related to border security, public security and ontological security. The draft report on internal security policy by the Government of Finland points out threats such as the economic wellbeing of the country, criminals and foreign intelligence agents entering the country, as well as threats towards mental resilience and feeling of security (Finnish Government 2020a). These issues are mainly treated from the point of view of Finnish citizens.

Other government plans in Finland look at this question from the external point of view as well and include, for example, resource scarcity and health issues in the origin countries (Finnish Government 2020a), as well as crisis management and refugee protection (Finnish Government 2020b). Our workshop participants were worried about the negative developments in international relations and the polarisation between regions. They also brought up specific security threats that both mobile and immobile people face abroad, such as insecurity and violence from extremist groups, militia, criminal gangs or political opponents, which can be caused by resource scarcity or other environmental issues. The polarisation of opinions also happens abroad and it can be related to many things, including climate change denial and false information. Interestingly, inequality as a general problem can also affect climate mitigation and adaptation measures, which can lead to conflict and/or displacement. If inequality is considered one of the biggest internal security threats in Finland, the situation is definitely worse in the countries considered vulnerable to climate change effects.

Displacement and migration often generate other human insecurities, such as the loss of income, weakening of social capital, disruption to traditional adaptation mechanisms and increase in vulnerability of already marginalised people. **Forced migration is more insecure than planned and managed migration and weakens the adaptive capacities and resilience of people** in many ways. For example, forced migration often takes place via more dangerous routes, where the risk of abuse and violence is considerably higher (Keygnaert et al. 2014). In addition, forced migration usually predicts worse health, educational and social status among migrants themselves (Brown 2008: 119). In many places, displaced people live in informal settlements with poor access to water and sanitation services and a high risk of infectious diseases. There are various other development issues, such as the growing precariousness of livelihoods, unemployment and vulnerability in marginal settlements, that may give grounds for increased criminal activities and thus create more insecurity (Deheza & Mora 2013).

CLIMATE CHANGE AND ITS POSSIBLE SECURITY IMPLICATIONS

The report of the UN Secretary-General on Climate Change and its Possible Security Implications (UN 2009) identifies five different ways in which climate change can affect security:

1. Climate change threatens food and water security and human health as well as increases vulnerability and human exposure to extreme events and hazards. Food insecurity and increasing commodity prices for their part increase the risk of social conflict.

2. Climate change may slow down and reverse the development processes in many countries and thus weaken the capacity of states to maintain stability and the core functions of society.

3. Migration, displacement and competition over scarce natural resources and other coping responses of communities faced with climate-related hazards and threats may increase the risk of domestic conflict and have serious international repercussions.

4. Climate change and sea level rise results in the disappearance of territory and the loss of statehood. Statelessness has implications for people's rights and security and sovereignty.

5. Climate change impacts shared international resources, such as in the Arctic. The struggle over natural recourses may have a strong negative impact on international cooperation.

4.5.3 Framing climate migration as a security issue

In the context of climate migration, the predictions concerning the numbers of displaced people are alarming, such as the World Bank's estimate of up to 143 million migrants (Rigaud et al. 2018), and which can create anxiety among some observers. Some seminar participants noted that such incredible numbers may even paralyse efforts instead of encouraging people to act (seminar 19.1.2021). Huge numbers and maps with thick arrows pointing at Europe can raise defensive attitudes. Many border agencies and organisations produce maps of the main migration corridors and routes, and such cartographic representations and maps are valuable. Cartographic presentations may also have significant challenges. Maps showing irregular entry are often depicted using thick arrows pointing to Europe from the Middle East and Africa and can be seen as confirming and playing their part in an immigration "invasion narrative" (van Houtum & Lacy 2020). More attention should be paid to cartographic representations of migration routes and their symbolism, especially when discussing anticipated cross-border climate migrations.

The framing of climate migration as one of the biggest security risks of global climate change facing governments and international organisations is not without political consequences (Boas et al. 2019). Climate change and environmental issues should not be appropriated to reconstitute the legitimacy of security institutions and tightened migration and border surveillance (O'Brien & Barnett 2013), but all states need to take responsibility for global climate migration change and its regionally unequal impacts.

There are thus many different aspects to the climate migration and security nexus, and often the most serious security threats are not addressed properly. This comes down to the question of whose security the governments need to protect. How much solidarity do we have towards people facing security threats in less developed countries? How willing are we to place as much weight on the security issues faced by people living in other countries as those faced by Finnish citizens? The answers to these questions require legal, political and moral enquiries. However, if Finland is interested in reducing forced migration and displacement globally and at our borders, there should be more interest also in protecting people outside our borders as well. This requires a comprehensive human security approach. In the current government plans, Finland has taken into account some human security issues related to immobile people abroad, but the serious security threats faced by mobile people, especially forced migrants, are largely missing.

This is also related to the discussion concerning the securitisation of forced migration (Huysmans 2002; Palander & Pellander 2019). The securitisation of climate migration risks directing attention to state security and ignoring the human security aspects and security of mobile people. At our international seminar, speakers underlined their concern over the securitisation of climate change-induced displacement (IDCC) in the Global North by both academia and military establishments and underlined the opportunities that migration entails for ageing European societies (Khan 2021). It is true that threats to human security and resilience in a country can be reflected at the international level and sometimes pose a threat to macro-regional security too, but this cannot be presented as an inevitable consequence. This is the case also with regard to internal security concerns. For example, in the context of forced migration, "migration itself is not a security problem but, depending on how migrants are received in destination areas, social tensions could emerge" (Deheza & Mora 2013: 22). It is also important to acknowledge that **migration often functions as a "conflict avoidance mechanism,** whereby rather than coming into conflict over scarce resources the preferable option is to seek economic opportunity elsewhere" (Deheza & Mora 2013: 21).

Many governments argue that host countries and communities have only limited capacity and willingness to welcome outsiders, especially foreigners and members of

different ethnic and religious groups. Also, some scholars have warned that when a certain threshold is exceeded, the social cohesion and identity of a host country will be threatened (Myers 2005: 3). Others highlight that such discontent can also create insecurity among asylum seekers and migrants as well as among authorities and civil society actors who are responsible for the asylum reception process (van Baar 2017; Prokkola 2020). Also, the experts in the security domain invited to our workshop pointed out that threats such as the polarisation of opinions towards migration and the lack of trust towards the authorities. The research literature also confirms that the host countries and communities' capacities to provide protective security for climate migrants and displaced people are central (Deheza & Mora 2013: 22); however, in many developed countries, the question concerns more willingness and societal attitudes than the actual capacity and survival of a country (van Houtum & Pijpers 2007; Prokkola 2021).

4.5.4 Governments and non-governmental actors as security providers

Government agencies and a well-organised security sector are important security providers for those whose lives are threatened by climate-induced environmental change and for those who have left their homes and livelihoods due to the changing environment. National governments should take preventive action so that the conditions that might lead to forced displacement can be avoided. **National governments also have the main responsibility for undertaking actions that ensure human security** and are understood as primarily responsible for protecting the security of people who are displaced within their territory. They are responsible for planning and assisting vulnerable communities so that they can remain in their original settlements with dignity for as long as possible (UNHCR 2014: 4).

There is an increasing **concern that states are shifting responsibility from protecting refugee and migrant movements to NGOs and civil society.** With this regard, the European Parliament (2017) has recognised the shortage of the EU External Action (2015/2342(INI)):

> "Local and international NGOs and civil society organisations in delivering urgent and, in many cases, life-saving assistance to the most vulnerable in the countries of origin, transit or destination of refugees and migrants; points out that this work has, in many cases, filled the gap left by states and the international community at large." (European Parliament 2017: 13)

The withdrawal from responsibilities is not the only problem that concerns the activities of states, however. In many states, governmental activities create more

insecurity than security. From the perspective of human security, the problem is that in many countries both state and private sector security actors may act as the suppressors of vulnerable and marginalised groups. In Africa, stable, predictable and secure state institutions would be central to the success of implementing sustainability agendas and human security. Many states in Africa have seen a "chronic privatization of violence" (Isima 2007) by nonauthorised informal security actors such as militias and vigilante groups. The governance of private security sectors is central to peacebuilding and for providing human security for displaced people and migrants.

From the perspective of comprehensive human security, the collaboration between governmental and non-governmental actors has proved to be crucial. In many countries, state governments and non-governmental organisations work together to provide protective security for displaced people and migrants. The UN agencies and non-governmental organisations have, for example, implemented many reproductive health service initiatives for displaced people in crisis areas (see e.g., Austin et al. 2008). The well-functioning cooperation and partnerships between governmental and non-governmental actors within and across borders is a factor that considerably impacts the carrying capacity and resilience of host communities. This applies to the Nordic Countries and Finland as host communities too (Prokkola 2021).

The 2015–2016 influx of migrants and asylum seekers to Finland and Europe provides a fitting example. Research shows that, in Finland and Sweden, the third sector and volunteers played a crucial role in facilitating the peaceful and smooth reception of asylum seekers (Herolf 2017; Prokkola 2021). Similarly, in Sweden, the involvement of former refugees (doctors and nurses who speak the languages of newcomers) was a striking feature and particularly valuable for the smooth asylum reception process. However, the hectic environment and additional tasks, such as identity checks, created a great burden for police personnel and took away resources from the ordinary work of crime control (Herolf 2017: 46). In Finland, most migrants and asylum seekers arrived via the northern Swedish–Finnish border crossing point and the town of Tornio, where collaboration and information sharing among Finnish and Swedish actors proved valuable and increased the sense of security among the volunteers and third sector actors. The resilience of the reception system depends on the good management of the services, and it is important to support the security and wellbeing of the authorities, health and security sectors and the actors of civic organisations that all have a crucial role in the functioning of the state and wider society (Prokkola 2021).

THE EU'S GLOBAL APPROACH TO MIGRATION AND MOBILITY (GAMM)

The EU's Global Approach to Migration and Mobility (GAMM) emphasises that well-managed migration can contribute to the security of the EU (COM 2011). The Mobility Partnership Facility is an EU-funded initiative that contributes to the operationalisation of GAMM. Mobility Partnerships between the EU and third countries that aim to reduce irregular migration. Such partnerships that connect governmental and non-governmental actors to local actors are a potential platform for comprehensive security work in the context of climate migrants. A similar comprehensive partnership programme has also been established between countries and local actors in Africa and Asia.

The EU has already for a long time had a European Neighbourhood Policy (ENP) that also addresses some of the security issues relevant to climate migration (Anholt & Sinatti 2020). The European Neighbourhood Policy connects resilience and capacity building with security. The EU-driven adaptation and resilience building initiatives in the Neighbourhood Policy function as soft power to prevent migration by supporting mitigation and adaptation in place instead of developing legal migration routes: "investing in the resilience of states and societies beyond the Union's borders is the way forward to enable societies to minimize the impact of crises and thus deter potential threats from the EU" (Eickhoff & Stollenwerk 2018).

4.6 Concluding remarks: managing the complexity of climate migration

The climate negotiations and the Paris Agreement are important for managing climate change and planning mitigation, adaptation and financing instruments. The negotiations have also touched upon human mobility related to the adverse impacts of climate change, but only through soft law and mainly from the point of view of internal displacement. The disaster risk reduction and Sendai Framework has been a parallel forum to address the mobility implications of environmental disasters. Here the focus is on the sudden-onset impacts of climate change, and therefore on temporary humanitarian solutions for internal displacement. **The Nansen Initiative and the subsequent Platform on Disaster Displacement have provided a state-led forum for also considering the protection of cross-border displaced persons also in relation to slow-onset impacts**. The EU is active in this forum and Finland should implement the measures described in the Protection Agenda.

As climate and environment-induced migration is a complex and multifaceted issue, it requires intersectoral governance, a so-called whole-of-government approach. In addition, it requires multilevel governance and cooperation with private and third

sector actors, a so-called whole-of-society approach. Innovative cooperation schemes are needed; there are great examples of global networking and benchmarking between cities, such as the Mayors Migration Council platform. **Managing climate migration can be pro-active through supporting adaptation measures, also migration as adaptation**. It can also be reactive by supporting reconstruction and providing humanitarian aid for displaced persons. **Research shows that anticipatory adaptation is many times less costly than reactive measures**. Intersectoral governance in Finland would need good coordination, shared core principles and common goal setting. To enable efficient climate migration governance and anticipatory adaptation, both public and private funding is required.

Management of climate-induced migration should take human rights into account. In the global forums, the human rights implications of climate change have been discussed mainly from the point of view of nationals, but not migrants. The right to a healthy environment is an emerging human right, but it has mainly been dealt with in the national context and not in connection with international mobility or protection. In this report, **a human rights approach to climate and environment-induced migration and displacement means that people and their wellbeing, security and protection needs are at the centre of policymaking**. This is also the crosscutting approach in this study. A human rights approach can mean different things in different contexts; for example, respecting the agency of people when implementing adaptation measures or respecting the rights of migrant workers in the labour market.

Climate migrants have the right to seek asylum in the EU or in Finland, but their chances of meeting the criteria for international protection are rather slim. There is a **protection gap in international law** concerning climate-induced cross-border displacement, because the Refugee Convention or other international agreements do not protect people displaced for climate and environment-related reasons. Only if there are other factors that amount to persecution or life-threatening conditions upon forced return can the national Immigration Service issue protection. A recent case from the International Human Rights Committee (Ioane Teitiota v. New Zealand 2019) has provided **new criteria for the assessment of threats from climate change**. The case shows, among other things, that it is relevant to pay attention to the national adaptation plans and actual protection measures of states affected by climate and environmental changes.

Many experts believe **that renegotiating the Refugee Convention is not a realistic solution**, and therefore other approaches should also be developed. **Complementary pathways to protection**, both already existing migration avenues and innovative new partnerships, could be developed, for example, between the EU and African countries. As long as there are no legal instruments recognising climate

migrants in an efficient way, such migrants or asylum seekers are treated within existing categories, which do not necessarily provide protection or **safe migration routes** but lead to irregular migration. Furthermore, irregular migration and the management of large inflows of asylum seekers are highly securitised areas of governance, where the human security approach should be strengthened. **Divisive speech and frightening numbers concerning climate migrants should be changed to more compassionate speech emphasising solidarity**. A hospitable environment and a feeling of trust are important for the successful reception of climate migrants and displaced persons. **This aspect of good relations between different social groups is also connected to internal security and to the comprehensive security approach**.

5 Good practices and implementation

This report has shown that Finland is already taking part in efforts that may have an effect in climate migration, its root causes and the adaptation capacities of people. The material collected via desk research, interviews and workshops has demonstrated that there are several fields of action in which Finland has considerable expertise that makes it possible to address adaptation capacities and preparedness in the countries of origin, transition and destination. The relevant fields of action for Finland include, but are not limited to: green technology, water management, early warning systems, environmental peacebuilding and civil crisis management, education and research as well as development aid, where Finland is already taking into consideration vulnerable groups. Moreover, Finland should consider developing complementary migration pathways for people displaced by climate and environmental changes. There are also other shortcomings. To address these, it is crucial that Finland promotes efforts to collect data and carry out research on climate and environmental migration and displacement, develops foresight activities to address climate migration through multisectoral and multidisciplinary collaboration, develops educational cooperation and encourages welcoming attitudes and solidarity toward climate migrants among host communities in Finland, in transit countries and in countries with internal migration and displacement.

5.1 Technology and innovative solutions

Climate change-induced migration and displacement can be responded to and planned better with the help of technology and innovations. This section introduces some technologies and innovations with the focus on the areas of expertise in Finland. Many innovative initiatives in Finland occur in cooperation with international and EU level actors.

5.1.1 Cleaner and localised energy production

The European Joint Communication for a Comprehensive Strategy with Africa (2020) focuses on innovation and sustainability through low-carbon, climate resilient and green growth trajectories. Africa produces only three per cent of the world's greenhouse gas emissions when the impact of land cover changes is not taken into account. These emissions are expected to increase significantly with infrastructure development and population growth (Pellikka & Hakala 2019). Africa has great potential in the production of wind power, solar electricity, biogas and wave energy, for instance. These can also be safer—for example, small solar energy plants can

provide energy to households that are not connected to national electricity grids or are connected to grids that provide an unreliable source of electricity (Pellikka & Hakala 2019: 11). The European Union and Finland need to support African countries as they adopt cleaner technologies and practices.

5.1.2 Climate services and Early Warning Systems (EWS)

Many developing countries are poorly equipped when it comes to meteorological services or even deprived of functional weather stations. Early Warning Systems are crucial as the information they produce is used to predict short- and long-term weather, and to plan evacuations and rescue work by the authorities. Good cooperation between the national meteorological and hydrological institutes and service providers is essential. The need for such services increases as climate change and its impacts become stronger. Therefore, more and more countries are requesting help (both equipment and knowledge).

The implementation of EWS can occur with the collaboration of the Finnish Meteorological Institute (FMI). The FMI is an active player in the field of meteorology worldwide and has assisted more than 100 countries in technical development projects, including vulnerable countries such as Somalia, Afghanistan, Philippines, Indonesia and many ECOWAS countries (see Figure 8). The FMI's experts can install instruments on site, help maintain the weather station network, help with using all the data that is available and provide training on site and in Finland.

Figure 8.   Projects led by the FMI up to April 2021 (countries marked with blue colour). Source: Finnish Meteorological Institute website, published with permission.
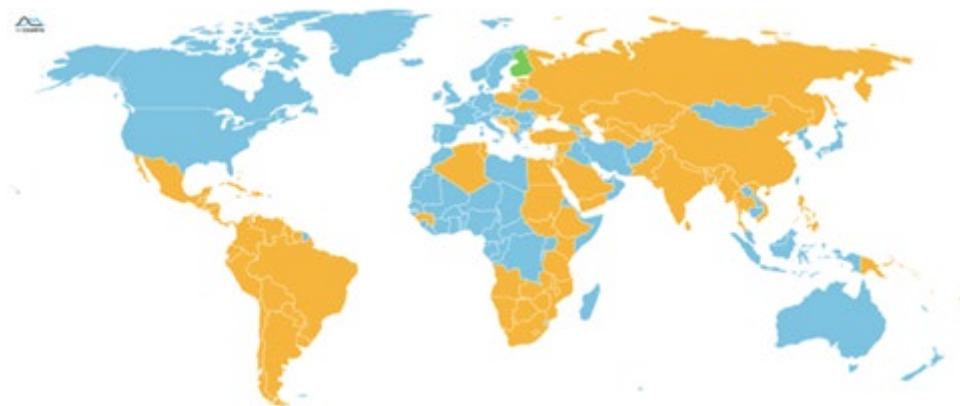
The coordination role of the World Meteorological Organization (WMO) is important as it implements projects funded through the CREWS (Climate Risk and Early Warning Systems initiative fund). CREWS is a specialised agency that works directly with countries to increase the availability and access to EWS. In early 2021, Finland became a member of CREWS and now financially contributes to the CREWS and will provide technical support.[5]

To address the needs of the countries most vulnerable to climate change, the International Federation of Red Cross and Red Crescent Societies IFRC (2020b: 14–15) recommends that, in their adaptation and disaster risk management actions, governments invest and develop people-centred early warning and early action systems that enable the delivery of actionable warnings and adequate protective responses at the community level. Weather forecast data, pre-agreed triggers, actions and financing are used for mitigating the cost and impact of natural disasters. Forecast-based action has been applied most often in the context of sudden-onset disasters. This is because slow-onset disasters are more difficult to forecast (Jokinen 2021). According to the Global Commission on Adaptation (2019: 12–13), developing weather forecasting and early warning systems is a cost-effective method of climate change adaptation. Many global policy processes (e.g. Sendai Framework for Disaster Risk Reduction, the Sustainable Development Goals and the Paris Agreement) acknowledge the need for better early warning and action on disasters and crises (IFRC 2021a).

5.1.3 Forecast-based financing and index-based insurance

The humanitarian sector is the key agent in anticipation action, but new financing partnerships are needed. Forecast-based financing, which enables early pre-event access to humanitarian funding, is a potential area of private sector partnership in climate change adaptation work. The private sector could play a vital role in strengthening forecast-based financing in vulnerable areas. Public–private partnerships could focus, for instance, on developing forecasting and early warning systems such as weather observation infrastructure and forecasting capacities (Jokinen 2021). Contributions can be made in the areas of financial support, assistance with technology, knowledge or logistics (IFRC 2021b).

Index-based insurance pays out benefits based on a predetermined index (often rainfall level) to cover the loss of assets, investments and, for example, crop failure

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[5] See decision of the Finnish Government at https://um.fi/latest-funding-decisions/-/asset_publisher/SYmYYmTYh0sD/ahaKytInterventionType/id/33494099.

resulting from severe weather events (Greatrex et al. 2015). As the payments are released on the basis of, for example, weather data and not based on verified claims, it allows for claims settlement processes to be faster and the insurance premiums lower, which means this type of insurance is much more affordable for poorer households.

5.1.4 Water security

Climate change will have a negative effect on water availability in many places that are exposed to the phenomenon and its impacts, and urgent action is needed to allocate water more efficiently. Various innovative technological and governance solutions for strengthening water security have been introduced, including water resource management technologies, new water service delivery and mobile technologies to improve access to information and data sharing on water resources and to provide ICT solutions for water management (e.g. mobile water payment options) (World Bank 2018a; UN 2021b).

Finland has expertise in water issues and the potential to take global agency in water management and technology. Finland gained a representative on the UN Water and Climate Leaders Panel in 2021. Many Finnish universities offer education in water technology, and their research and education facilitate the creation of new water-related technologies and innovations. Finnish Water Forum is a well-established network that brings together companies and actors that specialise in water technology and services. With all this capacity and expertise, Finland could support water-scarce countries even more and collaborate to establish projects to build and maintain effective water infrastructure (e.g. recycling and recharging, preventing water leakage). Finnish actors and companies have already implemented water-related projects and provided innovative solutions to countries that are highly vulnerable to climate and environmental change.

Different solutions and technologies are needed to respond to different water availability and management problems caused by drought and flooding and sea level rise. The Developing Water Supply and Sewerage Sector in Vietnam through New Partnerships project conducted together with Finnish Water Forum and the Vietnam Water Supply and Sewerage Association (VWSA) supported Vietnamese water utilities with a range of training activities. Through the project, several new partnerships have been formed between Vietnam and Finland across sectors, including the public, private and education sectors (Finnish Water Forum 2021). The VWSA project provides an example of activity that supports the capacity to adapt to climate change in the partner country and creates new economic and educational opportunities in the partner countries and Finland.

5.1.5 Food security

Climate and environmental changes cause problems in growing food and maintaining a good level of food security. It has been shown that **hydroponic agriculture** and **vertical gardens** can offer a solution to this at the community and household levels, such as in urban and refugee camp settings. Hydroponics is a soilless cultivation technique that enables plant growth in arid or peri-urban areas. It uses up to 90 per cent less water and 75 per cent less space, while producing crops at growth rates 100 per cent faster than traditional agriculture (WHO 2021). As hydroponic agriculture and vertical gardening do not require vast areas of fertile land, they provide better opportunities to grow food for populations that live in dense settlements. The benefits of these new food growing systems are that the hydroponic units can be modified and optimised for local conditions. The units are cheap, and they can rely on locally available materials, which also means that they are easier to use and repair. They also allow people, such as those who are displaced, to become part of the solution. As an example, there have been local hydroponic workshops in refugee camps training over one thousand Sahrawi refugees in the use of these low-tech systems (Porges 2020). These efforts are supported by the World Food Programme, which established a H2Grow programme for hydroponic unit development (WHO 2021). Hydroponic systems have been tested in refugee camps in Algeria, Chad, Jordan, Sudan and Kenya, and hydroponic agriculture has proved to be a promising strategy for intensive agriculture in arid climates (Porges 2020).

5.1.6 Nature-based solutions

Nature-based solutions promote nature as a means for providing solutions to environmental challenges and natural hazards with the goals of job creation and sustainable societal development (Seddon et al. 2020). They are inspired by, supported by or copied from nature and often function as alternatives to human-made infrastructure that require large investment in materials and energy. For example, such an approach can include restoring natural forests in the upper catchment area of a river to protect downstream communities from flooding instead of building artificial dams and embankments or straightening rivers. Reforestation may, at the same time, increase carbon sequestration and protect biodiversity. In urban areas, nature-based solutions can include planting trees and increasing green spaces to help with urban cooling, air pollution and the management of flash floods. Nature-based solutions were highlighted by the IPCC's Climate Change and Land Report and as one of nine key action tracks at the 2019 UN Climate Action Summit.

FINGO POWERBANK

Developing new technologies requires networking and the dissemination of information, including training on how to use the new technology. It is beneficial to create platforms where actors, innovations and funding meet. One example of this type of collaboration is Fingo's (Finnish Development NGOs) Powerbank platform. Fingo Powerbank aims to increase civil society's capacity in three areas: innovations, technology solutions and corporate collaboration. This is carried out by organising training events, creating partnerships and networks, testing and adopting new solutions and providing advisory services and tutoring. The main focus of the platform is on supporting development NGOs and their partners in six Eastern African countries: Kenya, Tanzania, Ethiopia, Uganda, Somalia and Somaliland (Fingo 2020). Technology and innovations in relation to climate and environmental changes induced migration and displacement may benefit from this kind of collaboration between the Global North and Global South, where local projects can gain support and recognition.

5.2 Environmental standpoint in peacebuilding

Migration due to climate and environmental changes is significantly affected by the ability of states to respond and adapt to changes brought about by climate change. If there is no functioning government or the government is unable to act to reduce the impact of climate and environmental changes, the likelihood of displacement and cross-border migration increases. Such changes may also contribute to increased tensions in areas exposed to these changes if there is competition over diminishing natural resources while especially violent conflict may cause further destruction of the environment and significant displacement of people fleeing conflict. Early action and tackling the environmental drivers of crises help prevent imminent risks and broader instability (UNEP 2011: 11).

Environmental cooperation and expertise provide a fruitful viewpoint to peacebuilding and for developing peacebuilding activities, and a way to address the drivers of climate migration (Carius 2006). This would mean support for environmental cooperation, local and regional peace initiatives especially in connection to land and natural resources and incorporating environmental knowledge in all peacebuilding and civil crisis operations. It should be noted that environmental peacebuilding starts from a "do-no-significant-harm approach". It is also important to diminish the environmental burden of international crisis management activities. The workshops and expert interviews revealed that peacebuilding activities and facilities damage the environment and increase the consumption of energy. Finland has invested in climate and environmentally friendly peacebuilding activities, including energy efficiency, and

it collaborates with Nordic countries in international transportation and cargo. It is, however, not enough to take climate and environmental issues into account in the implementation of crisis management operations or provide solutions for reducing the environmental footprint of operations, but they should be an integrated part of the peacebuilding effort in areas characterised by a changing climate or degrading environment.

Finland has the capacity and expertise to strengthen its role as a   global environmental peacebuilding expert. The Foreign and Security Policy Report (Finnish Government 2020a) highlights Finland's expertise and objectives in peacebuilding and civil crisis management as well as experience in water matters. In addition, the report notes that peacebuilding, humanitarian aid and development cooperation will be coordinated more fully than before. By facilitating peace, social stability and environmental competence, it is possible to influence the root causes of climate migration and, in some cases, prevent displacement or at least allow people to postpone their migration decision to a later date.

Environmental peacebuilding provides a way to influence the root causes of climate migration. From the point of view of prevention and management of climate migration, it is important to strengthen the environmental perspective as a part of peacekeeping. Some concrete measures would be to provide support for local actors in land registration, land tenure and land ownership questions and practicalities. The perspective of environmental information, including climate resistant urban development, should also be strengthened as a part of civil crisis management work. Finland is involved in crisis management abroad also in supporting the internal security sector (Finnish Government 2020a).

The Parliamentary Committee on Crisis Management (Finnish Government 2021b) recommends raising the level of ambition in Finnish crisis management. One possibility would be to focus on environmental expertise and training. The crisis management operation could support the capacity building of the vulnerable countries and local communities. The Defence Forces are responsible for training personnel in military crisis management duties, and this training could be developed further to address climate change-induced environmental hazards and environmental risk management. It would be possible to utilise Finnish expertise in water issues and water management to build environmental cooperation and peacebuilding and thus strengthen partnerships as well as engage actors from the public and private sectors. Such actions would bring together Finnish know-how and expertise in water issues and peacebuilding. Finnish and EU development assistance, green peace and root causes approaches should not be seen exclusively as a mechanisms of migration control and management but instead prioritise human security and human rights perspectives.

It is estimated that the impact of climate change on increasing instability and conflicts may increase the need for crisis management operations in the future. Finland's Africa Strategy (Ministry for Foreign Affairs of Finland 2021a) states that Finland aims to strengthen its participation in crisis management operations in Africa, underlining that peace, security and peacebuilding are also a way to affect the root causes of migration. Finland already conducts civil crisis operations together with international organisations in climate change high-risk areas in Africa and South Asia (INFORM). For example, Finland has 12 people in Somalia participating in the European Union Training Mission EUTM-Somalia (Finnish Defence Forces 2021).

CRISIS MANAGEMENT OPERATIONS IN AFGHANISTAN

Afghanistan is an important partner for Finland from the viewpoint of environmental peacekeeping and climate migration trajectories. Finland has participated in crisis management operations in Afghanistan since 2002. The NATO-led Resolute Support (RS) mission was established in 2015 to support the Afghan Government to achieve and maintain security, to rebuild the country and strengthen democratic institutions (Finnish Defence Forces 2020). The European Union and its Member States are collectively the largest international donor to Afghanistan and its people. Finland is involved in the EU-Afghanistan Cooperation Agreement on Partnership and Development (resolution 15093/2016 – C8-0107/2018 – 2015/0302M(NLE)). The statement on partnership and development recognises that Afghanistan is one of the countries that is most vulnerable to climate change. Finland and Afghanistan have also concluded a Bilateral Cooperation Partnership Agreement in April 2013. Finland supports Afghanistan through development cooperation, humanitarian aid and civil and military crisis management. Afghanistan receives the most support from Finnish Development Partners. The cooperation relationship between the Finnish and Afghan authorities is well established (Finnish Government 2018).

In Afghanistan and similar fragile countries, peacekeeping and civil crisis management can contribute to diminishing the root causes of climate migration. Natural resources contributed to conflict in Afghanistan, while the conflict has led to huge environmental destruction in the country. It is therefore essential to pay attention to climate change vulnerability, environmental change and resource-scarceness. The long-term environmental aspect needs to be incorporated in all partnerships, development work and peacebuilding conducted in Afghanistan.

5.3 Complementary pathways

Although the ideal and the objective is that no one would be forced to migrate across national borders, it is inevitable in the light of the current situation and estimates. Therefore, in addition to supporting people to stay, the international community needs

to prepare responses to the increasing number of displaced persons and asylum seekers. Actually, there is a refugee crisis in the world, and the traditional solutions for displacement, which are return, local integration and resettlement, do not seem to be reducing the number of refugees (UNHCR 2021g). Refugees in temporary host countries live in camps or cities, where they cannot find durable solutions for their future, and where the living conditions are often undignified. Some of these people, who are already looking for solutions to their situation, can be considered climate migrants, some have multiple reasons, and some have received temporary protection on other grounds, such as conflict, but where there might be climate change factors contributing to the conflict. Therefore, it is very challenging to identify climate migrants among this group of people in need of international protection, and it is not even reasonable since they all need solutions. Otherwise, there might be much more secondary movement towards Europe and other regions.

The European Commission has proposed a solidarity mechanism in the New Pact on Migration and Asylum (COM(2020) 609 final), which would increase the number of relocations of asylum seekers within the EU. The pact also encourages Member States to continue and increase the traditional resettlement of refugees from outside the EU; however, resettlement remains the authority of Member States. For example, Finland has slowly started to increase again the intake of UNHCR refugees from abroad (so-called quota refugees). Perhaps targeting regions hit by environmental disasters or slow-onset climate change effects could bring relief to some climate migrants as well. However, it is not known how rigorously the UNHCR determines the refugees accepted to resettlement programmes, and if there are people displaced due to climate change effects among the UNHCR refugees. The characteristics of, for example, past land loss or crop failure indicative of climate change effects could also be among the criteria for selection of quota refugees.

If widening the scope of international protection or accepting more quota refugees is politically unfeasible, supporting more student, labour or family migration might offer a solution to some potential climate migrants. This would allow more people and their families to adapt to climate change impacts as well as move away from affected areas. The statistics show (Sutela & Larja 2015; ENM 2021) that immigrants originating from the very high-risk countries (based on the INFORM Index, see section 2.3.2.1) have almost exclusively international protection or family reunification permits, whereas immigrants from other countries also have study and work permits. Regional mobility programmes might be the most adequate solution, but migrating to destinations over longer distances is nowadays also quite common. The EU's bilateral or multilateral mobility partnerships with selected partner countries could provide some new pathways that hopefully profit all parties.

There are emerging discussions and studies on complementary or alternative pathways to protection, or to regular migration in general (Wood 2020). Also, the proposed EU Pact on Migration and Asylum emphasises this approach. Earlier the discussion was mainly on complementary protection statuses defined as residence permits based on international protection needs other than those protected by the Refugee Convention, as also described in section 4.4.3 in this report (see e.g. McAdam 2011b; Moreno-Lax 2015). Complementary pathways, however, are understood slightly differently. These are regular avenues to migration using immigration categories other than those designed for international protection. There are even suggestions in the literature on complementary pathways especially for climate migrants (McAdam 2011b: 57). Wood (2020) explains that these pathways can be needs-based or qualifications-based, and they can be already existing regular channels (such as family, study and work permits) or customised migration programmes.

The Government of Finland is interested in developing complementary pathways. Recently, there was a call for a government-funded research project on new legal migration avenues for people in need of international protection (VN TEAS: Täydentävät maahanmuuton väylät…). The objective is to conduct research on the possibilities and examples of using work and study permits for people in need of international protection. However, the call does not specify who these people in need of international protection are and how they would be determined. They can be rejected asylum seekers irregularly staying in Finland, or potential migrants or asylum seekers still at home planning for a journey. They might also be people in need of international protection outside Finland, perhaps refugees already recognised by the UNHCR in refugee camps or cities. In that case, there are already some programmes in other countries organised with the UNHCR that provide scholarships to attend universities in other countries (UNHCR 2021f). In many countries, also in Finland, there have been small-scale initiatives to create so-called university corridors for asylum seekers (Sabchev 2020). These kinds of programmes could be facilitated and scaled up, and also built around the topic of climate change.

However, the idea of complementary pathways is problematic from the point of view of refugee law because it clearly seems to downplay the recognition or resettlement of refugees. The current system of international protection is built on the assumption that the asylum seeker arrives at the border to ask for protection or is accepted through resettlement from the other host country. The right to seek asylum should be respected and the refugee status conferred to those asylum seekers who fill the requirements. However, considering the practical difficulties in reaching asylum, complementary pathways could also be understood as building safe routes to protection. The main challenge for safe routes for asylum is the long-standing laws and practices that force most asylum seekers to use illegal pathways and even smugglers (see e.g. FitzGerald 2019).

From the perspective of countries that are highly vulnerable to climate displacement and migration, family reunification would offer more targeted routes. Family reunification could allow people, in that case family members possibly waiting in an insecure situation in high-risk countries, to reach safety in a legal and orderly manner. The current migration policy, as well as the government-funded complementary pathways project, underlines the selection of people who would immediately benefit Finland economically instead of allowing humanitarian migration and investing in the integration and education of migrants over the long term. It is also important that Finland continues to give preference to the most vulnerable groups, and especially to families with children and women in a difficult situation, as it does in the resettlement programme (Ministry of the Interior 2021). Family migration should also be considered as a complementary pathway to protection.

Providing safe routes for asylum is not a new issue in EU asylum politics. For many years already, some actors have advocated for waiving visa requirements from refugee producing countries, lifting carrier sanctions to allow travel without documents or issuing humanitarian visas to provide the needed travel document (McAdam 2011b; Lepola 2011). Some observers have been of the opinion that the EU Schengen visa code would already include a possibility, or even an obligation, to issue a visa for the purposes of seeking asylum (Moreno-Lax 2015; AG Mengozzi 2017 in CJEU case X and X v. Belgium). However, the Court of Justice of the EU (CJEU) decided in the case X and X v. Belgium (March 2017, C-638/16 PPU) that this is not an obligation, and that the humanitarian clause in the visa code (Art. 25) is for other purposes. The main challenge for issuing a Schengen visa is that the applicant would need to demonstrate their prospects for returning to the country of origin and no intention of staying in the EU country.

EU law also provides a possibility for a national long-term visa, a D-visa, that does not need to meet that condition of short stay. The Finnish Ministry for Foreign Affairs has recently proposed new legislation (Finnish Government 2021a) that would introduce a national visa. The majority of the other Schengen countries already have this kind of national visa for different purposes, some even for humanitarian purposes. In Finland, it is planned to be used only for the purposes of accelerating the entry of those people who have received the highly skilled workers' residence permit. It would be possible to open this avenue to other groups as well, such as family members planning to apply for a residence permit. However, it might be politically and administratively difficult to open this avenue for displaced persons as asylum seekers.

5.4 Health and sanitation

5.4.1 Climate-resilient health systems

The 2020 report of the Lancet Countdown on health and climate change (Watts et al. 2021) provides topical knowledge on the impact of climate change on health. The changing climate is impacting wider environmental systems, which in turn harm human health and wellbeing. The changing climate is disrupting the wellbeing of people and communities and the foundations on which health systems are built, the most vulnerable populations and countries are those who have contributed least to the problem (Watts et al. 2021: 134).

Health facilities are vulnerable to climate change-induced extreme weather events and to sea level rise in coastal locations. Simultaneously, the demand for health services and facilities increases because of environmental hazards, the spread of infectious diseases, food and water insecurity and forced migration (WHO 2015b; COP24 Special Report 2018: 21). High health risks are projected already for 1.5°C warming, exposing 350 million more people to deadly heat stress by 2050. Shifting weather patterns and greater warming are expected to intensify the transmission of climate-sensitive diseases (e.g. malaria, dengue fever) to previously unexposed areas. Warming of 2.0°C is expected to highly exacerbate air pollution and deaths from ozone (COP24 Special Report 2018: 25).

The World Health Organization underlines the building of climate-resilient health systems as a way to respond and prepare to climate-induced mass displacements and the disruption of livelihoods in highly vulnerable areas and states. Resilience building requires climate and health financing, a trained health workforce, health and climate research, sustainable infrastructures and technology, emergency preparedness and management and climate-informed health programmes (WHO 2015b). The building of climate-resilient health systems is a longer-term objective that increases health-related security in the countries of origin for climate migrants and in the areas of transit and destination.

Improving the living and health conditions of people in developing countries has been an important objective for the development work and humanitarian communities for decades, and there are several ongoing global initiatives in the heath and sanitation sectors.

WATER, SANITATION AND HYGIENE (WASH)

The UN-led partnership platform Water, Sanitation and Hygiene (WASH) for all is an initiative that focuses on the teaching of basic sanitation and hygiene to communities and at schools in many developing countries. The particular focus is on the education of girls and gender equality. The success of water and sanitation infrastructure initiatives are regarded as closely connected with gender equality.

Finland is supporting the WASH sector in Ethiopia in 2020–2024. This continues the decades long involvement of the Finnish Government and professionals in the water sector in the country (Ministry for Foreign Affairs of Finland 2019). The WASH sector activities and innovations offer an important method of tackling the root causes of climate-induced migration and displacement.

5.4.2 Sanitation and health services during displacement

Rural areas and refugee camps usually have limited access to health services. Health innovations and technologies have already been developed to reach vulnerable people in remote and rural areas and people who are on the move. Low-cost eHealth interventions (mobile health) may help improve the prevention and control of noncommunicable diseases and conditions among mobile and disadvantaged peoples noncommunicable disease (e.g. diabetes, cardiovascular diseases, cancer, injuries, mental health disorders) health services (Farah et al. 2018). It is important to raise awareness and training among health care providers about the specific needs of nomads, including nomadic women and girls. Mobile health clinics are suitable for reaching nomads (Ali et al. 2019). Telemedicine or health-related apps are often well received in developing countries, where in many places mobile phones are used (Kadir 2020).

People who are displaced and living as refugees often live in difficult situations and have poor access to adequate health services and medical care. It is important that there is timely and adequate provision of clean water, sanitation and health care from the beginning of an emergency to prevent diseases and deaths. Sanitation facilities need to be planned and located carefully, paying attention to the safety and needs of vulnerable groups (UNHCR 2021e). Safe water, sanitation facilities and good hygiene keep people healthy and alive. Sanitation facilities (e.g. toilets) and the availability of health services need to be ensured during displacement and migration journeys (WHO 2018).

Displaced people often live in informal settlements that lack proper sanitation and health services, and are therefore more vulnerable to infectious diseases. Many displaced people and refugees live in informal settlements in urban areas that resemble small cities. Sanitation and health conditions are often poor in these informal settlements. Improving sanitation and reducing overcrowding would improve the quality of life and health conditions in these settlements; however, this requires political will and a change in public land policy (Goytia 2021). The improvements in air quality in urban areas offer a means for improving human health and reducing the health stress caused by climate change-related heat waves.

Refugee camps are often viewed as transitory constructions and not necessarily worthy of long-term planning, let alone the provision of facilities and basic services, such as waste management. In the refugee camps, waste management often operates on an informal basis and at the level of households. Solid waste is often dumped and burnt or gets scattered throughout the local communities. The planning of the urban utility perspective is essential for ensuring operational sustainability in the conception of water and sanitation systems in refugee camps. If people are forced to stay in a refugee camp, access to basic services such as housing and sanitation should be available for all in a safe and respectful manner. Refugee camps are the last option. Well-designed camps where displaced people can get food, water and medical care close by help prevent the outbreak of disease (UNHCR 2021e).

5.4.3 NGOs provide health promotion services

In Finland and globally, non-governmental organisations are important actors in crisis areas. The Finnish Red Cross tries to respond to health problems caused by disaster and helps communities recover from disasters. The Red Cross seeks to complement the work of health authorities in epidemics and works in cooperation with the UN organisations. The Finnish Red Cross has supported the aid programmes in Zimbabwe to fight against a cholera epidemic in the aftermath of the cyclone that hit the country. A mobile health clinic with personnel was sent to East Zimbabwe and, after the pandemic, the Red Cross helped the Zimbabwean Red Cross build a health education programme that trained people on health issues (Finnish Red Cross 2021). Besides the activities taken in the areas of disasters and epidemics, the Finnish Red Cross has organised health points and other health promotion services to support displaced people and refugees during their travels. The organisation currently supports health care work, training and rehabilitation related to mines in Syria and supports the Syrian Red Crescent through international channels (Finnish Red Cross 2021). Supporting the capacity and sustainable activities of the Finnish health sector actors as well as health-related innovations in the highly vulnerable regions offers a concrete measure for increasing human security.

5.4.4 Learning from COVID-19

The COVID-19 pandemic might be useful in understanding the ways in which the public health crises and dynamics of multiple overlapping crises could be jointly addressed. According to Watts and others (2021), many of the steps taken to prepare for unexpected shocks like a COVID-19 pandemic are similar to those required for coping with and adapting to the new threats expected from climate and environmental change (Watts et al. 2021: 131). The current and future impacts of climate change need to be recognised in the efforts to prepare for future pandemics on the local, national and regional levels. Strengthening health systems in vulnerable countries will stimulate economies and is one of the most effective measures to enhance the resilience of communities to climate and environmental change (Watts et al. 2021: 132). The COVID-19 pandemic has highlighted the importance of urban planning and housing in the prevention of diseases and their spread, among other factors. Urban planning offers multiple positive ways and benefits to improve the health status of the population in developing countries and in Europe. The EU Member State regions and cities can apply for funding for urban climate adaptation activities from the EU structural funds, e.g. Urbact (2021).

5.5 Education and research

5.5.1 Education and schooling

The New York Declaration for Refugees and Migrants (2016) pinpoints education as a critical element of the international refugee response. Furthermore, Sustainable Development Goal 4 aims to deliver "inclusive and quality education for all and to promote lifelong learning". The Global Compact on Refugees (UN 2018: para. 68) affirms that:

> "in line with national education laws, policies and planning, and in support of host countries, States and relevant stakeholders will contribute resources and expertise to expand and enhance the quality and inclusiveness of national education systems to facilitate access by refugee and host community children (both boys and girls), adolescents and youth to primary, secondary and tertiary education."

However, the UNHCR (2021d) states that 7.4 million refugees under its care are of school age, but their access to education is limited, and 4 million are unable to attend school. There are also displaced people in cities who cannot access proper education. It is important to support education opportunities for immobile local people,

which is often lacking as well. Finland is improving the situation through development cooperation, such as Fingo's (the Finnish development NGOs) project work that supports education in the Horn of Africa. Finland is known for its good education system and there could be even more cooperation in the field of primary education.

In addition, only three per cent of refugees have access to higher education, and only one per cent of refugees have access to university education, but there are new initiatives to improve the situation. The UNHCR has a programme for scholarship opportunities abroad and many universities around the world are offering refugees higher education (UNHCR 2021d). There are also small-scale initiatives in Europe offering study possibilities at universities through private sponsorship. Currently, these are not designed for climate migrants as such, but they could be focused in a new way to meet the challenges related to climate-induced migration. Programmes like this could be organised in cooperation with governments, the UNHCR and universities. Universities could offer scholarships with the support of the government. This would allow the student to apply for a student residence permit.

In Finland, there are already some programmes and initiatives that support education for migrants, refugees and asylum seekers, and which may be useful in relation to working with climate migration and displacement in the future. For instance, SIMHE services (Supporting Immigrants in Higher Education in Finland) enhance the identification and recognition of prior learning of highly educated immigrants of different statuses and aim to make it easier to direct immigrants to higher education on the national and regional levels (Finnish National Agency for Education 2021). The Science4Refugees initiative and the EURAXESS portal provide refugee-friendly internships, part-time and full-time jobs, access to a European Research Community and information and support services on working and living in Finland and in Europe more widely (EURAXESS 2021). It should also be noticed that when Finnish actors in education provide courses in the Global South, participants benefit from receiving a certificate of their participation. Certificates can assist people in obtaining work, but also self-confidence and respect in the community.

Finland can also learn from other countries. The NGO Friendship organises cooperation between French schools and Bangladeshi schools to discuss climate change. From France to Bangladesh, it gives self-confidence, which is a form of adaptation and a good factor of resilience and raised the awareness of the French pupils on the impacts of climate change (interview with William Lebedel, NGO Friendship 2021). Similar cooperation could be implemented with Finnish schools, friendship schools and cultural cooperation. The National Core Curriculum for Basic Education (2014) already includes elements of global education (see also Finnish National Agency for Education 2021). The theme areas of sustainable future and environmental responsibility could include educational packages on climate-induced

migration and displacement. There already exist different funding mechanism that facilitate such educational and cultural cooperation. Finnish schools have a long tradition of international friendship programmes and they have participated actively in the EU education project Comenius. Cooperation between educational sector actors and NGOs could offer new avenues.

The potential of educational activities and programmes was also taken up at the international seminar organised by the research group (19.1.2021). Finland could utilise and strengthen its expertise in education by developing particular programmes for students from different backgrounds in relation to climate migration and displacement and related issues.

5.5.2 Higher education and research

The governmental education export programme Education Finland (funded by the Ministry of Education and Culture and the Ministry of Economic Affairs and Employment) is promoting and supporting the international activities and establishment of private companies, vocational institutions and higher education (Education Finland 2021). The higher education cooperation in the field of climate change mitigation and adaptation could also be closely connected with existing research activities and cooperation.

There are already several cooperation programmes between Finnish higher education institutions and those in the Global South, which are and will be working along the lines of Finland's current government programme (Finnish Government 2019) through focusing on the international dimension and the global impact of education. These programmes include the Global Innovation Network for Teaching and Learning (GINTL), which is working in partnership with African countries, India and China; the partnership with Indian Institutes of Technology (IITs); the Finland-Africa Platform for Innovation (SDG 9); the Finnish and Southern African Higher Education Institutions Network for Health and Wellbeing network; and the Finland-China Network in Food and Health Sciences. (Ministry of Education and Culture 2020; University of Helsinki 2020: 7).

In addition, the Team Finland Knowledge network (Ministry of Education and Culture 2021) helps to achieve a more internationally oriented position in higher education and research. This network works to attract talented people to Finland and build contacts for sharing Finnish knowledge, expertise and educational innovation abroad. The new Rule of Law Center established in March 2021, funded by the Ministry for Foreign Affairs, may also be used as a platform for research and capacity building on climate migration and displacement-related issues (University of Helsinki 2021). The

knowledge and networks gained in these programmes can assist Finland to address climate migration and displacement-related issues through education and research in partnership with actors in the Global South and elsewhere, but also strengthen knowledge on the phenomenon among Finnish higher education institutions.

Higher education and research institutions could strengthen the existing cooperation and establish new connections between research institutions based on various geographical locations of the Global North and Global South for developing the research and capacity building in connection to climate change and climate adaptation and migration. Researchers in Finland should be supported in applying for the European research funding instruments for implementing climate migration and displacement-related research. For instance, the European Commission's Horizon2020 Programme is funding the HABITABLE climate change and migration project coordinated by the Hugo Observatory. The HABITABLE is a large EUR 6.8 million project with 20 partners from 17 countries (Hugo Observatory 2021).

There are several research gaps on climate mobilities and immobilities that researchers could examine. For instance, the situation of people who have already been displaced, how to better incorporate exposure and vulnerability questions in policies and solutions, how to make green technology available to more people in the Global South, the best practices on diverse aspects of climate migration and displacement, and the tipping points for climate change becoming a driving force where the voluntary migration decision becomes displacement and a survival strategy. More migration and displacement information and data are needed especially at the local and regional levels.

An important research gap concerns the host communities that will be on the front lines receiving climate migrants (Boas et al. 2019; Lujala et al. 2020). More research on and tools for how to identify the most promising areas, within countries but also beyond, for relocation and resettlement is needed, as is knowledge on how to address the infrastructural, social and other needs of these areas (Wilmsen & Webber 2015; Arnall 2019; Walelign & Lujala 2020). Another, and equally vital part, is understanding how attitudes toward climate migrants among the host community members form and can be influenced (Kolstad et al. 2019; Lujala et al. 2020). Building country-level capacity to collect and monitor data and analysing evidence-based data is important for understanding the phenomenon better and being able to act accordingly.

There are some recent publications that provide some understanding of the root causes of climate migration and displacement in different regions. The report Afrikan Megatrendit (Vastapuu et al. 2019) provides knowledge on how African megatrends, including population growth, climate change, urbanisation, technological development, the development of democracy and migration, are developing in Africa. The report

was ordered by the Ministry for Foreign Affairs of Finland and serves the Finnish-speaking population and basic educational needs. This is important as relatively little information on climate migration and displacement has so far been made available in Finnish (there is plenty of information available in English). Knowledge and accurate data on African migration allow a more fact-based discussion and reduce xenophobia and hasty, unsustainable political decisions (Vastapuu 2019: 30). This knowledge and data need to be communicated actively through various channels and media to increase understanding and reduce misunderstanding and the securitisation of climate and environmental change-induced migration.

5.5.3 Media and art

In public debate, climate migration is often presented as an undesirable outcome, a failure to adapt to a changing environment (Gemenne & Blocher 2017; Wiegel, Boas & Warner 2019). Besides education, media and artistic methods can offer means to communicate evidence-based knowledge and understanding of the phenomenon. The media narratives of climate change and migration are important for common perceptions and solidarity, yet more knowledge and research are needed on the topic. Cultural activities and art were also recommended by our international experts as possible means of communicating understanding of climate migration in Finland.

5.6 Intersectoral cooperation and expertise of the members of diaspora

5.6.1 Multilevel governance and intersectoral cooperation

One of the objectives of this report is to show the complexity of the phenomenon of climate migration. This complexity is observed both in the definition and characterisation of the phenomenon, as well as in its governance. Complex problems need equally complex solutions (Ashby 1968/2011). However, some problems might be so "wicked" that they cannot be solved, but they are "chronic public policy challenges that are value-laden and contested and that defy a full understanding and definition of their nature and implications" (Danken et al. 2016: 28). However, there is no reason to feel defeated before "wicked problems". A recent report "Government steering beyond 2020" deals with different models to address wicked problems in Finland (Lähteenmäki-Smith et al. 2021). According to the report, useful approaches can be, for example, systems thinking, multilevel governance, decentralisation, cross-sectoral cooperation, innovation, experimentation and foresight.

Geddes et al. (2012: 957) have mapped governance challenges for climate migration, also identifying the location of governance. This can be used as a basis for systems mapping, which helps to understand the structure and the interrelationship creating the system. However, mapping out the dynamics of such a complex system is not possible in a simple figure, and therefore this report addresses the interconnectedness of various factors and actors. Many different ministries, for example, are relevant for addressing different issues related to climate migration, and not all are even mentioned in this report.

In addition, Tables 2 and 3, which describes the legal and policy framework, also helps with mapping the different policy actors at the international, regional and national levels. Managing climate migration requires vertical and horizontal multi-level governance. A very important level is also the local level: municipality, private sector and civil society, in origin, receiving and transit countries. Indeed, decentralisation appears to be a central tenet in the governance of complex issues (Lähteenmäki-Smith et al. 2021). However, the whole-of-government approach suggested for managing climate migration also requires centralised coordination. Coherent and concerted responses require common goals and principles. Therefore, a balance between centralisation and decentralisation needs to be found (Lähteenmäki-Smith et al. 2021: 64).

In addition to international cooperation and partnerships, it is necessary also to advance intersectoral cooperation in climate migration governance within Finland. Nexus thinking across different sectors such as humanitarian aid, development cooperation, trade and peacebuilding, is required to avoid working in sectoral silos. When approached from the perspective of vulnerable areas, different challenges are experienced simultaneously in everyday life, whether they are connected, for instance, to climate change, local environmental change, political conflicts, or changes in economic circumstances. Therefore, different actors should increasingly address the challenges together, and not only to focus on finding solutions only to the problem that is linked to their own field. For instance, each development cooperation project should focus on addressing as many of the intersecting goals as possible. New political structures on the governmental level can support putting nexus thinking into practice.

5.6.2 Including diaspora in national foresight and monitoring teams

In Finland, the national foresight network can be utilised and developed to be better prepared for potential climate migration. It is important to continuously analyse how different environmental, technological, political, economic and socio-cultural

transitions might impact displacement and migration in the short and long term, as well as attend to more silent traces and knowledge (e.g. circulating in social media) that offer understanding of people's decisions to migrate in specific situations. Foresighting climate migration requires topical knowledge and information sharing that can only be achieved through multi- and intersectoral and multi-level cooperation and expertise.

It is important that a foresight network includes and consults experts from various sectors and fields as well as people with migrant and asylum backgrounds. A foresight network could include experts and researchers, for example, from highly vulnerable countries and members of diaspora communities living in Finland. People from the countries of origin and transit of climate migration, and people who have experienced displacement, have insights, language skills and experience of exceptional situations. It is also important to train people, including health personnel and security sectors, to face exceptional situations. The foresighting of climate migration cannot be based on state-centric scenarios but should instead follow the idea of global-local coupling and linking scenarios across different spatial scales (see Stratigea & Giaoutzi 2012).

Diaspora communities provide a significant bridge between Finland and their countries of origin or ancestral homeland. They are often well-aware of the difficulties people face due to climate change in other countries. Members of diaspora often respond to climate disasters elsewhere than their current country of residence. As could be seen from the vulnerable country cases in this report, diaspora humanitarianism and remittances can form an important aspect of assistance for development and survival of family and friends in various geographical regions. Finnish authorities have activated different diaspora communities to participate in policy formation. For instance, in the recent formulation of Finland's Africa strategy, diaspora consultations were held (Finnish Government 2020c). In the consultations, it was clear that there is great interest from diaspora communities to participate in and contribute to various ideas in different sectors of the society. From the perspective of climate change-induced migration and displacement, there is both practical and professional expertise in the diaspora communities that can benefit development and migration issues. Awareness raising and empowerment of diaspora communities in connection to climate and environmental changes and related migration and displacement should be advanced. Those who do not have professional expertise on the phenomena, could be better educated on climate and environmental changes and possible solutions at local, regional and national levels. Bringing this knowledge to the countries of origin by diaspora members, may assist people to better cope with climatic events. This additional knowledge may especially serve the vulnerable groups and communities, who are not in reach of the assistance and information from their local, regional and national authorities. In the best-case scenario, the vulnerable

groups and communities may gain more agency and resilience to climate risks and in relation to the root causes of climate migration and displacement.

As stated by Mohamoud et al. (2014), in addition to bringing diaspora organisations in the position to strategically form alliances and partnerships with local communities to enhance resilience to climate risk, they can also be facilitated to setting up a permanent monitoring team. A monitoring team composed of representatives from diaspora, civil society associations and activists could collectively oversee the unfolding dynamics of climate change and regularly bring these issues to the attention of decision-makers at local, national, regional, continental and global levels. Also, diaspora organisations in Finland, Europe and elsewhere can work to establish informal and formal forums where they can promote contacts and networks, share information, expertise and best practices on especially climate change adaptation.

DIASPORA ORGANISATIONS

Diaspora organisations can initiate lobby and advocacy campaigns in Finland, Europe and countries of origin to inform and increase public awareness of challenges of climate change to development and migration. As Mohamoud et al. (2014) propose, diaspora organisations could also undertake campaigning activities through workshops, expert meetings and conferences aimed at mobilising wider stakeholders and getting support in the efforts of addressing the nexus between climate change, development and migration in the context of their origin countries and continents. Through lobby and advocacy activities diasporas are in a position to mobilise substantial financial resources, extensive transnational networks, powerful international forces and political connections within countries and globally, through which they could make a difference and improve the situation in their countries of origin or ancestral homelands in several ways.

6 Recommendations for addressing climate migration

This chapter contains recommendations to the Finnish Government and other Finnish actors for addressing climate migration. The recommendations present the views of the research team and are based on the implemented research. In the recommendations, both the mobility and immobility perspectives connected to climate migration and displacement are taken into consideration. Some recommendation-related examples can be found in the report, especially in Chapter 5 on Good practices and implementation.

Support adaptation and preparedness to climate change and its consequences in vulnerable countries in a focused and coordinated manner

- Identify the most vulnerable regions and groups of people and target assistance and projects there. This should include immobile people in their places of residence and those who have already migrated or have been displaced and their host communities.
- Focus especially on the most vulnerable groups, such as women, children, disabled groups, indigenous people and trapped populations.
- Support addressing root causes and drivers of climate migration through the creation and use of innovative ideas and technologies to improve people's lives.
- Focus on areas where Finland has expertise and knowledge. Any action should take into account the actual needs in the countries and regions where the development work and other action take place. Genuine partnership should be advanced.
- Promote coordination between actors and projects.
- All development work and other action should consider climate change adaptation and migration as a cross-cutting issue.

Secure the capacity and funding of actors at different levels

- Secure the long-term capacity and financing of well-established international organisations addressing climate migration and displacement.
- Identify and support high impact NGOs working with climate adaptation, migration and displacement.
- Engage in EU partnership programmes with third countries that focus on climate change adaptation and migration.
- Support and contribute to international disaster relief funds that assist the most vulnerable countries and affected populations.
- Ensure funding and prioritise the continuation of the most successful and sustainable initiatives beyond the initial project period.
- Secure the possibility for diaspora members to continue sending remittances.
- Create specific programmes and funding channels to support research on climate migration and displacement.

Follow a human rights approach to climate migration management

- Commit to international obligations and the rule of law.
- Uphold international and EU law on refugee protection.
- Secure the rights of internal and international migrants.
- Ensure safe routes and protection for displaced persons, also in transit countries. Consider creating a national visa for humanitarian purposes.
- Continue resettlement programmes and prioritising vulnerable persons.
- Create complementary pathways focusing on climate change-induced displacement.
- Promote respect for the rights of affected people, inclusive those of the host populations, in adaptation and migration initiatives.
- Commit to a sustainable development agenda in all actions and responses.
- Follow the principles of the Nansen Initiative and the Platform on Disaster Displacement.

Invest in climate migration management and foresight

- Apply the whole-of-government approach and coordinate goals, principles and responsibilities and action.
- Commit to evidence-based decision-making with critical, comparative and careful assessment of information regarding climate migration data and scenarios.
- Develop National Foresight Network to include experts on climate migration and displacement, inclusive expertise and experience from diaspora communities.

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Invest in research, education and awareness raising in vulnerable and transit countries as well as in Finland

- Develop existing bilateral and multilateral research and educational partnerships between Finland and vulnerable and transit countries with a focus on climate migration and displacement. Also promote new research and education projects.
- Support education for people living in displacement at every level, inclusive tertiary education.
- Support awareness raising among communities facing the adverse impacts of climate change in order to promote informed migration decisions.
- Support awareness and better reception of internal climate migrants in host communities.
- Increase awareness and understanding in Finland about environmental and climate-induced migration and displacement, inclusive through cultural and artistic means.
- Facilitate knowledge transfer on climate and environmental changes, their impacts and solutions from diaspora communities in Finland to countries of origin.
- Facilitate evidence-based discussions. Emphasise ethical questions such as climate justice and international solidarity.

7 Conclusions: Towards a better management

This report shows that climate-induced migration is a complex global phenomenon and it affects different regions, countries and groups of people in different and unequal ways. Climate and environment-induced changes and events, together with other migration drivers, lead to different migration decisions and trajectories. Migration is an adaptation method, but not everyone moves. Therefore, **addressing climate migration and displacement requires a large set of different governance responses and means of adaptation**. It also means that climate migration and displacement need to be approached contextually. Alongside environmental conditions, wider political, demographic, economic and socio-cultural factors explain migration as an adaptation strategy employed by individual, households and communities.

At the more macro level, prosperous and politically stable states are better prepared to design and implement the measures needed for climate change adaptation and preparedness than poor and fragile states. Therefore, support needs to be directed towards those more vulnerable states in their efforts to adapt to climate change. **Many climate-exposed and vulnerable countries struggle already to meet the needs of their populations and need international help and support to address the challenges related to climate and wider environmental changes**. These measures need to target both the root causes of migration, supporting adaptation in situ, and factors that promote dignified migration, resettlement and relocation of people and communities who cannot stay in their place of origin. This includes addressing the needs of communities that receive climate migrants as well as transit areas through the provision of necessary social, humanitarian and economic assistance to integrate migrants and to capture the potential of the migrants present for the local economy and society.

A decision to seek better livelihood opportunities abroad is often motivated by a poor security situation and unstable political and economic environments. Cross-border migration and displacement is thus more likely to occur when governments are unable or unwilling to safeguard the economic and social security and wellbeing of the communities affected by climate change within their territory. In addition, **adverse climate change impacts and resource scarcity can contribute to conflicts that force people to migrate**. In such a situation, migration opportunities are often limited, especially people from the most vulnerable countries are likely to face visa restrictions. Also skilled migrants face obstacles since labour migration avenues require the migrant to have a job and an employer already before entering the

country. Alternative approaches are thus needed and the emerging concept of complementary pathways could provide durable solutions for some. Pathways to study, work and family reunion opportunities should be truly complementary and not alternatives to existing protection avenues such as resettlement programmes.

It is obvious that **climate-induced migration is a question that also concerns Finland**. Finland as a global actor needs to identify and facilitate action that contributes to securing livelihoods and supporting adaptation in climate vulnerable countries. Finland and the EU should promote well-managed migration within those countries, regionally across borders and globally through resettlement or migration pathways. In addition, Finland and the EU should facilitate existing avenues and create innovative programmes for migration. This report suggests activities through which Finland can better manage climate-induced migration by developing partnerships and cooperation with countries of origin, transit and destination. Although Finland and the EU already influence climate migration trajectories by addressing its root causes and supporting people in need, they need even more firmly and explicitly to consider the climate and environmental perspective in all development work and humanitarian aid.

It is equally obvious that managing climate-induced migration has security implications. However, climate-induced migration and displacement cannot be approached only as an external security question. Large numbers of displaced people will eventually pose challenges to internal security as well when they approach the EU and Finland. However, it is important not to securitise climate migration but to focus instead on human security and the role of states in providing protective security in the countries of origin, transit and destination. The EU and state-centric security activities, the border surveillance and patrolling activities at the Mediterranean Sea, for example, are not always in line with the principles of humanitarianism.

Increasing evidence-based understanding and knowledge of climate-induced migration and displacement is essential. The impact of activities of Finnish actors needs to be targeted at locations and groups most in need. The activities need to be effective and efficient, and they need to be continuously evaluated and strengthened. This requires up-to-date data and knowledge. It is therefore crucial to collect and analyse data on climate and environmental migration and displacement, to develop foresight and preparedness through multisectoral, multidisciplinary and multilevel collaboration. Another task is to develop rigorous evaluation methods and fund and establish relevant research programmes. Foresight and preparedness for climate migration and displacement are valuable per se, but they also highlight anticipatory governance. Especially in relation to forced migration, government action has often been reactive instead of pro-active. However, future climate migration trajectories cannot be easily predicted. Evidence-based policies and decision-making requires

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research and insight across all spatial scales as well as situational knowledge and intelligence.

Solidarity with vulnerable countries and populations is important. Solidarity means concrete actions, international partnerships and funding mechanisms through which environmental and climate-induced changes are mitigated, adapted to and prevented. As the UN Special Rapporteur on extreme poverty and human rights Philip Alston (2019) underlines, we cannot risk letting "the wealthy pay to escape overheating, hunger and conflict while the rest of the world is left to suffer". Global challenges such as climate change and climate-induced migration know no borders, thus they cannot be responded to through the exercise of border drawing, containment and securitisation. **Global climate justice and burden sharing perspectives are important when Finland considers its global role with regard to climate and environment-induced changes and migration.**

Appendix: Informants

Interviewed people

Alice Baillat, Associate Expert at Migration, Environment and Climate Change Division and Liaison office for the PDD, International Organization for Migration

Mélody Braun, Senior Associate, International Research Institute for Climate and Society at Columbia University

Jutta Gras, Senior Ministerial Adviser, Ministry of the Interior

Outi Hakkarainen, Expert, Fingo

John Harding, Head of the Climate Risk and Early Warning Systems Secretariat, World Meteorological Organization

Niko Humalisto, Development Economy Specialist, Felm

Tiina Huvio, Programme Director, Food and Forest Development Finland

Jorma Kantola, Senior Ministerial Adviser, Ministry of the Interior

Eero Koskenniemi, Government Councillor, Ministry of the Interior

William Lebedel, Chairman, FRIENDSHIP France

Marie Leroy, Climate Change Advisor, CARE France

Katja Mannerström, Head of Public Affairs, Finnish Refugee Council

Jean-Baptiste Migraine, Technical Coordinator, World Meteorological Organization

Irmeli Mustalahti, Professor, University of Eastern Finland

Minna Piipponen, Research Manager, University of Eastern Finland

Esa Pulkkinen, Director General, Ministry of Defence

Juho Repo, Head of Section at the Asylum Unit, Finnish Immigration Service

Emilia Runeberg, Expert, Fingo

Marikki Stocchetti, Secretary General, Finnish Development Policy Committee

Leonardo Valenzuela Pérez, Researcher, Unitarian Universalist Service Committee

Ari Venäläinen, Senior Research Scientist, Finnish Meteorological Institute

Information collaborators/ keynote presentations

Yvonne Aki-Sawyerr, Mayor of Freetown and Member of the Mayors Migration Council Leadership Board

Lora Borissova, Senior Cabinet Expert, Cabinet of Commissioner Jutta Urpilainen at the European Commission

Bina Desai, Head of Programmes, Internal Displacement Monitoring Centre

Sanna Erkamo, Researcher, Finnish Institute of International Affairs and Finnish Meteorological Institution

Ari Evwaraye, Head of Strategy, Ministry of the Interior

Emma Hakala, Senior Researcher, Finnish Institute of International Affairs

Dina Ionesco, Head of Migration, MECC at the International Organization for Migration

Abdirashid Ismail, Senior Researcher, Migration Institute of Finland

Toni Jokinen, Disaster Risk Management Officer, Finnish Red Cross

Mizan R. Khan, Professor, Deputy Director, International Centre for Climate Change and Development, Independent University (Bangladesh)

Brigadier General Mauri Koskela, Chair, Peacekeepers' Association Finland

Colonel Arto Niemenkari, Deputy Head of Department, Finnish Border Guard

Ville Savoranta, Research and Development Specialist, Crisis Management Centre Finland

Hannele Virtanen, Senior Health Advicer, Finnish Red Cross

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