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Environmental refugees: migration and displacement in the context of climate change.

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Abstract

Negli ultimi anni, il cambiamento climatico è stato spesso all'ordine del giorno di numerosi incontri e convenzioni a livello internazionale. Uno degli ultimi accordi emersi è il cosiddetto Accordo di Parigi, introdotto nel dicembre 2015 e finora ratificato da 27 stati, tra i quali gli Stati Uniti e la Cina, i paesi che maggiormente contribuiscono all'emissione dei cosiddetti "gas serra". La ratifica di queste due nazioni ha un incredibile valore simbolico e contribuisce a sottolineare quanto urgente sia diventato il problema del surriscaldamento globale. Nel rendere pubblica la volontà di ratificare l'accordo, il presidente americano Barack Obama ha presentato questo strumento come l'ultima miglior occasione dell'uomo di gestire una situazione che potrebbe drasticamente cambiare il pianeta. Nella seconda metà del ventesimo secolo, infatti, i principali effetti del cambiamento climatico sono diventati sempre più evidenti; tra questi, si rilevano in particolar modo temperature sempre più alte, scioglimento di ghiacciai e calotte polari, innalzamento del livello di mari e oceani e disastri naturali sempre più frequenti ed intensi. Gli esperti sono generalmente d'accordo nel sottolineare che senza un repentino cambiamento, questi fenomeni potrebbero avere conseguenze sempre peggiori e irreversibili in molti luoghi del pianeta.

Nonostante l'incertezza che circonda il futuro progredire di queste dinamiche, il cambiamento climatico ha già agito su molti ecosistemi, influenzando vari sistemi societari, compreso quello umano. Studi recenti hanno sottolineato come esista un legame cruciale anche tra gli effetti del surriscaldamento globale e i flussi migratori dell'uomo e come migrazioni e spostamenti forzati potrebbero aumentare di volume nei prossimi anni e decenni proprio a causa di questi fenomeni. La mia tesi si concentra precisamente su questo aspetto e sulle varie problematiche legate a coloro che vengono di recente indicati come "rifugiati ambientali".

In genere, il cambiamento climatico non viene inteso come un elemento capace di influenzare direttamente il movimento degli individui; al contrario, viene considerato principalmente come un agente che influisce indirettamente sui driver di migrazione (economici, sociali, politici, demografici e ambientali), spingendo quindi famiglie e individui a spostarsi. Alcuni avvenimenti possono esercitare una maggiore influenza sulla decisione o sulla necessità di lasciare il proprio luogo d'origine; bisogna però sottolineare che ciascun evento può causare diverse reazioni in una comunità, cosicché la migrazione o lo spostamento forzato sono solo una delle possibili risposte a una situazione di emergenza. Tra gli episodi maggiormente responsabili di questi movimenti si ritrovano: l'innalzamento

del livello del mare (e le sue conseguenze su ecosistemi e attività umane); cicloni, tempeste e alluvioni; l'aumento delle temperature, la siccità e la degradazione di suoli, coste ed ecosistemi marini; e infine lo scioglimento dei ghiacciai e i suoi effetti.

Lo spostarsi dal luogo in cui possibilmente si è nati e cresciuti è generalmente visto come una dinamica traumatica, che comporta alti rischi e costi. In realtà, quando l'atto migratorio deriva da un processo decisionale studiato, cosciente e soprattutto volontario può rappresentare anche una strategia di adattamento a condizioni ambientali particolarmente difficili. Affinché la migrazione assuma questa identità più ad ampio raggio sarebbe necessario anche l'intervento di istituzioni e organizzazioni, che aiutino a gestire e indirizzare il movimento dei migranti verso mete sicure.

Gli spostamenti forzati, invece, sono considerati una reazione negativa ad eventi avversi, che possono ledere la dignità e, nei casi estremi, i basilari diritti umani di chi è coinvolto.

Attualmente, il fenomeno della migrazione e degli spostamenti di stampo ambientale è ancora difficile da inquadrare e l'etichetta impiegata, "rifugiati ambientali" (in inglese *environmental refugees*), non viene accettata da tutti. Le perplessità che ruotano intorno a questa espressione riportano al fatto che il termine "rifugiato", così come viene inteso dalla Convenzione di Ginevra del 1951, non comprende coloro che sono spinti a lasciare il proprio luogo d'origine per motivazioni principalmente legate a clima e ambiente; dunque, per molti, l'impiego di quest'etichetta risulta inadeguato. Nonostante le numerose alternative che sono state fornite nel tempo, gli esperti non hanno ancora raggiunto un accordo su quale possa essere la migliore opzione per riferirsi a questa realtà.

Un'ulteriore problematica riguarda la definizione di "rifugiati ambientali". Coerentemente con la natura delle migrazioni, si tratta di un fenomeno estremamente complesso da delineare; in effetti, è in genere "multi-causale" e può sfociare in diversi esiti e quindi in spostamenti più o meno lunghi nel tempo e nella distanza.

Risulta ancora molto difficile stimare con esattezza l'attuale numero di rifugiati ambientali nel mondo e soprattutto prevedere quanti possano rientrare in questa categoria in futuro. Tale complessità deriva da una serie di problematiche metodologiche, tra cui: l'assenza di un'etichetta condivisa che si riferisca a questo fenomeno e di una definizione univoca per esso; il fatto che il fattore ambientale risulta spesso meno evidente di altri nel processo decisionale che porta allo spostamento; la difficoltà reale di raccogliere dati, a causa di database non precisi o assenti in alcune zone del mondo. L'incertezza circa le reali conseguenze del cambiamento climatico in futuro e le potenziali risposte da parte degli individui complicano maggiormente la possibilità di fornire previsioni esatte. Delle stime

interessanti provengono dall'*Internal Displacement Monitoring Centre* e dal Consiglio per i Rifugiati in Norvegia, che annualmente forniscono un prospetto sulla situazione e i numeri di chi è costretto a spostarsi a causa di disastri ambientali. Per l'anno 2014, il numero indicato da questi organi è stato di 19,3 milioni di persone sfollate, con una media di 26,4 milioni di persone sfollate ogni anno tra il 2008 e il 2014. Si tratta di dati molto utili, ma che al contempo fanno riferimento principalmente ad avvenimenti naturali estremi ed improvvisi, come cicloni, tempeste, alluvioni, etc. Esiste una dimensione molto importante della migrazione ambientale, rappresentata da fenomeni a sviluppo lento e graduale, quali siccità, desertificazione e innalzamento del livello del mare, che spesso non viene presa in considerazione; i movimenti legati a queste problematiche sono ancora più difficili da individuare, perché sono collegati ad una moltitudine di diversi aspetti e dinamiche.

Nonostante l'ambiguità e la dubbiosità che contraddistingue per alcuni versi la realtà dei rifugiati ambientali, questo rimane un tema molto attuale, che richiede con maggiore urgenza un intervento da parte della comunità internazionale. Infatti, proprio a causa delle difficoltà terminologiche e metodologiche legate a queste dinamiche, nessun quadro normativo a livello internazionale è stato finora progettato per la tutela di chi è costretto a fuggire per motivazioni di stampo climatico e ambientale. Come precedentemente citato, la Convenzione di Ginevra sui rifugiati non include questa categoria, e dunque i rifugiati ambientali non possono godere dei diritti e degli status in genere concessi a chi viene riconosciuto dalla Convenzione. Molti esperti hanno sottolineato la necessità di istituire un quadro di riferimento ad hoc per i rifugiati ambientali, ma si tratta di un'opera molto complessa; in effetti, i tipi di movimenti che possono sfociare da una situazione di degrado o stress ambientale sono diversi e non sempre distinguibili. Ad esempio, uno spostamento forzato a breve termine può poi trasformarsi in una migrazione volontaria permanente: questi cambiamenti, coinvolgendo in genere piccole realtà familiari, non sono sempre individuabili. Inoltre, un corretto quadro normativo dovrebbe tenere conto del fatto che diverse strategie politiche sono necessarie per tutelare sfollati e migranti nei vari stadi dello spostamento.

L'assenza di un simile sistema si registra specialmente nel caso di movimenti diretti oltre confine: in questo caso, la mancanza di uno status specifico per i rifugiati ambientali li rende vulnerabili e potenzialmente vittime di abusi e discriminazione.

Gli strumenti a disposizione della comunità internazionale sono al momento inadeguati ad affrontare ciò che è stato previsto da molti per il futuro. Nei prossimi decenni si attende un notevole aumento nel numero di rifugiati ambientali e così si registreranno nuove

problematiche da affrontare. Una preoccupante questione, ad esempio, riguarda la prospettiva per alcune comunità di diventare apolidi poiché il loro paese di provenienza è divenuto completamente inabitabile per ragioni climatiche. Un simile quadro può sembrare esageratamente allarmistico, ma alcuni esperti non escludono che fenomeni ambientali come l'innalzamento del mare potrebbero seriamente minare l'esistenza di interi territori, come nel caso dei cosiddetti "Piccoli stati insulari in via di sviluppo" (quali Tuvalu, Kiribati, le Maldive, etc.). Al momento il diritto internazionale non contempla questa opzione tra tutte le situazioni che possono portare i cittadini a diventare apolidi, dunque questo è un campo che necessita ulteriore sviluppo.

Alcuni strumenti di diritto internazionale possono essere in realtà utili a sostenere la causa dei rifugiati ambientali. Per primo, l'ambito dei diritti umani: in caso di violazione di diritti umani basilari, i rifugiati ambientali -come qualunque individuo- devono essere tutelati cosicché da interrompere la violazione. Un altro strumento prezioso riguarda il diritto dell'ambiente, che è in genere materia della Convenzione Quadro delle Nazioni Unite sui Cambiamenti Climatici: proprio in questo contesto è emersa la riflessione sul collegamento tra surriscaldamento globale e fenomeni migratori, dunque la Convenzione potrebbe avere un ruolo chiave anche in futuro nello stabilire un sistema di protezione a livello internazionale per i rifugiati ambientali. Altre strategie funzionali sono gli accordi regionali che permettono la libera circolazione degli individui (come il MERCOSUR o l'ECOWAS) e i sistemi di "protezione temporanea", forniti in determinati casi a vittime di disastri ambientali (come accade ad esempio in Svezia e Finlandia).

Uno strumento fondamentale, attualmente valido solo per chi si sposta entro i confini della propria nazione, sono i Principi Guida sugli Sfollati Interni, introdotti dalle Nazioni Unite nel 1998. Pur non essendo stati specificatamente creati per gli spostamenti di stampo ambientale, essi includono i fattori climatici come possibili cause di un esodo e forniscono strumenti per la gestione di questi flussi. Ovviamente, non sono applicabili per chi lascia il proprio paese per l'estero, ma potrebbero essere un punto di partenza per un più ampio quadro normativo a favore dei rifugiati ambientali.

In questi anni, sono emerse diverse proposte di un possibile documento che protegga legalmente e a livello internazionale gli sfollati ambientali. Quattro sono in genere le opzioni più discusse: l'espansione del raggio d'azione della Convenzione di Ginevra, in modo che l'etichetta di "rifugiato" possa includere anche la realtà di chi fugge da condizioni ambientali estreme; l'introduzione di un quadro normativo completamente nuovo e specifico per i rifugiati ambientali; l'ampliamento del concetto di sfollati interni (*Internally*

Displaced Persons) in modo da includere anche coloro che lasciano il proprio paese di nazionalità; e infine l'aggiunta di un protocollo alla Convenzione Quadro delle Nazioni Unite sui Cambiamenti Climatici.

Nonostante il focus sia spesso su come proteggere gli sfollati in seguito a disastri ambientali, molti esperti ritengono che sia fondamentale poter fornire strumenti in modo che gli individui sappiano resistere a questi eventi, senza essere obbligati a cercare la fuga. Le parole chiave in questo senso sono: mitigazione preventiva, quindi il tentativo di ridurre le emissioni di gas serra, in modo da evitare il peggioramento delle condizioni ambientali di molti luoghi e gli effetti disastrosi sulle loro popolazioni; riduzione dell'esposizione e aumento della capacità di adattarsi e di resistere a particolari fenomeni naturali, tramite previsioni, tecnologia avanzata, infrastrutture adeguate e polizze assicurative. In realtà, questi progetti non sono sempre realizzabili, considerando che in molte zone del mondo condizioni ambientali avverse sono spesso accompagnate da povertà e un'instabile situazione politica; essendo molto costosi, sia in termini di risorse finanziarie che umane, molti paesi possono non avere la possibilità di realizzare questi piani o addirittura di progettarli. Inoltre, non tutti i disastri naturali possono essere previsti, evitati e scongiurati; tra questi, l'innalzamento del livello del mare è quello che desta la maggiore preoccupazione: dato che molti dei paesi colpiti, come le piccole isole del Pacifico, hanno spesso già provato diversi tipi di strategie per contrastarne gli effetti, essi temono di non avere nessun'altra possibilità in serbo per il futuro se non quella di lasciare le loro case.

Un'ulteriore aspetto da considerare riguarda gli sfollati interni, che attualmente rappresentano la maggioranza di coloro che si spostano per ragioni ambientali. La preferenza per località interne ai propri confini è in genere dettata da motivazioni tanto politiche -il fatto di mantenere la propria cittadinanza e con essa i diritti collegati- quanto sociali e culturali – il trovarsi in un ambiente coerente con le proprie origini, per ciò che concerne lingua, usi e costumi. Il termine inglese comunemente usato, *Internally Displaced Persons*, è stato introdotto nel 1998 insieme ai Principi Guida sugli Sfollati Interni, che rappresentano un ottimo punto di partenza per la tutela di questa categoria. I Principi non fanno riferimento solo ai fattori di spostamento di stampo ambientale, ma anche ad altri elementi, come conflitti e violazione dei diritti umani. Oltre alla permanenza entro i confini nazionali, gli sfollati interni sono anche caratterizzati da un tasso estremamente basso di autonomia nel decidere se muoversi o no; dunque non si tratta di migrazione volontaria, ma di uno spostamento forzato, che va gestito e tutelato con

maggior attenzione. Trattandosi di un fenomeno estremamente complesso e iscritto alla realtà statale, risulta molto difficile per gli esperti riscontrare dati certi su chi si sposta o meno. Abituamente, queste persone sono tutelate soprattutto al momento dell'emergenza, ma a lungo termine sono poco assistite e rischiano di essere vittime di abusi, violenza e discriminazione. Lo stato di provenienza degli sfollati è il loro primo responsabile, ma qualora questo risulti incapace di gestire questi flussi, nessuna convenzione dà potere o vincola altri organi o stati a intervenire. Per questa ragione, qualora una nazione straniera voglia agire per aiutare gli sfollati interni, rischia di violare il principio di ingerenza dello stato locale. I Principi Guida stessi non hanno in realtà nessun potere vincolante, a meno che gli Stati Parte non decidano di implementarli nelle proprie legislazioni. Un'azione di questo tipo è stata intrapresa nel continente africano, che al momento è quello maggiormente affetto dal fenomeno degli esodi interni; gli sforzi di molti stati africani sono quindi culminati nel 2009 con la celebre Convenzione di Kampala, che è attualmente una sorta di modello per la questione degli sfollati interni.

A livello internazionale, la causa dei rifugiati ambientali ha acquisito sempre più rilevanza, tanto che la volontà di esperti, politici e diplomatici ha plasmato la cosiddetta "Iniziativa Nansen", iniziata nel 2012 e conclusasi nel 2016 con la *Nansen Initiative Protection Agenda* e la *Platform on Disaster Displacement*. Il processo è nato come un progetto esterno alle Nazioni Unite, guidato in primo piano dagli stati, con lo scopo di superare i vari momenti di stallo che negli anni precedenti hanno portato a un nulla di fatto. Il focus dell'Iniziativa è il problema del cambiamento climatico, inteso come una questione di "giustizia intergenerazionale", poiché coinvolge non solo le comunità odierne, ma anche le generazioni future. In questo ambito, le autorità presenti hanno inquadrato il ruolo della migrazione e degli spostamenti forzati, la prima considerata come una potenziale strategia di adattamento, da gestire con determinati strumenti, e la seconda come una conseguenza umanitaria del surriscaldamento globale, da prevenire quanto più possibile. Al momento l'Iniziativa Nansen rappresenta l'apice nel processo di collaborazione internazionale volto alla tutela dei rifugiati ambientali.

La precedente questione è diventata sempre più urgente anche per altre ragioni. La prima riguarda la sicurezza alimentare: molti avvenimenti naturali legati al cambiamento climatico -primi tra tutti la siccità e le grandi alluvioni- rischiano di compromettere il sistema agricolo di molti paesi, soprattutto quelli che maggiormente dipendono dalle risorse locali per il loro fabbisogno. In realtà, considerando il grado di interdipendenza che lega le nazioni al giorno d'oggi, cambiamenti nelle produzioni alimentari locali potrebbero avere

ripercussioni anche in altri paesi, compresi quelli industrializzati. Danni alla sicurezza alimentare possono essere essi stessi causa di migrazioni, come già succede in molti luoghi, dove individui e famiglie spesso decidono di spostarsi -in genere stagionalmente- per superare periodi particolarmente difficili.

La seconda problematica riguarda anche la possibilità che scoppino in futuro delle cosiddette “guerre per le risorse”. In questo ambito il cambiamento climatico e le migrazioni avranno un grande peso sulle sorti dei paesi coinvolti; il surriscaldamento globale, infatti, sta contribuendo, da un lato, alla diminuzione delle risorse -come in Africa e nel Medio Oriente- ma, dall'altro, sta portando alla scoperta di nuovi giacimenti -ad esempio nell'Artico- e tutto questo potrebbe aumentare la competizione e la rivalità in zone già caratterizzate da un equilibrio politico precario o in aree desiderose di trarre vantaggio da nuove risorse. I movimenti migratori successivi ad eventi climatici avversi potrebbero porre ulteriore pressione e causare altre rotture diplomatiche e dunque altri focolai di rivalità. In realtà, molti esperti tendono ad escludere la possibilità di guerre per le risorse, dato che l'ordine mondiale è oggi caratterizzato da dinamiche e dimensioni diverse, capaci di gestire più o meno pacificamente questioni del genere.

Ci si aspetta che il fenomeno dei rifugiati ambientali aumenti notevolmente in futuro, ma in passato e al giorno d'oggi non sono mancati esempi in merito. L'Asia, l'Africa e i cosiddetti Piccoli stati insulari in via di sviluppo (*Small Island Developing States*) sono in genere considerati i territori più affetti da queste dinamiche. Anche il continente americano e la zona mediterranea sono (e probabilmente saranno ancor di più in futuro) un rilevante bacino di provenienza per questo tipo di migrazioni e spostamenti.

L'Asia è solitamente dipinto come il continente più a rischio. Tre sono le ragioni alla base di questa considerazione: la prima riguarda l'elevata esposizione del territorio a disastri ambientali, infatti nella top dieci dei paesi più esposti troviamo molti stati asiatici, come il Bangladesh; la seconda è legata all'alto tasso demografico registrato in Asia, che è attualmente il continente più popolato al mondo. La presenza di un simile numero di persone su territori già di per sé esposti a problematiche ambientali aumenta la vulnerabilità di questi paesi. E infine, la terza ragione si rifà alla vulnerabilità di determinati gruppi sociali, come ad esempio le fasce più povere della popolazione, che spesso non possiedono strumenti per far fronte a questo tipo di emergenze. L'Asia è per tradizione una terra di migrazioni e il cambiamento climatico sicuramente influirà maggiormente su queste dinamiche. Ciò che preoccupa è soprattutto lo spostamento di persone dalle aree rurali alle città: infatti, insieme alla possibilità di migliorare le proprie condizioni di vita, i

centri urbani possono presentare anche fonti di alto rischio; in questo modo, la migrazione potrebbe non sempre portare gli individui verso zone sicure, ma al contrario verso luoghi ugualmente esposti. Tra i maggiori effetti del cambiamento climatico in Asia si registrano un notevole aumento delle temperature, un cambiamento nella quantità e nell'occorrenza delle precipitazioni e un aumento nella frequenza e/o intensità degli eventi atmosferici estremi. Queste dinamiche sono ritenute potenziali responsabili di notevoli migrazioni e spostamenti nei prossimi anni e decenni. Tra i paesi maggiormente interessati al fenomeno dei rifugiati ambientali troviamo il Bangladesh, in genere descritto come il "ground zero" del cambiamento climatico, dati gli alti rischi a cui è sottoposto; la nazione è già soggetta a migrazioni -soprattutto temporanee e per lavoro- provenienti da terre particolarmente provate. Insieme al Bangladesh, anche il Vietnam è colpito dagli effetti del cambiamento climatico, soprattutto da alluvioni inaspettatamente violente e dalle conseguenze negative dell'innalzamento del livello del mare, le quali stanno già testando la resistenza delle comunità e influenzando gli schemi della migrazione.

Nonostante sia minimamente responsabile delle emissioni di gas serra, anche l'Africa è seriamente a rischio a causa del cambiamento climatico. La vulnerabilità di questo continente è principalmente legata al suo livello di povertà, alla sua scarsa capacità di adattamento e resistenza a pericolosi avvenimenti climatici e alla sua grande dipendenza dalle risorse naturali. Le tre sfide che l'Africa sta già affrontando riguardano l'irregolarità nelle precipitazioni, la deforestazione e la desertificazione, le quali possono avere effetti devastanti sul sistema agricolo africano. Gli ultimi due aspetti sono tuttora i maggiori responsabili della migrazione di stampo ambientale in Africa, la quale può ulteriormente compromettere le possibilità di sviluppo di questo territorio. In base al tipo di evento, improvviso o meno, vari spostamenti possono avere luogo: temporanei e diretti verso zone vicine o permanenti e anche oltreconfine. Nel Sahel, una zona interessata da siccità, degradazione del suolo e scarsità d'acqua, la migrazione è già un tipico sistema di adattamento: i movimenti sono diretti soprattutto verso le coste e le zone urbane, sia entro i confini nazionali che al di fuori. Secondo recenti reportage, in Burkina Faso, per esempio, metà della popolazione adulta è emigrata almeno una volta all'anno per le suddette motivazioni.

I Piccoli stati insulari in via di sviluppo sono attualmente tra i maggiori portavoce nella lotta alle emissioni di gas serra. La loro categoria è stata formalmente riconosciuta in seno alle Nazioni Unite ed essi sono stati definiti come un gruppo di nazioni caratterizzate da due principali caratteristiche -le piccole dimensioni la bassa altitudine- e da particolari sfide a

livello economico, ambientale e sociale. Data la loro posizione geografica e il recente aumento della popolazione, questi stati sono violentemente esposti a una serie di diversi ostacoli a livello ambientale. Quello che maggiormente preoccupa le popolazioni locali è l'innalzamento del livello del mare: non è solo la prospettiva di affondare ciò che allarma le comunità, ma gli effetti che questo fenomeno provoca, come erosione, intrusione di acqua salata e maggiore esposizione ad eventi atmosferici, che possono rendere le isole inabitabili ben prima del reale affondamento. Considerando che i governi di questi paesi da soli non possono frenare il processo di surriscaldamento globale che sta avendo luogo, molti si chiedono come proteggere la loro popolazione da disastri naturali e simili. In questo senso, la migrazione viene vista come un possibile metodo di adattamento, anche se la maggioranza delle comunità è restia a lasciare il luogo in cui è nata e cresciuta, dato il forte attaccamento affettivo e culturale che la lega alla terra natia. Ciononostante, un trasferimento non è un'ipotesi da escludere, soprattutto dal momento che le condizioni ambientali potrebbero peggiorare a tal punto da rendere impossibile la vita sulle isole. Per evitare spostamenti poco organizzati o traumatici, alcuni paesi stanno già organizzando iniziative in merito; tra questi, troviamo Kiribati, che ha introdotto il progetto *Migration with dignity*, mirato alla formazione educativa e professionale degli abitanti e all'agevolazione della migrazione per chi si sente già pronto a compiere tale passo. Strumenti di questo tipo potrebbero risultare fondamentali se gli scenari futuri previsti per questi territori alla fine si realizzassero.

Anche il continente americano ha già osservato molti spostamenti derivanti da eventi e condizioni climatiche avversi. Per quanto riguarda gli Stati Uniti, la NASA ha sottolineato come il paese sia soggetto a un aumento sempre maggiore di precipitazioni, siccità ed eventi atmosferici estremi. Numerosi episodi in passato -tra cui l'uragano Katrina del 2005 o la siccità che ha colpito le Grandi Pianure durante la grande depressione- hanno dimostrato come anche in un paese sviluppato come gli USA esistono ampie possibilità di assistere tanto a spostamenti forzati quanto a migrazioni volontarie per sfuggire da ambienti particolarmente ostili. Il Centro e Sud America sono colpiti principalmente dal problema della siccità e della degradazione del suolo, che fomentano gli spostamenti, in particolare da zone rurali alle città. Come in altri siti, anche in questi territori vi è un alto rischio che le persone si spostino e decidano di risiedere in zone urbane particolarmente vulnerabili -come ad esempio le *favelas* in Brasile- e che quindi in realtà si limitino semplicemente a muoversi da una zona a rischio a un luogo altrettanto a rischio. Nel tentativo di mitigare gli effetti della desertificazione, il Brasile ha introdotto l'iniziativa nota

come “PAN-Brazil”, ma nonostante i buoni propositi la situazione rischia di essere molto più complessa e di necessitare molti più sforzi. Il Centro America è spesso sottoposto anche a gravi cicloni ed uragani, che causano spostamenti di massa e migrazioni; tra quelli che si ricordano con maggiore angoscia c'è l'Uragano Mitch, uno degli eventi che ha causato il maggior numero di morti nella zona e che ha spinto moltissime persone ad abbandonare le proprie case; proprio in queste circostanze, gli Stati Uniti hanno avanzato la loro “protezione temporale” per fornire un parziale aiuto alle vittime della catastrofe.

Nonostante l'area Mediterranea venga in genere nominata dalla comunità internazionale per altre questioni (conflitti, guerre, azioni diplomatiche, etc), anch'essa è una zona rilevante per ragioni ambientali. Due fenomeni legati al cambiamento climatico rischiano di diventare sempre più pericolosi, soprattutto nell'area del cosiddetto MENA (Medio Oriente e Nord Africa): uno riguarda l'innalzamento del livello del mare e le conseguenze a questo correlate -erosione, alluvioni più ingenti, intrusione di acqua salata, etc.- mentre l'altro si rifà al problema della desertificazione e della siccità, che secondo alcuni esperti, potrebbe in futuro colpire veemente anche altri paesi, come la Spagna, l'Italia e la Grecia. Proprio per questo, anche quest'area viene tenuta sotto osservazione, in quanto un aumento dei fenomeni migratori, seppur legati a questioni ambientali, potrebbe mettere sotto pressione una situazione politica che per molti versi è già abbastanza tesa.

I casi del passato, recente e non, sono una risorsa preziosa per comprendere come continuerà a svilupparsi il rapporto tra cambiamento climatico e fenomeni migratori. Se gli scenari più pessimistici circa il cambiamento climatico dovessero realizzarsi, la comunità internazionale si troverebbe a dover gestire un fenomeno molto complesso, il quale richiede strumenti che attualmente non sono stati designati. Considerando che le migrazioni umane sono da sempre state plasmate anche dalle condizioni ambientali e continueranno ad esserlo ancor di più, risulta necessario inquadrare la questione dei rifugiati ambientali, fornire loro una denominazione chiara e uno spazio nel diritto internazionale. Solo in questo modo, solo agendo preventivamente e gestendo i flussi migratori con attenzione e collaborando con chi è per primo coinvolto, si può almeno tentare di evitare spostamenti disordinati, disconnessi e traumatici. Viste le sfide a cui il cambiamento climatico sottoporrà molte popolazioni, sapere di avere un'alternativa e di poter migliorare le proprie vite con consapevolezza, aiuterà i potenziali rifugiati a non sentirsi semplicemente vittime di un fenomeno più grande di loro, ma attori dinamici, capaci di adattarsi e di resistere ad un mondo che sta cambiando, inevitabilmente.

Introduction

According to recent studies, migration seems to be mainly driven by economic and social factors. However, another crucial force has been responsible for human migratory movements for centuries, and that is climate. As history has taught us, individuals have always moved in search for better living conditions, even from a climatic and environmental point of view. Even if nowadays human beings are more and more sedentary, migration still plays an important role in their life, and so climate. At the present time, the potential for climate to influence migration drivers is even higher than in the past, given the effects of one of the main challenges of our time: climate change. In the last years, several experts have pointed out the urgency represented by global warming and the consequences of this phenomenon on human society; despite what many people claim, it will not be a state or region-focused issue, but a problem for the international community as a whole.

This thesis focuses exactly on the global dimension of the so called “environmental refugees”, the principal actors of displacement and migration in the context of climate change.

The first chapter of this work begins with a brief introduction about climate change: the presumed causes, the related consequences and the possible scenarios for the future. It continues introducing the correlation between human migratory movements and climate, describing the influence of climate change over the main drivers of displacement and what are the phenomena mainly responsible for these flows. Then, I introduce quite an innovative aspect of climate-related migration: the possibility for these flows to become a real adaptation strategy; obviously, only if this is consciously and well-planned and if it is managed with the intervention of both migrants, local communities and institutions. The chapter ends with an overview about the main controversies surrounding environmental refugees: the lack of a formally recognized denomination and of a detailed definition and the impossibility to detect with certitude how many people fall within the category of environmental refugees at the present time and will fall in the future.

The second chapter focuses mainly on the legal/political dimension of environmental refugees. It highlights the lack of international legal protection granted to this category; in particular the fact that there are currently very few instruments available to them, and none of them has been precisely defined for these migrants' cause. In this frame, I have

described the main efforts carried out by experts and diplomats in order to provide a legal frame in which the rights and needs of environmental refugees can be fulfilled. A specific reference is made to the Nansen Initiative, which is probably the only international forum in which this issue has been examined in depth, both in a theoretical and a practical way. Nonetheless, still a lot of time and engagement is needed to give a legal space to environmental refugees. The final considerations of the chapter regard the role of global warming and climate-related migration in the context of human and state security: specifically, the possibility of a so called “resource war”, the problems related to food security and the perspective of becoming “new” stateless citizens due to sea level rise.

The third and last chapter gathers concrete case studies from five areas: Asia, Africa, Small Island Developing States (SIDS), the Americas and the Mediterranean. In this frame, my objective is to demonstrate that the phenomenon of environmental refugees has certainly some main hot spots, but it has the potential to affect severely many more regions in the future. The way in which these flows are taking and will take place certainly varies depending on the country and/or the region; but it could be useful to compare the various situations, in order to comprehend the global scope of these dynamics.

Africa and Asia are currently the continents counting the highest amount of climate-related migrants and displacees: a number of reasons justify this aspect, such as their geographical position, their demographic composition, their level of development and their capacity to adapt and/or resist to adverse environmental conditions. Small Island Developing States (SIDS) represent a unique category, currently at the forefront of the fight against global warming; given their peculiar environmental and economic characteristics, they fear to become part of a concrete exodus and to be obliged to leave their countries for good. The American continent, especially North America, is rarely mentioned in these terms, but it actually provides important examples of climate-related migratory movements. North America is often hit by severe hurricanes displacing thousands of people, not to mention the problem of many communities in Alaska who are struggling against the effects of ice sheets melting. South America, instead, is involved in a harsh process of desertification, which, together with droughts and deforestation, could produce massive migrations, especially from rural to urban areas. Finally, also the Mediterranean cannot be excluded from these considerations: even if environmental issues are usually hidden behind other questions of political and economic nature, also

this area is subject to adverse climatic condition; in the long term, these could contribute to the increase in the number of migrants leaving the coasts of the Mediterranean.

To conclude, the main purpose of my thesis is presenting and describing the main aspects characterizing a phenomenon that is acquiring more and more importance at the international level. At the basis of my reflection there is the awareness that climate-related migration is still surrounded by many controversies and several knowledge gaps are still to be filled. Nonetheless, it is necessary to invest energy and thought on this topic, because new ideas and innovative approaches could be vital to solve the main theoretical and practical problems related to environmental refugees' flows.

CHAPTER 1

Environmental refugees: a burning issue

1.1 The connection between climate change and human migration: past, present and future questions

1.1.1 A brief overview of climate change

On 22 April 2016, 175 countries met at the headquarters of the United Nations (UN). Ban-Ki Moon, the Secretary-General of the UN, described it as a memorable moment, as one of the rarest meetings in the history of the organization in which more than a hundred leaders signed a universal agreement in just a single day. This document is the Paris Agreement, the first universal accord on climate, drafted on 12 December 2015 during the UN Climate Change Conference (COP 21) held in the same year. "We are breaking records in this Chamber" -Ban-Ki Moon explained at the Opening Ceremony- "– and that is good news. But records are also being broken outside."¹ The records he referred to are not honorable ones. They are strictly associated with the numbers and estimates connected to the phenomenon of "climate change", the most compelling challenge that humankind will face in the following decades. The fact that so many countries, also the most "skeptical" ones (the United States and China for example), decided to sign such an agreement certainly evokes the gravity of the environmental and climate situation in the days to come. Thus, the Paris Agreement has been conceived to find the instruments to limit global warming below 2°C in the following decades, so avoiding irreparable damage to the global environment and the human kind.²

Nowadays there is almost no doubt in stating that Earth's climate is changing, with timing and dynamics never observed before. The last Assessment Report (the Fifth) published by the Intergovernmental Panel on Climate Change (IPCC) in 2013 described in details what is happening on our planet. Apart from the natural processes that are changing the climate (for example, variations in the globe's orbit, volcanic activity, etc.)³ the majority of scientists agree in considering human activity one of the principle causes for global warming, which

¹ United Nations News Centre, *Remarks to Signature Ceremony for the Paris Agreement*,

http://www.un.org/apps/news/infocus/speeches/statements_full.asp?statID=3011#.V2Zr-LiLTIV, 2016. Accessed 23 June 2016.

² European commission, *Paris Agreement-European Commission*,

http://ec.europa.eu/clima/policies/international/negotiations/paris/index_en.htm, 2016. Accessed 22 June 2016.

³ Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 50.

represents what in practice is meant with “climate change”. Indeed, for decades, human beings have been basing their lives and specifically their production method on fossil fuels such as oil, coal and natural gases. The combustion of these elements has led to an accumulation of CO₂ in the atmosphere at a pace more and more unsustainable for the Earth. Moreover, the intensive exploitation of the soil and deforestation are contributing to the increase of CO₂ levels, diminishing the Earth capacity of absorbing these so-called “greenhouse gases” (GHG).⁴ This process is at the basis of the “greenhouse effect”, which is the principal responsible for global warming. For these reasons, it is not surprising that, since pre-industrial time, greenhouse gases have registered a 40% increase.⁵ Figure 1 represents the changes in greenhouse gases emissions in the period 1970-2010: the increase is evident also in this chart.

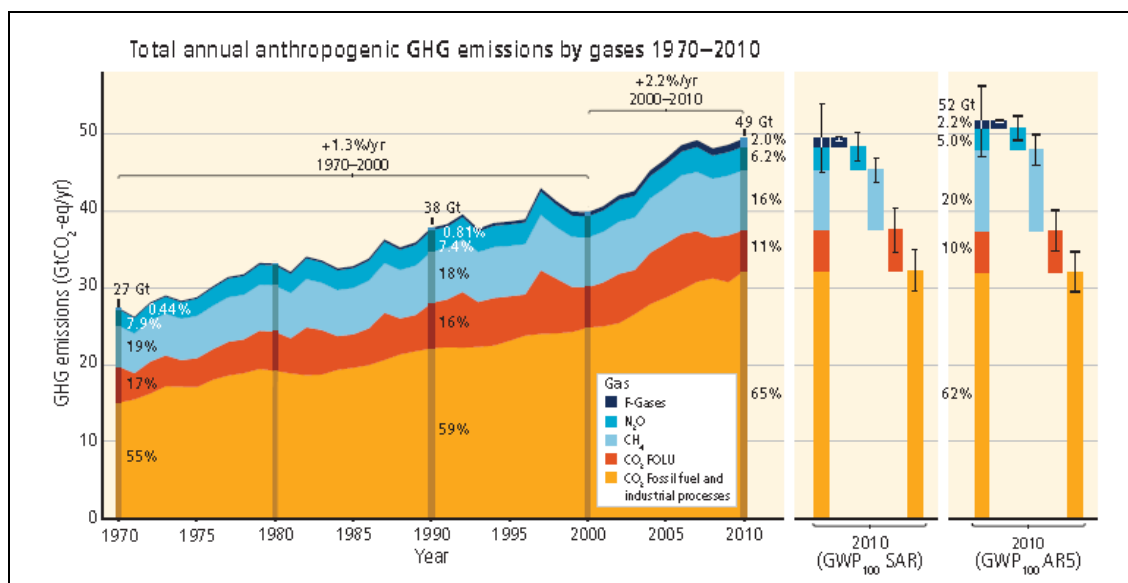


Figure 1: Total annual anthropogenic greenhouse gases emissions in the period 1970-2010. Source: R.K. Pachauri et al., *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2014. Available at <https://www.ipcc.ch/>.

These dynamics have affected our environment in a number of ways, involving the atmosphere, the cryosphere, the sea level and oceans surface temperature. The data collected by IPCC are clear: the globally averaged data about temperature of lands and oceans show a warming of 0.85 °C in the period 1880-2012, and this warming has been experienced by almost the entire globe⁶. Figure 2 reproduces two color-coded maps showing the difference in global surface temperature in 1899 and in 2013: higher than

4 M. G. Midulla, Andrea S., *Focsiv: Migrazioni e Cambiamento Climatico*, 2015. Available at http://www.cespi.it/PDF/Stocchiero-CLIMATE_CHANGE_CESPI-FOCSIV-WWF-2015.pdf. Accessed 22 June 2016.

5 T. F. Stocker et al., *Summary for Policymakers*, in: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2013. Available at http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_SPM_FINAL.pdf. Accessed 30 March 2016.

6 Ibid.

normal temperatures are indicated in red, while lower than normal temperatures in blue. Global warming level in 2013 is dramatically higher than in the 19th century, as it is evident in the maps.

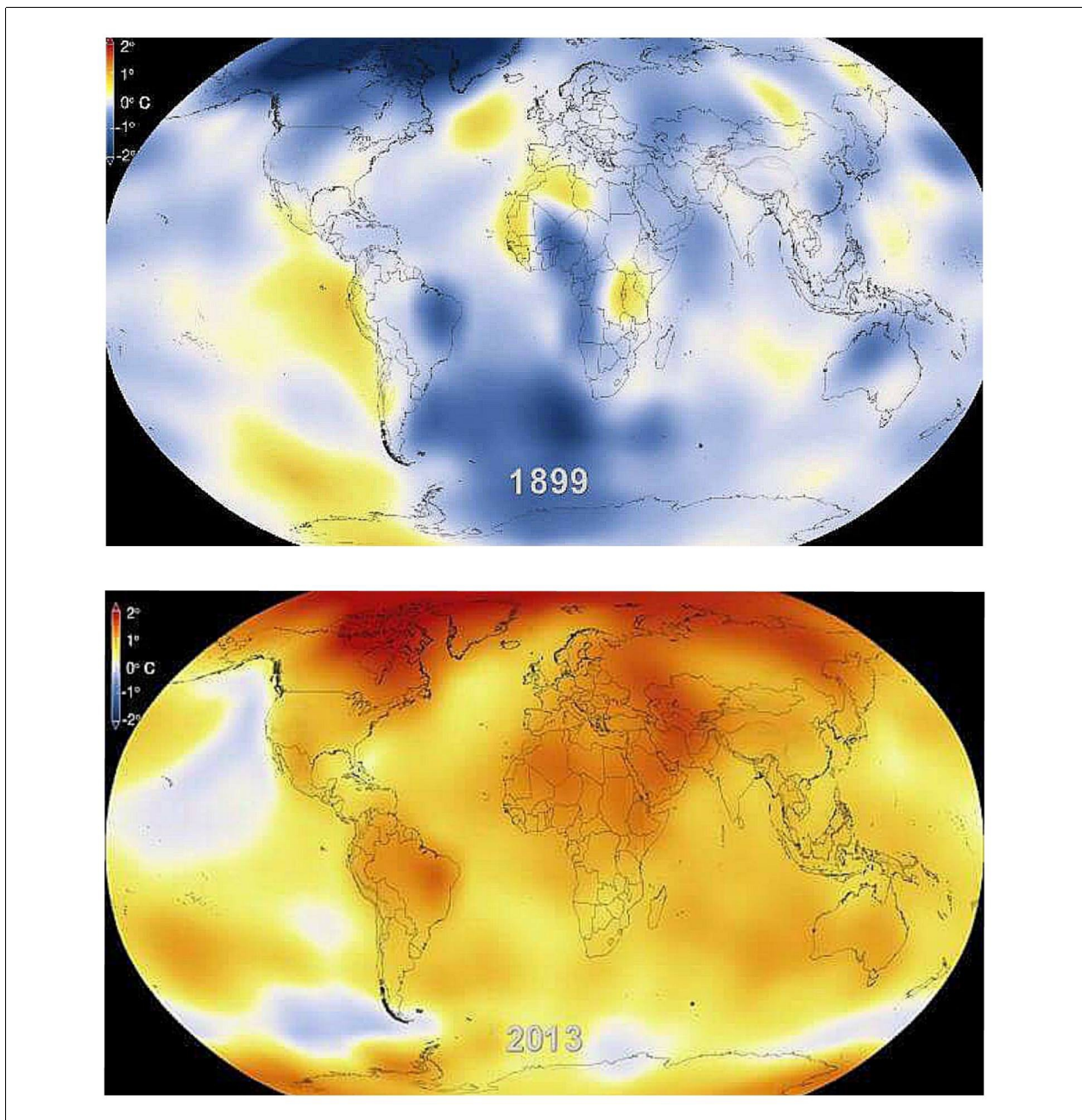


Figure 2: Global warming in 1899 and 2013. Source: Nasa, *Global Climate Change*, 2016, http://climate.nasa.gov/climate_resources/139/.

Furthermore, the oceans surface (the upper 75m) warmed by 0,11 °C in the period 1971-2010 and the cryosphere (in particular Greenland, Antarctic and Arctic ice sheets, Northern Hemisphere spring snow cover) registered a net decrease in volume.⁷ Thermal expansion

⁷ T. F. Stocker et al., *Summary for Policymakers*, in: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2013. Available at http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_SPM_FINAL.pdf. Accessed 30 March 2016.

(following the warming of oceans' surface) and the melting of ice sheets are the two main factors contributing to sea level rise, another crucial consequence of climate change; over the period 1901 to 2010, global mean sea level has registered a rise of 0.19 m. The following chart (Figure 3) shows the changes in sea level since 1993, as it has been measured with satellites.

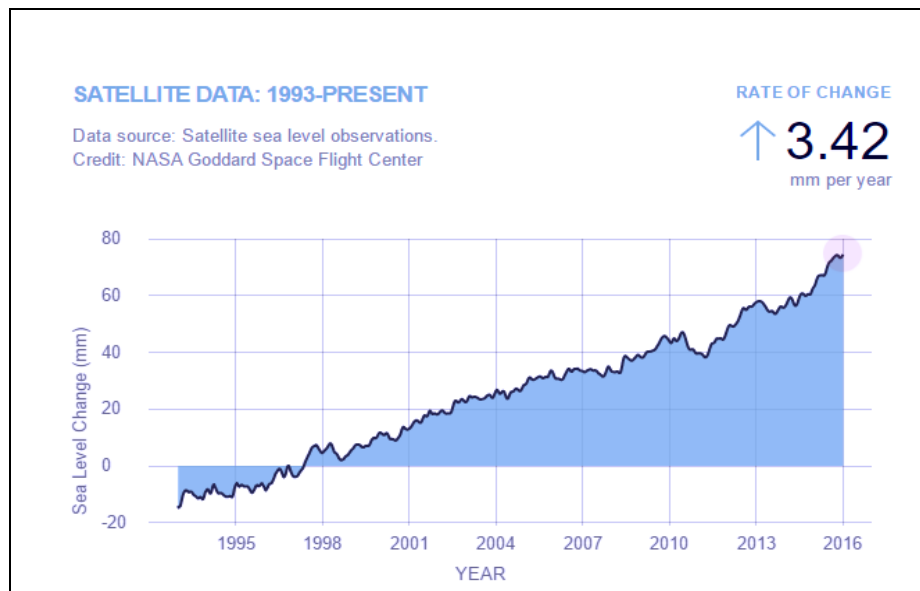


Figure 3: Sea level rise in the period 1993-2016. Source: Nasa, *Global Climate Change*, 2016, <http://climate.nasa.gov/vital-signs/sea-level/>

In the last fifteen years, another worrying aspect has concerned the so-called “El Niño Southern Oscillation”. It is an irregularly periodical phenomenon, which is evidenced by changes in winds and sea surface temperatures; El Niño has a great influence in the spread of extreme weather and climate-related hazards. At the end of the 20th century, it was responsible for huge floods in Asia (specifically in China and India) and for an abnormal tropical storm season in Central America, which forced million of people to leave their homes. At the present time, scholars cannot say with certitude how global warming and El Niño will interact in the future, but there is a certain likelihood that the iterations of this phenomenon will be more intense due to climate change.⁸

Global warming has also had a dominant role in the following processes:

- Alteration of the atmosphere chemistry (due to high concentrations of CO₂);
- Increase of daily temperatures;
- Unpredictable changes of the weather, with a rise in the frequency and intensity of

⁸ R. Black, *Foresight: Migration and Global Environmental Change*, 2011. Available at <https://www.gov.uk/government/publications/migration-and-global-environmental-change-future-challenges-and-opportunities>. Accessed 20 May 2016.

natural hazards, such as tropical cyclones, storms, floods, etc.;

- Modification of the water cycle, with changes in rainfall and impacts on the availability of fresh water: indeed, 80 countries containing 40% of the world's population experienced severe water-shortage in the past decade. Moreover, almost half of the global wetlands were lost in the last century⁹;
- Loss and extinction of several species -mammals, birds, fish and plants;
- Damage of coastal and marine areas: 58% of the global coral reefs is now threatened because of global warming.¹⁰

These phenomena are currently affecting human life and well-being in many ways, an aspect that will be further investigated in the following sections.

Actually, climate and environmental changes and their effects (will) vary over time and region, depending also on the ability of human and ecosystems to mitigate or adapt to them.

The problem of dealing with climate change is the high level of uncertainty that characterizes estimates and predictions. Scientists can collect data about what has happened to our environment until now, but they still do not have the means and the instruments to plan a certain climate model for the future. It is plausible to talk about "possible scenarios", but no certainty is given. This is a double-edged sword: not seeing a considerable threat at the present time seems to justify human negligence towards the environmental issue. By the way, especially in the last decades, many scientists demonstrated that greenhouse gases have never been pushed to such high levels in human history, so, without a serious reversal in human behavior, all the possible scenarios could be dramatic.

The words of Hoesung Lee -chair of the IPCC- are evocative in this sense: "It really comes down to a matter of choice: we either continue on the path that we are on and possibly face catastrophic consequences of climate change, or listen to the voice of science and act accordingly: that's really our choice."¹¹

⁹ A. Collins, *Contemporary Security Studies*, Oxford University Press, Oxford, 2013, page 195.

¹⁰ Ibid.

¹¹ Taken from the Youtube Video: *IPCC, Fifth Assessment Report - Synthesis report*, available at <https://www.youtube.com/watch?v=fGH0dAwM-QE>. Accessed 24 June 2016.

1.1.2 Climate change effects over human displacement

Despite the degree of uncertainty for the future, climate change is already having huge impacts over natural systems, including the human one. If global warming keeps increasing at the current pace, its consequences on people's activities and lives can be extremely serious, especially in the most vulnerable countries. For instance, food production and water supplies are likely to be even more compromised in many areas of the world (Africa being just one case); human infrastructures and settlements can be seriously threatened because of extreme weather events and other disasters (as it is occurring in Asia and America); and finally human mental and physical well-being can be at risk for the spreading of illnesses and other problems associated to stressful living conditions.¹²

In this frame, also human migration and displacement are extremely connected to environmental and climate change. Migration studies started to analyze this interaction only in recent years, expanding their perspective and including environmental and climate change as factors likely to influence migration drivers. Actually, the link between environment and human displacement is not new in human beings' history. As Professor Robert McLeman points out, climate has always exercised significant influence on human settlements and migration patterns.¹³ Until ten or fifteen thousands years ago, environmental factors were likely among the fundamental drivers of migration; because of them, the first human populations move from East Africa towards all the others continents. However, with the arrival of industrialization, studies on migration started neglecting the environmental factors driving human displacement, addressing their attention towards the economic and the social elements causing these dynamics. In particular, forced displacement due to climate or environmental causes became almost totally absent in this field.

Recently, the relationship between climate -in particular climate change- and human displacement has been taken into consideration once again. In 1990, the Intergovernmental Panel on Climate Change published its First Assessment Report, being one of the first agencies in warning that human migrations, even large-scale ones, could be a consequence of climate change. They affirmed that, as in the past, similar changes could lead also to severe damage to settlements and provoke social instability in certain

¹² M. G. Midulla, Andrea S., *Focsiv: Migrazioni e Cambiamento Climatico*, 2015. Available at http://www.cespi.it/PDF/Stocchiero-CLIMATE_CHANGE_CESPI-FOCSIV-WWF-2015.pdf. Accessed 22 June 2016.

¹³ Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 3.

areas of the world.¹⁴ The report considered the loss of housing, "living resources" (water, energy, food or employment) and social or cultural resources as the reasons driving to climate-related migration.

Nowadays the binomial climate-displacement must be considered really cautiously. As a matter of fact, climate change is an extremely complex phenomenon, which entails a huge degree of uncertainty for the future. Currently, there are no scholars capable of forecasting with absolute certitude what will happen to our planet in the following decades and centuries, so that also the impact of climate change on human migration cannot be understood completely. Moreover, human migration patterns themselves keep changing over time, thus nothing can be taken for granted.

Generally speaking, migration is characterized by an indisputable level of complexity. It is not a fixed phenomenon and the circumstances and reasons behind people's decision to move are often extremely difficult to detect. Nonetheless, some guidelines exist and are useful to portray the main characteristics of such a huge dynamic.

First of all, it is important to consider its temporal and spatial dimensions. Professor Nancie Gonzalez (1961) identified five temporal possibilities of migration: seasonal; temporary non seasonal; recurrent; continuous; and indefinite or permanent migration.¹⁵ As far as the spatial element is concerned, migration can be: intra-urban, when it takes place within urban centers; internal, when it occurs within state political boundaries; international, when movements occur across state boundaries. We will see how these variations will show up in the climate-induced migratory trends.

A second fundamental aspect characterizing migratory patterns -crucial for climate-related migration- is the degree of agency of the people involved in these movements. Generally, the highest levels of freedom are associated to those actors deciding to leave on the basis of a cautious reasoning, who are not threatened by an immediate emergency and move with the hope of reaching better job opportunities and living conditions. On the other hand, the lower levels are typical of people affected by the so-called "forced displacement". In this case, individuals are obliged to leave their place because of forces beyond their control; these forces may be both environmental (storms, fires, floods, etc.) or related to human activities (armed conflicts, plans of relocation, etc.).¹⁶ This distinction is quite important when talking about climate migrants: indeed, depending on the type of natural phenomenon (if it is a slow-on-set or a rapid-on-set event for example), people may be

¹⁴ Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 54.

¹⁵ Ibid, page 21.

¹⁶ Ibid, page 27.

involved either in forced displacement or in migration patterns. Actually, the line dividing voluntary migrants from displaced people is not always easy to find.

Thus, migration is a complex non-linear phenomenon. It assumes different forms and it spreads across various temporal and spatial lines. Moreover, the reasons behind the decision to migrate are usually multiple and not always evident. This is a key aspect in the context of climate-induced migration: indeed, many environmental migrants may not refer to the environment as the direct responsible for their movement, because unaware of the influence that climate exercise on their economic and social lives. Just in the case of immediate emergencies which force people to flee, refugees (in this context this would be a more appropriate term) may blame climate reasons as the principle drivers of displacement.

In this sense, most migration theories consider climate change not as a direct responsible for people's movements, but as an element that affects migration influencing existing drivers of migration. The latter are generally gathered in five categories: social, economic, political, demographic and environmental drivers. Figure 4 portrays the interaction between environmental (and climate) change and the previously mentioned drivers of migration.

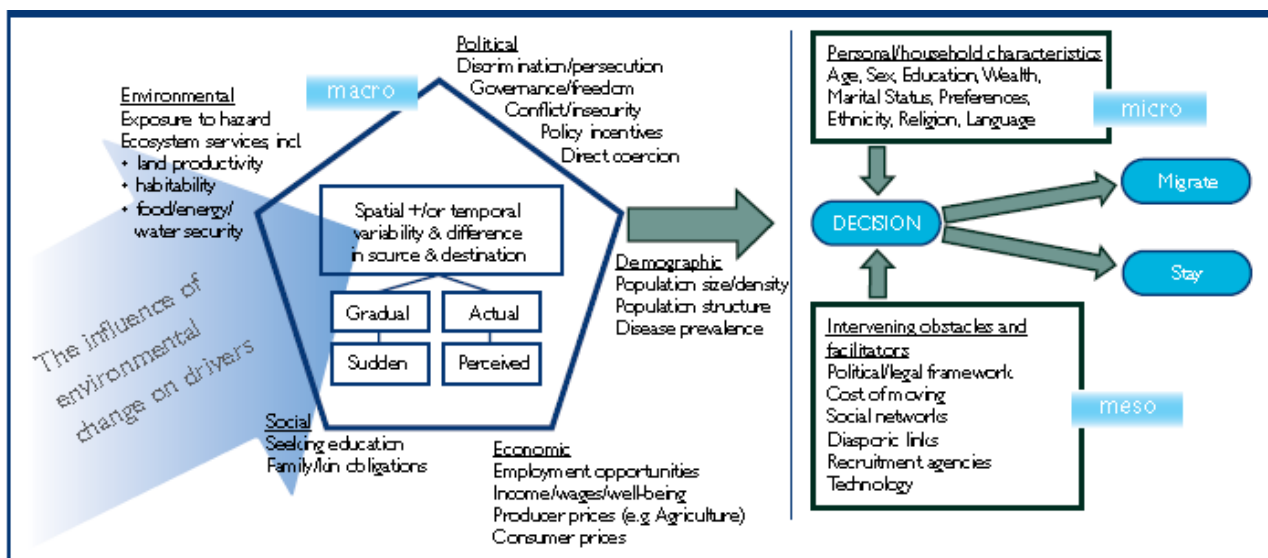


Figure 4: the influence of climate and environmental change on the five drivers of migration. Source: R. Black, *Foresight: Migration and Global Environmental Change*, 2011. Available at <https://www.gov.uk/government/publications/migration-and-global-environmental-change-future-challenges-and-opportunities>.

With regards to social drivers, a key role is given to the so-called “social capital”, which is established through migrant networks; it can take the form of transfer of information, assistance in transportation, help in finding a job and a house in the new place, etc. It is a

fundamental element, which reduces the cost of migration and facilitate subsequent movements. Migrants may be driven by a number of social motivations: enhancing their education levels or strengthening their ties with a specific community are just a few examples. Within the various migration drivers, the social ones are the less likely to be affected by climate change, although they are not going to be immune to its effects.¹⁷

Economic drivers usually develop in two levels: the macro and the micro level. Indeed, the causes of migration can lie both in differences in economic growth or in wage levels (macro level) and in individual cost-benefits analysis (micro level)¹⁸. Similar calculations are also considered to be at the basis of rural-to-urban migration. Economic drivers are often perceived as the most influential in people's decision to migrate and they are even the most probable to be affected by climate and environmental change. This is due to climate change potential to damage agricultural productivity, to influence employment, wages and prices in this sector and to prejudice fish-dependent economies.¹⁹ However, the degree of influence exercised by climate change on these drivers is usually confined to certain economic sectors, especially the primary one, which relies on natural resources; the consequences of this interaction on individuals depends on the economic situation of each country and, locally, on the choices made by each household.

Political drivers derive from governmental policies on migration, from the political and economic stability of the state and the use of violence or repression on the population. Usually a higher degree of freedom in mobility leads to high rates of participation in international migration, but also conflicts, violence, discrimination and marginalization can cause people to migrate. Even if there is not high probability for political drivers to be influenced by climate change, several issues need to be taken into account. For instance, in the second half of the 19th century, a new field of study has been introduced among Security Studies: this is "Environmental Security". It is an innovative domain, in which for the first time the environment is considered as both a source of risk and as an object to be secured. In this frame, environmental and climate changes are considered as phenomena potentially damaging not only to the environment itself, but also to states and local populations. The state could be affected with regards to its economic strength, its population health and its national security; a possible outcome is also the outbreak of the so-called "resource wars"²⁰. According to many scholars, climate change could reduce the

17 R. Black, *Foresight: Migration and Global Environmental Change*, 2011. Available at <https://www.gov.uk/government/publications/migration-and-global-environmental-change-future-challenges-and-opportunities>. Accessed 20 May 2016.

18 Ibid.

19 Ibid.

20 A. Collins, *Contemporary Security Studies*, Oxford University Press, Oxford, 2013.

amount of natural resources available to people -fresh water, food, land, marine resources, oil, coal, etc.- and the scarcity of these elements, together with the increase in population size, could contribute to exacerbate antagonism and conflicts in many parts of the world. Nonetheless, not all academics share this view: many of them are skeptical about the future spread of “resource wars”. However, these scenarios cannot be ignored, because climate and environmental change will certainly influence, in one way or another, the (unstable) political and social equilibrium of several countries.

Demographic factors usually influence migration in interaction with other drivers. Specifically, “population pressures” (causing stressful management of resources) and the age structure of populations are two important elements shaping migratory movements.²¹ Like political and social drivers, also demographic drivers seem to have fewer chances to be influenced by climate change; nonetheless, with the expected increase in population size and the scarcity of natural resources it is likely to see a certain correlation between demographic drivers and climate change.

Environmental drivers are the last of these five categories. Environment has obviously a fundamental role in shaping human lives: people depend on nature because they get their living resources from it and because favorable or unfavorable climatic conditions influence their well-being. Extreme natural events, drought, sea level rise are all factors (potentially) affecting human existence: often, they can be responsible for people's decision to migrate or for their forced displacement. Migration is not always the response to a climate event or phenomenon, but if the circumstances are particularly serious, it could be the ultimate measure available to cope with the emergency. Environmental drivers are the most affected by climate change, which indeed could alter a number of climate-related phenomena: the intensity and frequency of extreme weather events, the atmosphere composition, global temperatures, etc. These shifts could have dramatic effects on human beings and force them to move even more than they are doing nowadays.

Actually, not all the events connected to climate change are equally responsible for people's migration and displacement. Foresight report released in 2011 detected the eight principle climatic and non-climatic environmental changes most likely to influence the previous five drivers of migration.²²

21 R. Black, *Foresight: Migration and Global Environmental Change*, 2011. Available at <https://www.gov.uk/government/publications/migration-and-global-environmental-change-future-challenges-and-opportunities>. Accessed 20 May 2016.

22 M. G. Midulla, Andrea S., *Focsiv: Migrazioni e Cambiamento Climatico*, 2015. Available at http://www.cespi.it/PDF/Stocchiero-CLIMATE_CHANGE_CESPI-FOCSIV-WWF-2015.pdf. Accessed 22 June 2016.

1. Sea level rise: it could increase the risk of floods in coastal areas and contribute to the erosion of ecosystems and coasts; it could provoke stronger and more frequent natural hazards. It also entails a greater salinization of vulnerable agricultural lands, with effects on their productivity and on the availability of food and fresh water²³. These events could compromise marine ecosystems, fish populations and fish-dependent communities.
2. Change in the intensity of tropical storms and cyclones: it could increase the risk of flooding along the coasts and their exposure to huge natural hazards; it could also damage agricultural soils and human settlements²⁴. Storms and cyclones have been and will be some of the main responsible for mass displacement due to climatic reasons. However, experts are still not able to forecast precisely how their cycle will change: they do not expect a change in the frequency of these hazards, but a remarkable increase in their intensity.
3. Changes in rainfall regimes: on the one hand, it could entail a strong reduction of precipitation, leading to less productivity of agricultural lands and changes in market prices; on the other hand, also heavier rains are possible and these are likely to damage crops and to increase the frequency of crop failure.
4. Increase in temperature: high-temperature extremes could affect land production in warmer areas and increase their exposure to hazards, such as wildfires; they could also damage human health, especially within the most vulnerable populations and individuals (children and elders).
5. Changes in atmosphere chemistry: combined with other events like changes in rainfall and increase in temperature, it could seriously affect certain crops' productivity (higher CO₂ concentrations damage only certain types of crops, not every type) and also ocean chemistry, threatening coastal and marine ecosystems.
6. Melting of mountain glaciers: it could intensify the risk of glacial lake outburst floods, increasing mountain populations' vulnerability towards natural hazards; moreover, it raises the possibilities of rock avalanches and, in the longer term, it could change mountain ecosystems, affecting water, agricultural and energetic sectors²⁵.
7. Land degradation: connected with agricultural practices, extreme weather events and climate change, it decreases soil quality and land productivity, affecting

23 R. Black, *Foresight: Migration and Global Environmental Change*, 2011. Available at <https://www.gov.uk/>. Accessed 20 May 2016.

24 Ibid.

25 Ibid.

agriculture and food security. Moreover, removing vegetation cover could increase the risk of flooding and so of extreme natural events responsible for human displacement.

8. Coastal and marine ecosystem degradation: together with the previous one, it is one of the non-climatic environmental changes likely to lead to human displacement. This phenomenon has damaged various aquatic species and their habitats, removing many physical features serving as a protection against coastal storms. Thus, coastal communities are more exposed to hazards and shortage of fisheries, which are at the basis of their diet.

To sum up, climate change is usually considered as a factor contributing indirectly to human migration and displacement. It acts on the various drivers of migration, pushing individuals and households to undertake the decision to migrate.

Actually, it is important to remind that climate change not only influences people's decision to move, but it can also be responsible for “trapping” individuals and communities in their homeland, making the decision to migrate impossible to consider. Indeed, migration is not an option available for anyone: it entails economic wealth and social capital, which are needed to face the risk represented by such an uncertain road as migration. People lacking both the financial assets and the social networks necessary to participate in a migratory movement are the most vulnerable, because they also lack the means to adapt or adjust to climate change in an appropriate way. The more climate change worsens their living conditions, the more they are unable to leave their home in search for a safer shelter. It is very probable that poor people will be even poorer given that climate change phenomena will affect their resources; at the very end, for them, migration would not be a thoughtful choice, but just a disorganized displacement in the case of extreme and life-threatening natural disasters.

Another issue concerns the possibility for displaced people and migrants to return to their homeland. Indeed, the effects of climate change could damage some places permanently, preventing people from coming back to their original homes. This is highly probable in the most vulnerable areas, especially in developing countries: poverty, underdevelopment, weak governments and institutions usually impede the reconstruction, in particular in the case of huge devastating events. Without a serious reconstruction work, the lands remain unsafe and it is impossible for those who left to restart their lives there. In this way, what may have started as a simple temporary migration could actually turn into a permanent

displacement, with all the related complications.

A final aspect to mention relates to the consequences of climate-related migration in receiving areas. Indeed, migration can also worsen the economic and environmental situation of host countries, especially in urban spaces. Some studies claim that urbanization processes can lead to an exacerbation of drying trends, so that urban expansion is not always a positive dynamic.²⁶ Moreover, it is very common seeing people moving in areas which are not threatened by immediate climate emergencies, but which are still vulnerable to climate and environmental changes. In this way, more and more people lie in risky areas and they probably will not leave them until a dramatic event changes their mind. For this reason, it is necessary for climate migrants to be protected legally and to receive suggestions and help when they feel or experience the need to move, something that -as I will explain in the second chapter- is not occurring nowadays.

1.1.3 Climate-induced migration in the context of vulnerability and adaptation

In the case of adverse environmental conditions, people have different options to adapt to them; recently, some researchers have suggested that also migration can be considered as a real adaptation measure, which individuals can carry out to reduce the potential for loss or harm in their homeland. In the collective imagination, migration is usually considered a tough decision, given that it requires huge economic, emotional and cultural costs, not to mention the uncertainty that surrounds the journey. Therefore, especially populations particularly attached to their territories or those fearing the risks linked to relocation prefer to find in situ adaptive measures. However, this is not always a possible and the best solution: staying in risky areas, without having the necessary instruments to cope with negative climate events, can be extremely dangerous. In this frame, migration can be a good alternative: if treated as a real adaptation measure, carried out consciously and carefully, it can concretely change people's life. Obviously, the type and duration of the movement and destination choices depend on the cultural, political, social and economic factors of the people on the move; therefore, a single event can produce a number of different outcomes in terms of migration.

This idea of “migration as one of many adaptations”²⁷ has been presented in many occasions, like at the time of the Cancun Agreement, in 2010; in this case, UN members

26 K. Warner et al. n, *In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and Displacement*, 2009. Available at http://www.ciesin.columbia.edu/documents/clim-migr-report-june09_media.pdf. Accessed 10 June 2016.

27 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 63

considered migration and displacement in terms of adaptation and invited all the parties to take into account measures to help understanding and managing the complex reality of climate-induced migration, displacement and relocation²⁸. The Cancun Agreement can therefore be seen as a sort of “manifesto” with which the international community has situated climate-related migration within the broader context of adaptation policy making and capacity building. Other agencies analyzed these aspects, such as the Intergovernmental Panel on Climate Change (IPCC); in its 1995, 2001 and 2007 reports, IPCC expanded the understanding of migration, but always in the context of adaptation. The concept of adaptation is intimately linked with another aspect, known as “vulnerability”. IPCC defines “vulnerability” as “the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change [...], a function of the character, magnitude and rate of climate change and variation to which a system is exposed, its sensitivity and its adaptive capacity.”²⁹ In practice, vulnerability refers to the potential of an individual or a community to experience loss or harm. When a natural hazard hits a certain population, it is vulnerability -among other elements- that explains the way in which it responds to such a crisis. Climate change researchers have also provided a conceptual representation of vulnerability:

$$V = f(E, S, A)$$

in which vulnerability (V) is considered a function of the exposure to conditions or events leading to loss or harm (E); of the sensitivity of a system, community or place to particular events or conditions to which it is exposed (S); and finally of the capacity of this system, community or place to adapt to the given exposure (A).³⁰ These three elements are not stable and fixed, but they are actually continually changing, given the unpredictable changing nature of environmental and human systems.

Vulnerability is a key aspect in describing why developing countries and the poorest and most marginalized sections of society are usually the most affected by natural disasters. Indeed, the particularly exposed geographical position, the lack of effective adaptive strategies and the frequent unstable governments are all contributing factors increasing these states' uncertainty and vulnerability to these crises. For instance, considering the recent estimates, a number of Asian developing countries (such as Bangladesh,

²⁸ Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 53.

²⁹ Ibid, page 57.

³⁰ Ibid, page 56.

Philippines and Vietnam) hold the dramatic record for the highest levels of global displaced by natural hazards.³¹

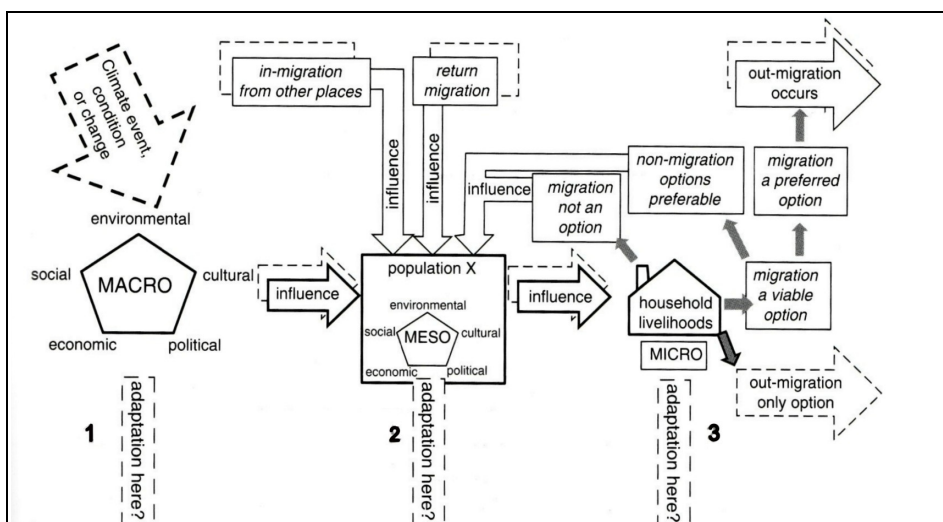
The concepts of adaptation and vulnerability (and its formula) have been used by Professor Robert McLeman in “Climate and Human Migration” (Cambridge University Press, 2014) to provide the so-called “MESA function”. He states that the vulnerability function and the idea of migration as an adaptation measure can be used to provide the specific potential for migration of a community in response to extreme events. Thus, the MESA function is the following:

$$M = f(E, S, (A-M))$$

In this equation:

- “M” stands for migration in the context of vulnerability;
- “E” is the exposure to a certain climatic condition;
- “S” is the sensitivity of the population to that climatic stimulus;
- “A-M” refers to the adaptation options different from migration.

According to McLeman, the potential for migration strictly depends on the severity of the event, the sensitivity of the population and the latter's adaptive capacities. So, knowing some of the previous variables can be extremely useful to understand how much is probable for a group to migrate.



The MESA function is a useful theoretical representation of migration within the context of adaption, but as McLeman himself points out, it does not offer practical tools to analyze the temporal and spatial scale of

Figure 5: effect of a climatic event on an adaptive system.

Source: Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 71.

31 M. Yonetani, *Global Estimates Report 2015: People Displaced by Disasters*, 2015. Available at <http://www.internal-displacement.org/assets/publications/2015/20150713-global-estimates-2015-en.pdf>. Accessed 5 June 2016.

these movements.

A more concrete representation of the link between climate-related migration and adaptation is therefore shown in Figure 5. It proposes a sort of “adaptive human-environment system”³² in which migration is one of the components together with climatic aspects. Generally speaking (omitting for a moment the climatic issue) “population X” is affected by a number of factors (environmental, social, cultural, economic and political) operating at higher scales (“macro”) and within the population itself (“meso”). The combination of these elements influences the opportunities and strategies of individuals. In a system with no huge or sudden perturbations, usually most migration decisions are taken within households; in their changing adaptation process, they may or may not elect migration as one of their surviving strategies. The decisions made within a household significantly affect also other dimensions: population X as a whole and the flows related to out-migration, in-migration and return migration. In this way, households have the potential to change and adjust the entire population's characteristics and options.

But what happens when a climatic event or a change in climatic conditions occurs? Let's assume that the climatic phenomena are perceived by the entire system (even if in practice it is not always the case). If the macro-level structures are strong and adaptive enough or the climatic event is sufficiently weak, the impacts are absorbed at the macro scale level, without affecting much the lower scales. This is what the dashed box number 1 aims at portraying. However, if adaptation is not adequate at higher levels, population X and local institutions may be asked to respond; the results of this response depend on the nature of the climatic event and the internal dynamics affecting the population X itself (see the dashed box number 2). If the adaptation process fails even in the previous level, then households are supposed to answer the call (see the dashed box number 3); in this case, adaptation outcomes may involved two different strategies as compared to those undertaken in the higher levels: the possibility of voluntary migration or, in extreme circumstances, a compulsory displacement. The system is also influenced by “external” forces, with in-migration and return migration happening.

Thus, this figure shows that actors in each of the three levels have to adjust, respond and adapt not only to the climatic stimulus itself, but also to the actions and decisions made in other part of their system and in other systems to which they are connected. To explain why the system behaves in this way, the concept of “capital” is very useful.³³ As I have

32 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 68.

33 Ibid.

previously mentioned in the case of “trapped populations”, economic, social and other forms of capital (cultural, natural, human, etc.) influence adaptation and migration patterns; economic capital is a key aspect in people's adaptive capacity to climatic events, while social capital is necessary to explain how to build adaptive behavior at the community level and how migration is perpetuated. Capital represents the social, economic and personal background of individuals, which are fundamental elements for the shaping of vulnerability and adaptation and therefore migration.

1.1.4 Displacement and migration patterns by type of natural hazard

Another aspect that needs to be taken into account concerns the type of natural hazards causing human distress. Indeed, not all disasters have the same impact on populations, in particular on their migration patterns; it all depends on the severity of the phenomena and, of course, on the ability of communities to recover or adapt to them with strategies different from migration or displacement.

On the global level, weather-related events -in particular floods and storms- are the main responsible for human displacement and migration. As a matter of fact, in 2014 17,5 million of people were displaced by this type of events³⁴, while in 2013 there have been 20.7 million displaced people, 94 per cent of the global total.³⁵ In comparison, geophysical hazards such as earthquakes, landslides or volcanic eruptions are far less accountable to provoke displacement or migratory movements.

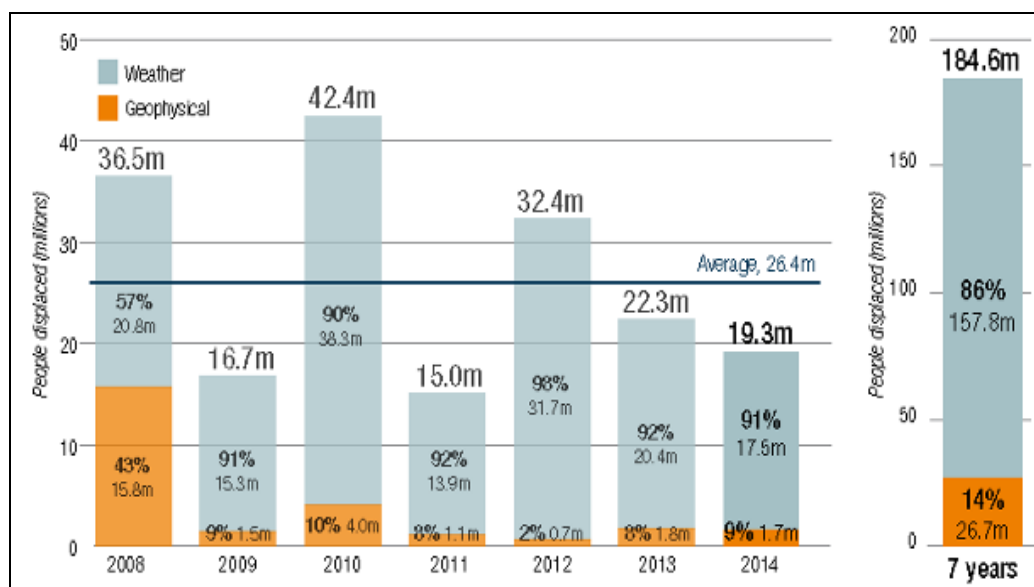


Figure 6: global displacement caused by weather and geophysical disasters in the period 2008-2014.
Source: M. Yonetani, *Global Estimates Report 2015: People Displaced by Disasters*, 2015. Available at: internal-displacement.org

34 M. Yonetani, *Global Estimates Report 2015: People Displaced by Disasters*, 2015. Available at <http://www.internal-displacement.org/assets/publications/2015/20150713-global-estimates-2015-en.pdf>. Accessed 5 June 2016.

35 Ibid.

Figure 6 shows the difference in the amount of people displaced by these two types of events in the period 2008-2014: the blue part (representing weather-related disasters) is clearly broader than the orange one (geophysical events).

Considering the peculiarity of each event, it can be useful to analyze in details the migratory patterns linked to four specific cases, responsible at the present time and/or possibly in the future for the highest number of displaced people and migrants.

Extreme weather events are the first of these cases. They are usually considered part of climatic systems that have always taken place and always will. However, many scholars state that it is likely to witness an increase in severity and frequency of these hazards in the following decades, and this can certainly represent a risk for lots of communities across the globe. In 2014, weather events (in particular storms) have caused the greatest displacement of people, with 9.1 million people affected. (Figure 7)

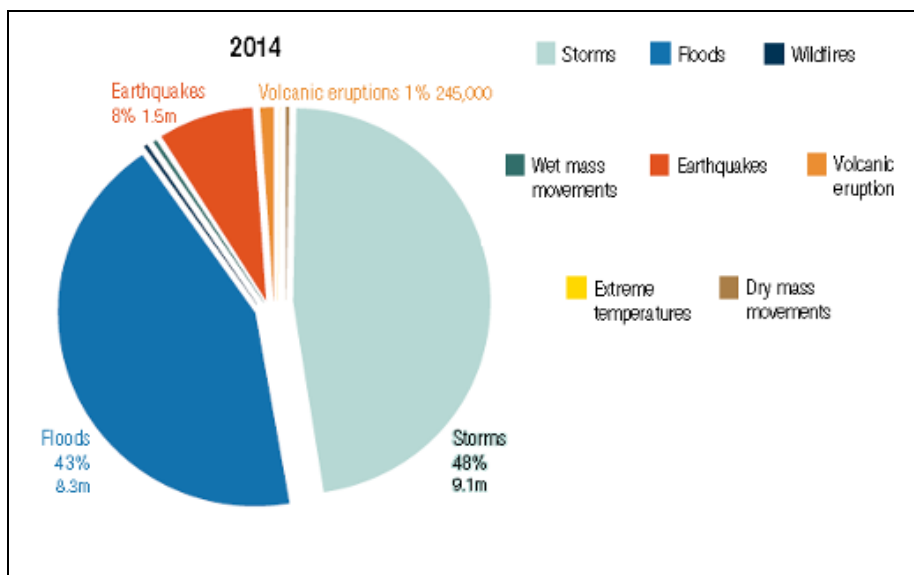


Figure 7: global displacement by type of hazard in 2014. Source: M. Yonetani, *Global Estimates Report 2015: People Displaced by Disasters*, 2015. Available at <http://www.internal-displacement.org>.

In general, extreme weather events vary in terms of duration, the areas affected and climatic phenomena related. Among the typical events taking place, there are:

- Extreme wind events (such as tropical cyclones, tornadoes, gales, micro-bursts);
- extreme precipitation events (rain, snow, freezing rain, hail);
- extreme temperature events (heat waves, cold snaps)³⁶.

All of them share a common potential to provoke loss or harm among human populations. Actually, human exposure is conditioned not just by the characteristics of extreme events, but also by the physical conditions of people's homeland and the social, cultural, economic

³⁶ Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 79.

and political processes influencing their lifestyle.³⁷ In this context, migration is a possible outcome, especially if there is a loss of housing and livelihoods and/or a damage to social networks. The adaptive strategies offered by institutions and the capital available to the households are all contributing factors increasing or decreasing migration and displacement. There are also other important factors raising the sensitivity of populations and systems: firstly, population growth and thus the higher rates of people living in risky areas (coastal regions for instance); secondly, landscape modification related to human activities, which removes specific natural features that store precipitation and blunt the effect of storms and wind events; thirdly, residential location in highly exposed areas, either by choice or by chance; fourthly, housing quality and the fact that many houses lack the structural characteristics to resist to extreme weather events; and finally, social inequality, considering that poverty and social marginalization increase people's risk of loss and harm during these natural hazards.³⁸ Extreme weather events may potentially affect any inhabited areas, but at the present time specific regions are hit the most, with Asia and the Americas being the most evident cases. This means that also migratory patterns are not equally distributed worldwide. Furthermore, it is necessary to remember that migration is one of the possible adaptive strategies available to communities and households: if people possess the structural and technological means to face natural disasters (solid houses, access to information and communication technology, etc.), there are less possibilities of damage or displacement for individuals. This explains why in many developing countries -such as Bangladesh- the number of people affected or even killed by extreme weather events is far higher than the one in developed countries like the United States. Thus, proactive adaption is fundamental in trying to reduce the damages and the loss of lives in such situations and, of course, also migratory movements. Usually, however, even proactive strategies are not entirely sufficient to prevent serious losses for human populations, as in the case of massive tornadoes or cyclones. In these situations, there are always households and individuals that are obliged or decide to leave their houses in search for a safer shelter.

The second case to consider are floods, which are responsible for the greatest number of people displaced worldwide in the period 2008-2014, as the chart in Figure 8 indicates.

37 R. A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge University Press, 2014, page 87.

38 Ibid.

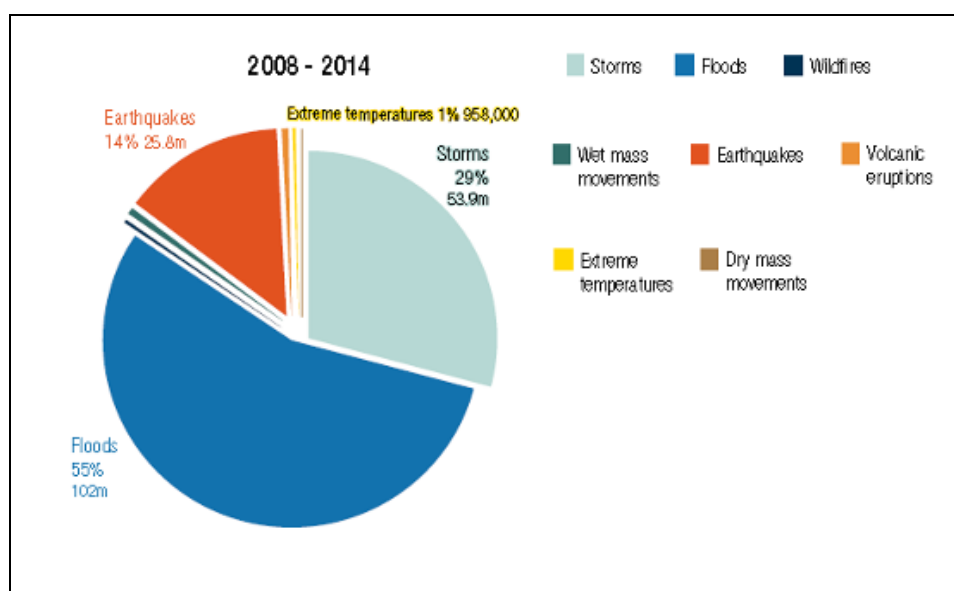


Figure 8: global displacement by type of hazard in the period 2008-2014. Source: M. Yonetani, *Global Estimates Report 2015: People Displaced by Disasters*, 2015. Available at <http://www.internal-displacement.org>.

Floods affecting human settlements are usually divided into four categories:

- Inundations of buildings caused by a lack of drainage;
- Rapid rise of water in little catchments and watercourses;
- Inundations of rivers or bigger watercourses;
- Flooding of settlements situated along a coast³⁹.

Southeast Asia, China, Central America and the Caribbean are the regions mainly affected by these phenomena, considered the frequency of monsoons and tropical cyclones and the number of people living in risky areas. In the last decades, despite the annual variation in flood events frequency, there are more and more people and structures exposed to these hazards. This trend is likely to enhance in the future, considering that anthropogenic climate change is expected to raise the risk of flooding in many regions and thus the potential for greater displacement and harm. As in the case of extreme weather hazards, also the risk of flooding is increased by some environmental-damaging human activities, such as deforestation, drainage of wetlands, construction of impermeable surfaces and storm drains, and narrowing of channels.⁴⁰ Moreover, poverty is a fundamental factor increasing people's exposure and vulnerability towards such phenomena.

To understand the role of migration in this context, it is necessary to distinguish between the regions in which floods represent an annual regular risk and those in which flooding

³⁹ Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 112.

⁴⁰ Ibid, page 115.

occurs irregularly⁴¹. In the first case, moving is often an adaptive strategy occurring in the form of temporary or seasonal labor migration, useful to reduce risks and to maximize potential opportunities; in many African countries, such as Somalia and Eritrea, in Brazil and in many Asian rice producing countries, residents (especially farmers) undertake this decision annually. In this context, another coping strategy is rural migration: it generally concerns the poorest members of a community which decide to move to cities for a temporary or an indefinite period of time, in search for better job opportunities. This occurs in India, Vietnam, Pakistan, China, Ghana and Mozambique, to mention just a few examples.⁴² In areas in which flooding is not a seasonal reality, people have fewer chances to decide independently for their lives; indeed, extreme floods can force people to leave their homes without having time or space for alternatives. In this case, they are usually considered as “displaced” individuals rather than voluntary migrants. Nonetheless, it is not so rare that, afterwards, displacement turns into migration, with people deciding not to come back to their homeland at the end of the emergency situation. This is often the case in the broad and densely populated Asian river valleys.

The third case concerns drought. Currently, drought represents a dramatic problem for many communities, especially in the southern hemisphere of the world; it is expected to become more severe, frequent and spread because of global warming. There is not one specific cause for drought, and this makes the problem even more difficult to forecast in the future. Some scholars link it to periodic fluctuations in tropical sea surface temperatures and their influence on air currents, but the causes of these fluctuations are not well known. Other experts consider drought as a self-reinforcing phenomenon, reiterating over and over again just in certain regions. Also human activities play their role in influencing drought patterns: removing vegetation, modifying the landscape, selecting certain types of crops are all examples of human modification of the environment, potentially responsible for drought. Usually, drought can be:

- Meteorological (significant shortfall in precipitation levels);
- Hydrological (shortages in the available supply of water such as streams, rivers and wetlands);
- Agricultural/vegetative (affecting the productivity of agricultural and grazing lands).⁴³

41 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 121.

42 Ibid, page 123.

43 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 143.

This phenomenon has a huge potential in damaging ecosystems, because it is linked to other serious risks such as desertification, soil erosion and water availability; in this frame, crops, forests, animals and of course human beings (and their food system) may be dramatically affected. Africa is traditionally considered as the continent mainly exposed to drought and in particular to desertification; Figure 9 portrays its vulnerability to this event, as it was measured in 2001 by the United States Department of Agriculture. The red areas correspond to those dramatically exposed to desertification, which are lands close to the Sahara desert and the southern deserts of Namib and Kalahart (represented in grey). The orange stands for the regions with a high risk of desertification, while the yellow for the vulnerable ones. But, the African continent is not alone in this path; other regions of the world are potentially exposed to drought and desertification in the future time, such as the Middle East, Southern Europe and Latin America.

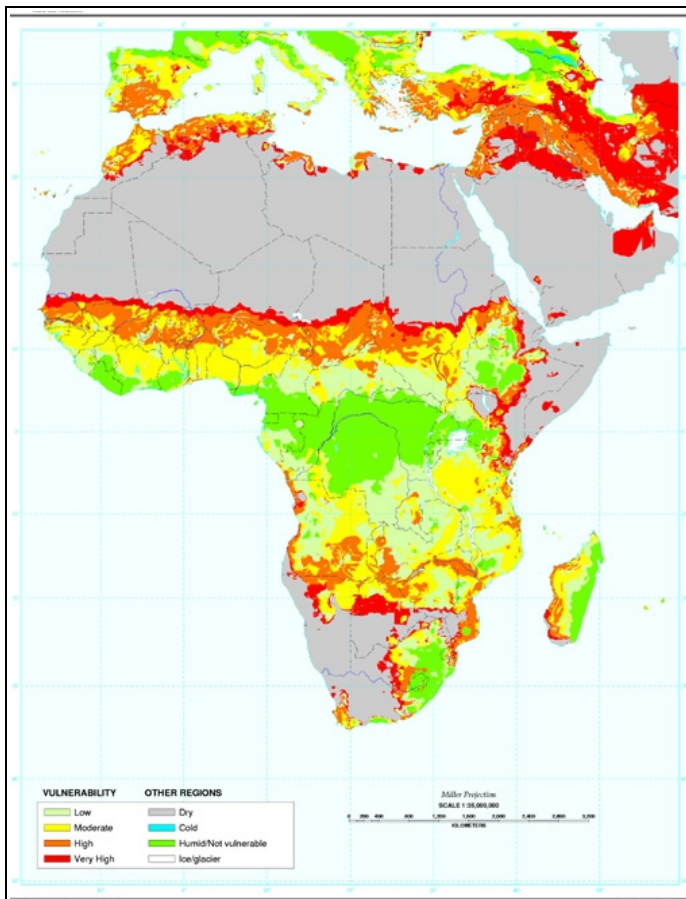


Figure 9: desertification risk in Africa.

Source: United States Department of Agriculture, *Land Resource Stresses and Desertification in Africa*, available at <http://www.nrcs.usda.gov/>.

Actually, nowadays, it is very rare to find a direct link between migration and drought; in fact, people involved in such a dynamic usually try to adapt to it in situ (especially in urban areas), through innovative water supply infrastructures or through “water-saving” measures, such as regulation or public education. However, climate change could seriously tests the limits of these strategies in the future, forcing people to search for other effective solutions. In this context, migration is not the most common adaptive strategy. Moreover, people that decide to undertake it usually see drought as just one of the many reasons pushing them to leave their houses, with political and economic crises having a fundamental role in this

sense. Most of the drought-related migration takes place within rural populations, in which institutions have failed to give alternatives. In this frame, it is necessary to distinguish

between regions affected by seasonal dryness and those experiencing extreme drought conditions. In the first case, seasonal labor migration is traditionally the most common adaptive strategy, as in Sudano-Sahelian Africa or in India.⁴⁴ In the second one, drought usually exacerbates migratory movements, increasing levels of participation in temporary labor migration, as has happened in Sudan and Ethiopia in the past decades.⁴⁵ Nonetheless, permanent relocation is typically a last resort response to drought, because people are quite reluctant in deciding to leave their home before exhausting any other possible adaptive strategy. Differently from flooding or extreme weather events, drought does not force people to move right away, so they have all the time to implement other measures rather than migration.

The fourth and final case deals with sea level rise. As I previously mentioned, sea level has been rising continually in the last decades because of global warming, and this phenomenon could be particularly risky for many coastal communities. Still, in the recent years, there have been cases of people obliged to leave their land because of unsustainable sea level rise: in this context, Alaska, Papua New Guinea and Vanuatu have registered the first “climate change refugees” due to this natural event.⁴⁶ It is extremely likely that sea levels will keep increasing in the coming century, so that many more populations may find themselves in emergency situations. As a matter of fact, such circumstances could affect human well-being (and lives) in a number of ways: increasing the risks of floods and inundation; changing or eroding coastal territories; leading to the intrusion of saltwater inland; damaging crops and other important food and water-producing systems. Still, it is not possible to make a certain future estimate of the coastal communities exposed to sea level rise, because the numbers keep changing over the time and, above all, there is no certitude about the increase of sea level in the next decades. By the way, most scholars agree in saying that Asian coastal countries and Small Island Developing States are the most vulnerable areas and probably the most affected by these problems. China, Vietnam, India, Bangladesh, Indonesia, the Maldives, the Marshall Islands, Tuvalu, the Cayman Islands and Turks and Caicos Islands are just some examples.

How can people adapt to such a dangerous and insecure outcome? Firstly, designing infrastructures specific to the different threats posed by sea level rise, such as walls,

44 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 159.

45 Ibid, page 163.

46 Ibid, page 181.

barriers and similar instruments. Anyhow, the cost of these constructions may be prohibitive, especially if the coast to be secured is quite large; therefore, they may not be employed by some countries, such as the developing ones, which are usually the most needing countries. In this case, managed and planned retreat from the most exposed areas may be an alternative solution. Unfortunately, also this strategy may be logistically and economically expensive and therefore unfeasible. In this context, migration is and will be one of the most probable plans of action to deal with sea level rise, both in the form of migration facilitated by institutions or that undertaken autonomously at the household level. The circumstances related to sea level rise are actually more complicated than those linked to other natural hazards; indeed, in the most dramatic scenarios, people will not have any possibility of coming back to their homeland, because sea level rise could remove portions of their land forever. This would be an unprecedented situation, with environmental, economic, political and social outcomes never conceived before: for example, think about the possibility of people being stateless because their country has disappeared. Moreover, most scholars agree about the fact that the majority of migrants in this context will be moving within their state's borders, acquiring the official status of "Internally Displaced Persons" (IDPs). This category entails specific considerations about state sovereignty and legal protection that will be explored in details in the second chapter. Coastal affected areas will certainly host also many "trapped populations", unable to undertake the migration decision because they lack the necessary economic and social capital.

Thus, whatever the natural hazard is, migration is always -either on a small or a large-scale- a potential outcome. Its patterns typically vary depending on the type of event and the characteristics of the populations and the territories exposed. Despite the impossibility of detecting with certainty the future migratory movements, there are almost no doubts that climate change will modify and amplify the number of environmental migrants in many areas of the world.

1.2 Environmental refugees: dimensions of the phenomenon and terminological problems linked to it

Given the previous considerations, how should climate-related migration be conceived nowadays? How should the international community address to the protagonists of these

migratory patterns? As stated before, climate-related migration is a heterogeneous and varied reality. The types of people to include in this category are copious and the distinction between who can be called a “climate migrant” and who cannot is usually very fuzzy. However, finding some criteria in this sense is necessary to understand and manage the phenomenon. In recent literature, those included in the category have usually been people forced to move because of floods, drought and extreme weather events (storms, cyclones, etc.). In any case, there is a number of other individuals potentially prone to be considered in the same way: for example, those deciding to leave for places with a better climate and living conditions, even if there is no emergency going on in their homeland. Actually, it is not obvious to consider them “climate-related migrants”, because many other drivers have led them towards the migratory pattern.

Therefore, it is evident that the definition of “climate-related migration/migrants” is not straightforward. Nonetheless, it is important to be aware that this phenomenon exists and that it entails a series of specific legal and practical considerations.

To better understand the nature of climate-induced migration, Robert McLeman has provided a useful definition for it:

“Climate-related migration occurs when climatic conditions, weather events [...] and/or their physical impacts are among the easily recognizable influences on migration, but they need not to be the sole cause of the migration event.”⁴⁷

These words highlight the presence of environment and climate as main drivers for migration, but not as the only one; again, migration is portrayed as a multi-causal reality, in which different factors intervene and influence people's decision to move. In this frame, two basic elements need to be underlined: first of all, the fact that a single climatic or environmental event can lead to a number of different responses, ranging from migration to the decision -or the obligation- to stay in their own homes. Secondly, the potential of a sole event to produce different migration patterns, which vary in terms of duration, destination and number of people participating.

The complexity and heterogeneity of climate and environmental-induced migration is probably the main reason why scholars and international policy makers still do not agree on a single label and a univocal definition for the actors involved in these movements.

47 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 10.

At the time of the first publications on the subject, the expression employed was “environmental refugees”. This label was first proposed by Lester Brown in the 1970s, specifically in a document written for the International Institute for Environment and Development. Actually, it was not until 1985 that the term was officially employed and spread by Essam El-Hinnawi: indeed, he used it in a report written for the United Nations Environment Programme, with reference to the environmental disasters in Bhopal (India) and Chernobyl (Ukraine) provoking the forced displacement of entire communities. In the document, El-Hinnawi defined “environmental refugees” as

"people who have been forced to leave their traditional habitat, temporarily or permanently, because of a marked environmental disruption (natural and/or triggered by people) that jeopardized their existence and/or seriously affected the quality of their life".⁴⁸

The author provided for the first time some specific criteria to attribute to "environmental refugees" and he classified them in three categories:

- Individuals moving temporarily because of environmental distress, but able to return to their land of origin to start its reconstruction.
- Individuals moving permanently and being relocated in a different area. This group of refugees is typically hit by the effects of disasters caused by development projects (for example big dams) or environmental hazards.
- Individuals moving temporarily or permanently because environmental degradation has reduced dramatically the natural resources necessary for their survival and well-being⁴⁹.

Since the 1980s, the definition of (environmental) refugees has been widely broadened up. In particular, the concept of “refugee” has been distinguished from that of “voluntary migrant”, in the sense that they differ in the circumstances in which they move and the effects of these circumstances on them. Moreover, scholars have affirmed that the label “refugees” lacks the high degree of volition present, instead, among migrants; as a matter of fact, the former are obliged to move due to “external forces” operating on them and

48 WorldWatch Institute, *Environment a Growing Driver in Displacement of People*, 2013, available at <http://www.worldwatch.org/node/5888>, accessed 24 June 2016.

49 M. Gubbiotti et al., *Profughi Ambientali: Cambiamento Climatico e Migrazioni Forzate*, 2013. Available at <http://www.legambiente.it/>. Accessed 22 June 2016.

usually do not have the time to think about it carefully.⁵⁰ Over the years, it has also been suggested that the status of refugees does not depend on the distance traveled, so that this phenomenon does not just refer to transnational movements. Given these considerations, an important aspect has been marked in the context of environmental migration: climate and environmental changes are not directly responsible for people's displacement, but their effects make living conditions unsustainable for the communities, which are thus forced to leave for a national or an international destination.

Nowadays, the best definition of “environmental refugees” is usually considered as the one provided by Norman Myers:

“[environmental refugees] are people who can no longer gain a secure livelihood in their homelands because of drought, [...] and other environmental problems, together with associated problems of population pressures and profound poverty. In their desperation, these people feel they have no alternative but to seek sanctuary elsewhere [...]. Not all of them have fled their countries, many being internally displaced⁵¹.”

This definition is particularly appropriate because it considers both the potential environmental factors and other related causes -demographic growth and poverty for instance- which force people to move, especially inside the national boundaries.

Actually, the employment of the expression “environmental refugee” has been highly criticized: indeed, the term “refugee” has a specific legal meaning related to the 1951 Geneva Convention about the Status of Refugees and International Refugee Law. Many scholars and policy-makers (especially in the countries mostly affected by these phenomena) have often claimed that it is necessary to expand the definition of refugees provided by the Geneva Convention, in order to include also individuals fitting in the “environmental refugee” label. However, a number of international agencies have pointed out the difficulty and also the risks related to such an extension and they are currently against it.

For this reason, in the last decades, many other terms have been proposed; the International Organization for Migration (IOM) usually prefers the label “environmental migrants”, defined as

50 M. Gubbiotti et al., *Profughi Ambientali: Cambiamento Climatico e Migrazioni Forzate*, 2013. Available at http://www.legambiente.it/sites/default/files/docs/dossier_profughi_ambientali_2.pdf. Accessed 22 June 2016.

51 Norman Myers, *Environmental Refugees: a growing phenomenon of the 21st century*, 1995. Available at <http://www.envirosecurity.org/conference/working/EnvironmentalRefugees.pdf>. Accessed 20 June 2016.

“ [people] who, for reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions, are obliged to leave their homes, or choose to do so, either temporarily or permanently, [...] either within their territory or abroad.”⁵²

A recent article of the United Nations University Institute for Environment and Human Security (2011) has proposed a comprehensive approach towards environmental migrants, distinguishing them in three categories:

- Environmental emergency migrants, who move after a rapid-on-set climatic event (storms, tsunamis, earthquakes, etc.); in this case, the environmental factor is the principal.
- Environmentally forced migrants, who have to leave their home, but not as rapidly as in the first case; often, they do not manage to come back, because the effects of environmental or climate changes are irreversible. In this case, socioeconomic factors play an important role and it is difficult to understand which is the most influencing between them and the environmental ones.
- Environmentally motivated migrants, who decide to move because environmental degradation is threatening their living place; in these circumstances, moving is not the final choice or a response to an emergency and typically socioeconomic factors are considered the main drivers of migration.⁵³

Nonetheless, also the expression “environmental migrant” is not exempt from critics. Indeed, it is not always considered appropriate because it entails a certain degree of volition that in many cases is not present or dominant in people's movements.

Thus, terminological alternatives to the previous expressions have been proposed. Among them:

- “Environmental/climate displaced person”: it is a descriptive term, which does not necessarily imply governance responsibility; moreover, it refers to the issue of “Internally Displaced Persons” (IDPs) which is recognized and regulated by various conventions and regional agreements. However, this label involves just one dimension of the mobility spectrum -displacement- so that it is not always suitable

⁵² International Organization for Migration, Definitional Issues, 2015. Available at <http://www.iom.int/definitional-issues>. Accessed 24 June 2016.

⁵³ M. Gubbiotti et al., *Profughi Ambientali: Cambiamento Climatico e Migrazioni Forzate*, 2012. Available at http://www.legambiente.it/sites/default/files/docs/dossierprofughi_ambientali.pdf. Accessed 22 June 2016.

for every situation.

- “Environmentally induced migrant”: it is used in the 2013 Paper of the European Commission “Climate change, environmental degradation, and migration”; it could be a good option encompassing all types of migrants moving internally or internationally for reasons related to both climate change and environmental degradation.

According to most future scenarios, human migration and displacement are likely to increase because of the severe effects of climate and environmental change. Therefore, there are no doubts about the necessity of finding both a common term and a definition to address to the people involved in such movements. Using a label as “environmental refugee” could actually be an effective option: firstly, to demonstrate the urgency of this phenomenon; secondly, to compel the international community in finding appropriate methods and instruments to protect these individuals as many other categories of migrants and refugees are safeguarded nowadays.

1.3 Statistics and predictions: the current and future number of environmental refugees

These days, there is no specific mechanism to record the total number of environmental refugees.⁵⁴ This is an important issue, because, without a reference point in this sense, any estimate and prediction can be called into question.

However, acquiring such a method is not an easy task; there is a series of methodological problems linked to the complexity intrinsic to migration. One of them concerns the absence of a univocal definition for “environmental refugees”: without it, it is quite difficult to understand the categories to be included when collecting the necessary data. Moreover, as it has been previously mentioned, migration is an extremely complex phenomenon and so it is also climate-related migration; it is typically multi-causal, so, together with climate and environmental elements, there are also a number of other political, social and economic aspects to be taken into account. Furthermore, the influence of climate and environment on the decision to move is usually less “evident” than that exercised by other drivers, which has a stronger impact on people (think about an economic crisis, a war,

⁵⁴ Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 10.

etc.); therefore migrants themselves do not always realize to be part of a climate-related movement. What worsens even more the frame it is the difficulty of collecting population data worldwide, considering the absence of a census system connected to environmental and climatic catastrophes in many parts of the world⁵⁵. Indeed, the presence of datasets among local populations is an extremely useful tool, which helps experts in making progress in the study of climate-related migration. This instrument has been used, for instance, for the EACH-FOR project, a two-year project wanted by the European Commission, aimed at analyzing the interaction between environmental change and forced migration in each continent.

However, many scholars have pointed out that estimates and predictions are not always fruitful, especially in the context of policy planning; they could actually be even counterproductive, in the sense that they could spread fear and alarm, without giving practical responses.

Given this framework, it is not surprising that there are several interpretations of the number of current and future environmental refugees worldwide; they usually vary depending on the source from which they come from and the objective of the agency that has commissioned the research.

An interesting example comes from “Global Estimates Report 2015”, provided by the Internal Displacement Monitoring Centre and the Norwegian Refugee Council. The paper provides the main figures of disasters-related displacement in 2014: the number of displaced during this year is indicated as 19,3 million, with an average of 26.4 million people displaced each year in the period 2008-2014; according to this report, in practice one person becomes displaced every second.⁵⁶ In this frame, the natural hazards mainly responsible for these movements have been weather-related ones, especially storms and floods. Developing countries have been the most affected by displacement, both in 2014 (91% of the total) and in the period 2008-2014 (95%); as Figure 10 points out, usually the phenomenon has involved lower middle-income countries (61% of the total in 2014, 46,8% in 2008-2014), more than low-income ones, considering also the costs connected to the movement⁵⁷. This means that in upper middle-income countries, huge displacements are usually rare, because their economic and technological development provides alternative (preventive) measures, helping them in avoiding such an outcome. On the other hand, low-income countries often lack these opportunities, so people are “trapped” in risky

55 R. Black, *Foresight: Migration and Global Environmental Change*, 2011. Available at <https://www.gov.uk/>. Accessed 20 may 2016.

56 M. Yonetani, *Global Estimates Report 2015: People Displaced by Disasters*, 2015. Available at <http://www.internal-displacement.org/assets/publications/2015/20150713-global-estimates-2015-en.pdf>. Accessed 5 June 2016.

57 Ibid.

situations and they do not have the necessary assets neither to move nor to protect themselves from catastrophes. Otherwise, people living in lower-middle income areas, typically decide (or are forced) to move, because weak institutions and low degree of development do not give them alternatives; the little money available to the households is then invested in migration.

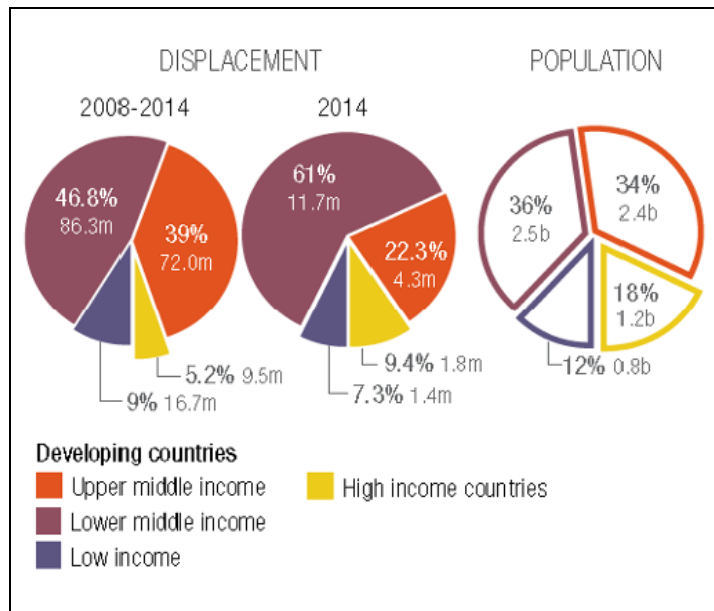


Figure 10: global displacement and population. Source: M. Yonetani, *Global Estimates Report 2015: People Displaced by Disasters*, 2015. Available at www.internal-displacement.org.

The essay also affirms that the number of environmental refugees is not equally distributed across the globe. In this respect, two things need to be underlined: first of all, the fact that not every part of the world is equally at risk from natural hazards and related climatic issues; obviously, for example, a hinterland is not threatened by sea level rise as a coastal area, so the potential for climate-related migration differs between the various territories. Thus, Figure 11 shows the geographical

distribution of displacement caused by natural disasters.

Asia has clearly presented the highest number of displaced people:

- 16,7 million people have been displaced in 2014, an average of 21,5 million per year between 2008 and 2014⁵⁸.
- In absolute terms, eleven of the twenty countries worst affected by displacement in this seven-years period are in Asia and they are: Vietnam, Sri Lanka, Japan, Myanmar, Thailand, Indonesia, Bangladesh, Pakistan, Philippines, India and China. The country totals range from two million displaced people to 58 million⁵⁹.
- China, India and the Philippines have registered the highest rates of displaced both in 2014 and in the period 2008-2014: in absolute values, China has suffered the greatest displacement, followed by India and the Philippines; however, if compared with their population size, the Philippines have been the most affected country

⁵⁸ M. Yonetani, *Global Estimates Report 2015: People Displaced by Disasters*, 2015. Available at <http://www.internal-displacement.org/assets/publications/2015/20150713-global-estimates-2015-en.pdf>. Accessed 5 June 2016.

⁵⁹ Ibid.

among the three. While floods have been the main responsible for displacement in China and India, storms have caused the highest number of environmental displaced people in the Philippines.

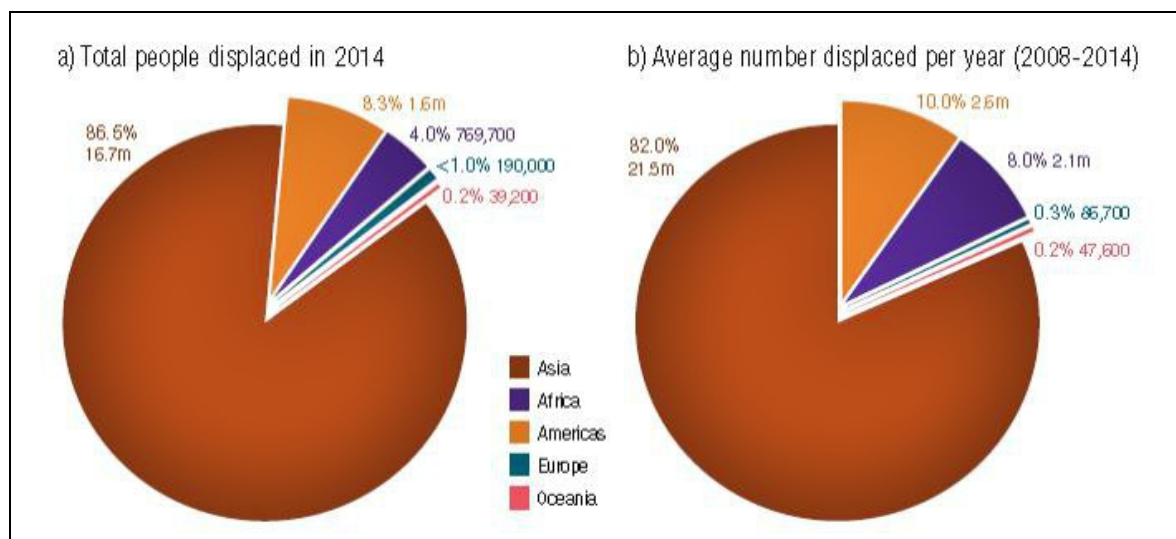


Figure 11: geographical distribution of displaced people in 2014 and in the period 2008-2014. Source: M. Yonetani, *Global Estimates Report 2015: People Displaced by Disasters*, 2015. Available at www.internal-displacement.org.

The second most affected continent has been the American one:

- in absolute terms, Colombia, the United States, Chile, Mexico, Haiti, Brazil and Cuba appear on the list of the twenty countries with the greatest level of displacement in the period 2008-2014; Chile, Bolivia, Brazil and Paraguay are among the worst affected countries in 2014⁶⁰. Earthquakes, floods and storms are the main responsible for the number of displaced people in this area.

The American continent is then followed by Africa:

- Nigeria and Niger have been the worst affected countries by climate-related displacement between 2008 and 2014 (in absolute terms); instead, South Sudan and Ethiopia appear among the worst hit in 2014 (always in absolute values), mainly because of severe floods⁶¹.
- In absolute terms, natural disasters-related displacement in Africa has been three times lower than average in 2014; actually, relative to the population size of certain African countries, the phenomenon has been particularly problematic.

⁶⁰ M. Yonetani, *Global Estimates Report 2015: People Displaced by Disasters*, 2015. Available at <http://www.internal-displacement.org/assets/publications/2015/20150713-global-estimates-2015-en.pdf>. Accessed 5 June 2016.

⁶¹ Ibid.

Oceania and Europe lie in the lowest ranks of the chart, with the lowest number of people displaced by natural disasters. Nonetheless, in 2014 Europe has experienced double its average level of displacement with respect to the past seven years: 190.000 people were involved in massive displacement due to flooding, especially in the Balkans⁶².

As Figure 11 points out, Small Islands Developing States (SIDS) do not provide significant levels of displacement in absolute terms. However, considering their small population, they are disproportionately affected by this phenomenon: between 2008 and 2014, they experienced levels three times higher than the global average. For example, in 2014 in Tonga (Polynesia), Cyclone Ian caused the third largest displacement worldwide in relative terms: five per cent of the population (5300 people) had to leave its home⁶³. In general, twelve per cent of the countries affected by disasters-related displacement in 2014 were SIDS and five of them lie among the twenty worst-affected countries in relative terms (Tonga, Marshall Islands, Solomon Islands -in the Pacific- Comoros, Cabo Verde -close to Africa).

An alternative view focuses on geographical regions: in this sense, East Asia and the Pacific lead the list as the areas most affected by displacement caused by disasters, both in absolute and in relative terms.

"Global Estimates Report 2015" is certainly a useful and quite a comprehensive outlook over the movements of people displaced by natural disasters. Nonetheless, such an approach is not always achievable. Indeed, on the one hand, data concerning rapid-on-set events -floods, storms, cyclones, etc- and the consequent displacement are usually easily available; on the other hand, other natural phenomena, especially those occurring at a slow pace (above all, drought and sea level rise), involve complex patterns of movements, not always detectable. In these cases, empirical evidence is extremely difficult to find. In these circumstances, the influence of environment and climate on people's choice to migrate is very subtle and not always comprehensible: drought, for example, can compromise people's possibility to fulfill their food and water needs and so have a huge impact on job and social opportunities. However, common people barely have the instruments to understand the link between the two dynamics -except in dramatic cases- and usually blame governments and institutions for their problems. In the case of sea level

62 M. Yonetani, *Global Estimates Report 2015: People Displaced by Disasters*, 2015. Available at <http://www.internal-displacement.org/assets/publications/2015/20150713-global-estimates-2015-en.pdf>. Accessed 5 June 2016.

63 Ibid.

rise, the situation is even more complicated. As a matter of fact, it usually requires a long-term analysis, considering that it takes decades, if not centuries, to attend serious changes in the oceans level and so to see related people's movements. The fact that until this moment there have been just sporadic cases of communities leaving their homes because of sea level rise seems a justification for the lack of academic and policy assessments towards this issue.

Even in the case of predictions for the future, there are a number of different interpretations. In this respect, there is a crucial problem: the figures are typically based on just one or two early publications, so that there is a lack of evolution and critique towards these data.⁶⁴ Figure 12 shows this dynamic; Jacobson was the first scholar providing an estimate of the number of environmental refugees existing in the 1980s, who were around 10 million according to him. His assessment was particularly important, because he contributed to introduce the notion of “environmental refugees” in the public debate within mass media, charities and academics. Unfortunately, there was not much empirical evidence in support of his thesis.

Jacobson's analysis was then followed by Myers and Kent's in 1995: according to them, by 2050, 150 million people would be at risk of becoming environmental refugees⁶⁵. This methodology has been criticized due to the ambiguous relationship between those “at risk” of environmental events and those really expected to become environmental refugees. Indeed, there is the implicit assumption that people will not be able to cope with the negative consequences of climate and environmental change, so that displacement will be the only possible adaptive method to preserve their well-being. Employing such a view can be particularly dangerous, because a series of other elements involving people's exposure and adaptive capacity are neglected. Nonetheless, Myers and Kent's assessment has been at the basis of most of the following estimates on future environmental refugees. Myers himself provided another version in 2002 (based on his 1995 investigation), increasing the number of people potentially involved by 2050 up to 200 million.

64 R. Black, *Foresight: Migration and Global Environmental Change*, 2011. Available at <https://www.gov.uk/>. Accessed 20 May 2016.

65 Ibid.

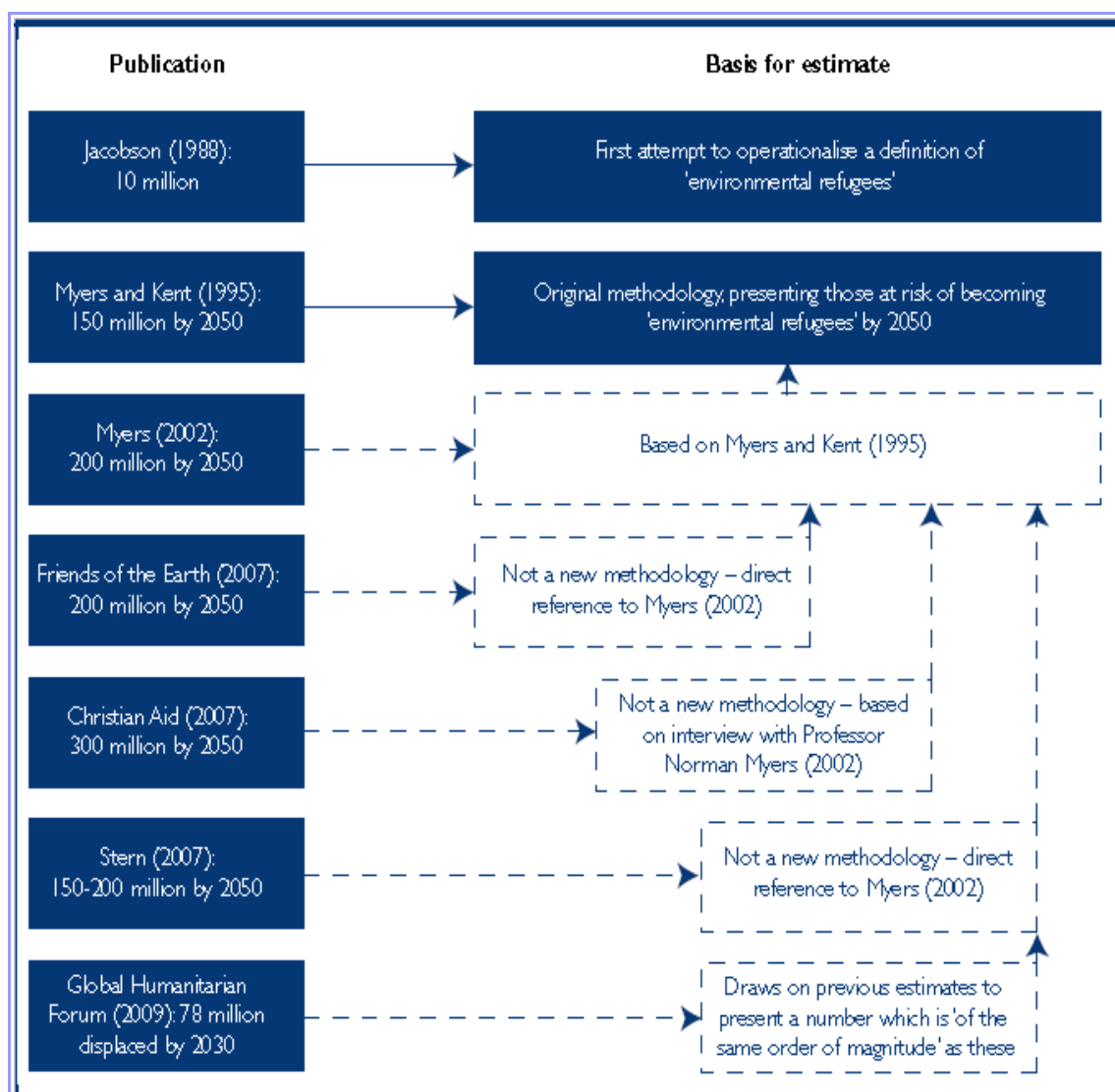


Figure 12: estimates and predictions of the number of environmental refugees worldwide. Source: R. Black, *Foresight: Migration and Global Environmental Change*, 2011. Available at <https://www.gov.uk/>.

Since 2002, Myers's work has been one of the few examples of global estimate on future environmental migration appeared on a peer-reviewed literature: in this sense, the fact that it has been the source of many other so investigations is not surprising⁶⁶.

However, among the recent proposals, we find:

- Friends of the Earth's one, released in 2007, which projected the appearance of 200 million environmental refugees by 2050.
- Christian Aid's report, published in 2007, which increased the number of refugees up to 300 million.
- Stern Report (2007), according to which 150/200 million would be the people affected by the phenomenon.

⁶⁶ R. Black, *Foresight: Migration and Global Environmental Change*, 2011. Available at <https://www.gov.uk/>. Accessed 20 May 2016

- Global Humanitarian Drains Forum' study, which projected the presence of 78 million climate-related refugees by 2030.

Despite the uncertain reliability of these predictions, there are no doubts about the future increase in the number of environmental refugees. In recent years, many climate-related and environmental events have already caused great suffering and displacement in the world; the pace at which greenhouse gases, global warming and sea level are increasing will certainly have an impact on human lives and possibly raise even more the potential for migration. For instance, the Internal Displacement Monitoring Agency has affirmed that the probability of becoming displaced has increased by 60% since 1975, which is quite an alarming percentage, likely to be even higher in the future.

The difficulty in knowing in detail how climate and environmental changes will occur and how they will affect human populations is one of the main obstacles in the development of methods and techniques to project the specific number of future environmental refugees. Nonetheless, if sure data are not available at the present time, an important instrument could be studying the past trends to gather information for the future; knowing past and recent examples of climate-related migration – its issues, movements, destinations, etc.- can be extremely useful to, at least, try to forecast what will happen in the future time.⁶⁷

⁶⁷ Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 13.

CHAPTER 2

What legal status for environmental refugees?

2.1 The lack of international legal protection in the context of environmental-induced migration

In the last decades, the reality of environmental and climate-induced migration has been acquiring more and more importance. The fear and the concern around climate change and the possibility of huge mass displacement in the near future have certainly increased people's attention towards this phenomenon. Nonetheless, environmental refugees are currently "invisible" for the international law and massive protection gaps exist also at the national and local level. Even the the term "environmental refugee" itself is simply descriptive because it lacks a specific legal meaning. Indeed, the principal problem with this category is that it is not included in those protected by the 1951 Geneva Convention related to the Status of Refugees and its 1967 protocol; this is one of the main aspects explaining why so many scholars currently disagree about using the term "refugee" for people involved in environmental-related migration. Actually, there is an explanation for the "expulsion" of environmental refugees from the Geneva Convention; as a matter of fact, this was drafted and signed in the aftermath of the Second World War, a period characterized by violence, conflicts, political and social upheavals and the spread of nuclear weapons. At that time, the main purpose was to protect individuals from "concrete" persecutors and the environment did not fit this description. Moreover, there was not awareness about climate change and environmental-induced displacement, and people protected by the Convention were just those forced to move abroad because at the risk of being persecuted "for reasons of race, religion, nationality, membership of a particular social group or political opinion".⁶⁸ The Geneva Convention is still valid nowadays and it grants specific rights to refugees; among these, there are the recognition of a real "refugee status", the opportunity to require asylum (in this case, procedures depend on the country in which the request has been sent) and the principle of "non-refoulement", which impedes the rendering of a refugee to their persecutor. In general, all the people excluded from the Convention are considered as "voluntary migrants"; obviously, this does not always portray the reality, especially in the case of climate-induced displacement.

⁶⁸ United Nations Office of the High Commissioner, *Convention Relating to the Status of Refugees*. Available at <http://www.ohchr.org>. Accessed 06 July 2016.

A certain “environmental consciousness”⁶⁹ started only in the 1960s, with the birth of the first “green” movements and the planning of international and regional environmental summits; actually, despite the efforts, the 1951 Convention has not been broadened to include also environmental refugees. The main obstacles to this overture are: the absence of a real “persecutor”, because evidently nature does not act on a voluntary basis; the fact that environmental migrants do not necessarily move abroad when escaping from a disaster, but may also remain within the national borders; and finally, the possibility -in certain cases- to return to the land of origin once the emergency has subsided.

In this context, environmental refugees remain “legal gypsies, without a home in the Geneva Convention”.⁷⁰ Without a place in the international legal frame, people moving because of natural disasters or similar events lack the necessary protection to carry their movement out as safely as possible. However, planning an action at the international level is not an easy task; climate-induced migration and displacement imply a series of challenges that are often difficult to complete. First of all, a great problem concerns the possibility of distinguishing between the various patterns of movement: if it is a forced displacement of a voluntary migration, temporary or permanent, international or internal, etc. Databases and census instruments are not always available or suitable for the type of analysis needed in the case of environmental refugees. Secondly, displaced people need different policies in the various stages of their movement: before, during and after migration; they also need assistance in the case they would -and could- return to their land of origin. And this is something that requires a great commitment and contribution of scientists, scholars, policy-makers and local people directly involved in the issue.

In these days, the hugest omissions concern environmental refugees moving abroad⁷¹; indeed, they lack specific and solid assistance and cannot be admitted legally in the country which they move to. On the contrary, internal displaced people are subject to their national state law and are (although not legally) protected by the Guiding Principles on Internal Displacement (1998). In the case of cross-border displacement, the only instrument available is the implementation of international human rights law, which actually does not address specifically to the problems of environmental refugees.

Another neglected field regards slow-on-set climatic events, above all drought and sea level rise. In these circumstances, it is extremely complicated to detect the degree of

69 A. Collins, *Contemporary Security Studies*, Oxford University Press, Oxford, 2013, page 191.

70 Camillo Boano et al., *Environmentally displaced people. Understanding the linkages between environmental change, livelihoods and forced migration*, 2008. Available at http://www.unicef.org/socialpolicy/files/Environmentally_displaces_people.pdf. Accessed 29 June 2016.

71 Albert Kraller et al., *“Climate Refugees”: legal and policy responses to environmentally reduced migration*, 2001. Available at <http://www.europarl.europa.eu/>. Accessed 27 June 2016.

agency in people's movement; therefore, it is equally difficult to understand which method to implement to solve the question. Moreover, scholars are left without reference points or past examples on which rely to address the issue⁷², given that no mass displacement has occurred yet because of these events.

A third major protection gap regards the possibility that states could lose -in the following century and beyond- their entire territory because of climate and environmental change. In this sense, a concrete example is the population of Small Island Developing States (SIDS), which is already facing the fear of becoming "stateless" because of sea level rise. Considering that until now such a scenario has not been fulfilled, no legal and political action has been designed too.

Nonetheless, not even environmental-induced migration within states borders is completely regulated. The numerical superiority of these migrants has pushed the international community to take much more action to protect them: the Guiding Principles on Internal Displacement represent these efforts. However, even this instrument is not legally binding until each signatory state implements it in its national legal system. This implementation has not happened so far, with just a few exceptions. Moreover, the state usually considers itself as the first responsible for the so-called "Internally Displaced Persons" (IDPs), as they are usually referred to: for this reason, even if sometimes it is negligent towards them, it can recourse to the principle of non-interference, impeding foreign countries to participate in the management of this issue. Thus, in this intricate system, these people are often left alone and confused in the middle of senseless words and discourses.

2.1.1 Existing legal frameworks

Despite the climate of uncertainty surrounding environmental refugees, some existing legal frameworks seem a good starting point for reflection. In this sense, some international laws and conventions are useful to protect, at least partially, these individuals; actually, not all of them have been introduced specifically for this purpose, but they may be used anyway.

The first of these frameworks is related to human rights; according to most scholars, every human being enjoys specific fundamental human rights, which are currently listed in the

72 Albert Kraller et al., "Climate Refugees": legal and policy responses to environmentally reduced migration", 2001. Available at <http://www.europarl.europa.eu/>. Accessed 27 June 2016.

Universal Declaration of Human Rights (1948). They range from the right to life to the right to freedom of movement and in the recent years the United Nations have expanded the chart including also the right to human basic needs, above all water, adequate food, housing and health.⁷³ Given its universality, human rights law can be a useful tool when speaking of environmental refugees: indeed, climate and environmental changes may damage the possibility of individuals and communities to fulfill the human rights mentioned above; therefore, the international community has a duty to respond in the case of violation.

Another point of departure is environmental law; this is usually associated with the contribution of the United Nations Framework Convention on Climate Change (UNFCCC) which was introduced in 1992, but still represents the main international arena to discuss climate change and its effects. UNFCCC together with the Climate Change Conferences -held every year- could serve the purpose to find a place for environmental refugees in the international legal system. Indeed, it is also thanks to the United Nations and its initiatives that climate-induced migration has been recognized as a real and urgent phenomenon; a particular relevance should be granted to the Cancun Agreement that, back in 2010, for the first time in the history of UNFCCC, explicitly mentioned displacement and migration in the context of environmental and climate change.⁷⁴ Environmental law and in particular UNFCCC have a strong potential in filling the protection legal gaps regarding environmental refugees. However, considering the number of countries involved in these projects and the clash of interests that often divides them, there is still a long way to go.

As I mentioned before, the label “environmental refugees” has not a legal standing and it is actually excluded from the 1951 Convention related to the Status of Refugees. However, there are some cases in which the Convention can be applied with reference to environmental events. Nonetheless, it is important to underline that the document never refers directly to environmental refugees: in certain circumstances, it is simply indirectly appropriate for their cause. One situation is where the government fails to protect a particular social group in the case of detrimental environmental conditions; here, members of that group can make a refugee claim if they have left their country, but with the formal excuse that their institutions have failed in assuring them the adequate protection.⁷⁵

Therefore, the environment is seen just as the background and not as the reason why

73 European Commission, *Climate Change, Environmental Degradation and Migration*, 2013. Available at http://ec.europa.eu/clima/policies/adaptation/what/docs/swd_2013_138_en.pdf. Accessed 29 May 2016

74 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 53.

75 Albert Kraller et al., “*Climate Refugees*”: *legal and policy responses to environmentally reduced migration*”, 2001. Available at <http://www.europarl.europa.eu/>. Accessed 27 June 2016.

people have asked for asylum abroad. Another situation concerns the flight of a particular group in the aftermath of a “resource war”⁷⁶; even in this case, people are not considered as climate migrants, but as refugees persecuted by a war in their country of origin in which natural resources play a partial role. Despite these few examples, the Geneva Convention is far from giving a complete and specific protection to environmental refugees, who still do not enjoy the rights and protection granted to the refugees recognized in the document.

Another potential legal framework is the one offered by Regional Free movement agreements.⁷⁷ Conventions establishing freedom of movement in certain areas can serve as a useful tool in the case of climate-related migration; similar examples come from the Economic Community of West-African States (ECOWAS) or the Southern Common Market (MERCOSUR) in Latin America. However, in these contexts, freedom of movement is often just a formal possibility, difficult to implement and ineffective in practice.

A specific response to environmental-induced migration also derives from temporary protection. This system has been implemented, for instance, in Europe, particularly in Finland, Sweden and the United Kingdom. Finland is the only country within the European Union to ensure temporary protection in the case of environmental disasters. Thus, the Finnish Aliens Act tries to preserve the security of people needing international protection and not able to return to their country of origin; with this purpose, it grants a special status of protection which can last for a maximum of three years in total.⁷⁸ However, the document does not explain which situations are included in the expression “environmental disaster”, so that it turns out to be quite vague and unspecific. Sweden possesses a similar legislation: it confers temporary protection to people displaced by environmental disasters, but just in the case of rapid-on-set events.⁷⁹ Between 1995 and 1997, also the United Kingdom arranged a special response for people running away after the Montserrat Volcanic eruption; actually, it was a temporary ad hoc measure employed only in those circumstances. Overseas, temporary protection has been applied also by the United States in the Immigration Act of 1990. This document assures a temporary protection status in specific environmental circumstances -droughts, floods, earthquakes, etc.- to those people unable to come back to their countries of origin. Thus, they are allowed to stay in the United States for a minimum of six months to a maximum of eighteen months.

76 Albert Kraler et al., “*Climate Refugees*”: legal and policy responses to environmentally reduced migration”, 2001. Available at <http://www.europarl.europa.eu/>. Accessed 27 June 2016.

77 European Commission, *Climate Change, Environmental Degradation and Migration*, 2013. Available at http://ec.europa.eu/clima/policies/adaptation/what/docs/swd_2013_138_en.pdf. Accessed 29 May 2016.

78 Ministry of Interior of Finland, *Aliens Act*, 2004. Available at <http://www.finlex.fi/>. Accessed 28 June 2016.

79 Albert Kraler et al., “*Climate Refugees*”: legal and policy responses to environmentally reduced migration”, 2001. Available at <http://www.europarl.europa.eu/>. Accessed 27 June 2016.

However, this possibility is available just for people who already are in the US at the time of the disaster and only if their state of origin makes a formal request for protection. This instrument was used, for instance, in 1998, when Hurricane Mitch left lots of Nicaraguans and Hondurans in an emergency situation.⁸⁰ Despite these countries consider environmental displacement as a concrete possibility, their temporary forms of protection result not completely suitable to address the expected migration scenarios related to climate change. Nonetheless, they certainly represent a good point of departure for analysis.

Speaking specifically about Internally Displaced Persons (IDPs), they are usually considered a matter of internal politics; thus, national law is in theory the first source of protection for them. Given that in practice it is not always the case, the international community has worked to find a way to defend them, trying to avoid the risks of damaging states' right of sovereignty. Nowadays, the Guiding Principles on Internal Displacement are the main existing framework to address IDPs: as I will explain in the next sections, it covers various areas related to internal displacement, including climate-induced movements, and it offers several ideas to manage this issue. The Guiding Principles play certainly a potentially useful role, but until they are implemented in each national law system, they lack any legal power. Even in this case, a good starting point to protect environmental refugees has been found, but still something more is needed.

2.1.2 Possible responses

Scholars and policy-makers are still discussing the best option to choose to guarantee a complete legal framework for environmental refugees. In the last years, a number of different responses have been proposed; however, there is still no agreement about which is the best proposal to apply. In the following paragraphs, four potential responses are described.

The first suggestion is the expansion of the scope of the 1951 Convention related to the Status of Refugees (and its Protocol); as discussed above, the Geneva Convention makes reference to specific categories of refugees and environmental refugees are not included in this list. Moreover, it can be applied in certain scenarios involving environmental events, but, in general, it lacks applicability in the context of climate-induced displacement. One of

80 Albert Kraler et al., "Climate Refugees": legal and policy responses to environmentally reduced migration", 2001. Available at <http://www.europarl.europa.eu/>. Accessed 27 June 2016.

the main problem in broadening the Convention and recognizing environmental displaced people as “real” refugees concerns responsibility: indeed, “official” refugees have the characteristic of being persecuted by a specific and concrete agent, which can be the state itself, an armed group or others. In the case of environmental refugees, a similar persecutor does not exist: nature does not hurt people voluntarily for a specific purpose; simply, human beings turn out to be too weak against certain natural events and incapable of cope with their effects. The idea of expanding the scope of the Geneva Convention to include also climate-related migration was expressed in 2006, during an international meeting in the Maldives. In particular, it was the American lawyer Jessie Cooper that proposed the broadening of the definition of “refugee”, in order to add degraded environmental conditions among the causes responsible for people's flight⁸¹; at the basis of her proposal, there was a clear reference to the Universal Declaration of Human Rights. This idea was reinforced in the following years, with the intervention of the Bangladeshi Finance Minister in 2009, who affirmed the necessity to revise the Convention to protect environmental refugees.⁸² The extension of the Convention would probably bring both advantages and disadvantages. One benefit would be its relatively easy implementation with regards to environmental refugees: indeed, all the States Parties to the Convention already possess a system of recognition of refugees, which could be used also in the case of climate-related displacement. In this way, there would not be the complications related to the creation of a new framework for the identification and practical protection of environmental refugees. Actually, many scholars and politicians object the broadening of the Convention: as a matter of fact, in recent years, there has been an increase in the number of humanitarian crises and refugees worldwide; therefore, it would be extremely risky to re-open the negotiations about the Convention in such an unstable atmosphere. Furthermore, many experts fear that adding new categories of refugees to those present in the list would actually threaten the stability of the entire refugee system and lower the existing protection standards. Finally, the Geneva Convention does not refer to internal displacement, but just to people moving abroad; in this way, even if it were broadened to include environmental refugees, the document would not consider IDPs, who are actually the majority in the context of climate-induced migration.

A second possible response is the introduction of a completely new framework, to apply directly to environmental-induced displacement and migration. Actually, this is definitively

81 Albert Kraler et al., *“Climate Refugees”: legal and policy responses to environmentally reduced migration*, 2001. Available at <http://www.europarl.europa.eu/>. Accessed 27 June 2016.

82 Ibid.

not an easy task: internationally, there is much resistance towards this idea and it is also extremely difficult to find a proposal that would suit the interests of every side. Nonetheless, many scholars think that this would be the best solution to cover the issue. Generally speaking, the proposals for a new convention share the following considerations:

- formulating a clear definition of “environmental refugees”, including all the different aspects emerged in the international debate, is necessary at least to begin negotiations among the Parties;
- it is essential to understand that the relationship between environmental refugees and their states of origin is different as compared with other categories of refugees; indeed, they do not break the connection with their homeland definitively, but they simply “interrupt” it. In many cases, people are able to return home, so that the host country should offer just a special “temporary protection” to guarantee migrants' well-being and security;
- distinguishing among the various patterns of movement is compulsory; each group has its own necessities and interests, depending on whether they are temporary or permanent migrants, whether they remain within the state's borders or move abroad, etc. Therefore, each category needs its own juridical protection, coherent with its peculiarity;
- it is important to recognize the collective character of the victims of natural disasters, valid before, during and after the effective flight;
- experts should decide whether to distinguish the victims depending on the different natural phenomena or projecting a unique flexible category. Moreover, they should design a protection mechanism based on the consequence of the event rather than on its causes;
- specific rights should be granted to environmental refugees, such as the principle of non-refoulement and the respect of their dignity.⁸³

In this frame, there have been several attempts to introduce a new convention. In 2004, the Living Space for Environmental Refugees (LiSER) Foundation advanced the “Toledo Initiative on Environmental Refugees and Ecological Restoration”: this document presented environmental refugees as a unique phenomenon and it stressed the necessity

⁸³ Gubbiotti et al., *Profughi Ambientali: Cambiamento Climatico e Migrazioni Forzate*, 2013. Available at http://www.legambiente.it/sites/default/files/docs/dossier_profughi_ambientali_2.pdf. Accessed 22 June 2016.

to draft a new convention to face their situation and the need for ecological restoration.⁸⁴ Four years later, the law faculty of Limoges University proposed the “Draft Convention on the International Status of Environmentally Displaced Persons”; it was based on the necessity to include in the debate both international and internal displacement and to achieve a universal scope of action. Therefore, they preferred to use the label “Environmentally Displaced Persons” (EDPs), instead of “environmental refugees”, in order to refer to both categories. Limoges University employed a perspective based both on environmental and human rights law. The idea at the basis of the Draft Convention was guaranteeing specific rights to EDPs -a legal status, a safe shelter, reintegration and possibility to return- and projecting institutions and agencies ad hoc for these purposes.⁸⁵ Another proposal came in the same year from a group of Australian experts, authors of the document “Towards a Convention for Persons Displaced by Climate Change: Key Issues and Preliminary Responses.”⁸⁶ In this case, scholars analyzed in details environmental refugees' situation, proposing a series of measures concerning adaptation and mitigation, assistance, resettlement and potential relocation of the people involved in the movements.⁸⁷ Even in 2010 some initiatives were proposed, this time within the European Union: the Committee on Migration, Refugees and Populations and the Committee on Environment, Agriculture and Regional Affairs jointly adopted resolution 1655 and recommendation 1631 in order to address specifically to environmental-related migration. The resolution recognized the global scope of the phenomenon and the lack of international consensus about definitions and instruments suitable for these patterns of displacement; it supported the creation of a legally binding tool, to realize through the coordination of different agencies. The recommendation, instead, applied to internal displacement in Europe and alluded to the Guiding Principles on Internal Displacement as a reference point to react to this problem.⁸⁸

Despite these efforts, the international community is still far from reaching a convention which suits the needs and the interests of all the factions and countries involved.

A third path to follow is broadening the concept of IDPs. Indeed, people displaced within

84 H. Wijnberg, S. M. Leiderman, *The Toledo Initiative on Environmental Refugees and Ecological Restoration*, 2007. Available at http://alofatuvalu.tv/FR/12_liens/12_articles_rapports/Toledo_Initiative.pdf. Accessed 29 June 2016.

85 *Draft Convention on the International Status of Environmentally Displaced Persons*. Available at <http://www.persee.fr/web/guest/a-propos>. Accessed 14 July 2016.

86 Albert Kraler et al., “Climate Refugees”: legal and policy responses to environmentally reduced migration”, 2001. Available at <http://www.europarl.europa.eu/>. Accessed 27 June 2016.

87 David Hodgkinson et al., *Towards a Convention for Persons Displaced by Climate Change: Key Issues and Preliminary Responses*, 2008. Available at <http://www.ias.uwa.edu.au/new-critic/eight/?a=87815>. Accessed 25 June 2016.

88 Council of Europe, *Environmentally induced migration and displacement: a 21st-century challenge (Resolution 1655)*. Available at www.assembly.coe.int. Accessed 28 June 2016.

national borders are the object of the Guiding Principles on Internal Displacement, which refers directly to environmental events forcing flight. Given this reference, the Principles may be a good basis to address climate-induced migration as a whole. Nevertheless, they do not resemble the Geneva Convention as far as the practical implementation is concerned: they are not legally binding, but simply recommendations that the Parties may decide to implement or not. Moreover, there are not international institutions or agencies suitable to control if IDPs are recognized and protected, neither a formal obligation to respect them. If the nature of the Guiding Principles remains the same, there are fewer chances to see a concrete change in the protection system of environmental refugees. Actually, there are not so many scholars or policy-makers ready to address the problem of IDPs: internal displacement is far less risky than the international one and it currently happens mainly in developing countries, so that the most developed and powerful states are not so willing to take into consideration this issue or to use it as a basis for further action.⁸⁹ Until a strong and generalized political will in this direction is spread, it is very improbable that the Guiding Principles will turn out to be an effective legal framework for environmental-related displacement.

The United Nations Framework Convention on Climate Change (UNFCCC) represents the fourth opportunity. In this case, the idea is adding a new protocol to it in order to address specifically the phenomenon of environmental refugees. In 2010, Professors Frank Biermann and Ingrid Boas proposed five principles on which developing the protocol⁹⁰:

- the “Principle of Planned Re-location and Resettlement”, to avoid disorganized emergency responses to natural disasters;
- the “Principle of Resettlement Instead of Temporary Asylum”, considering the high number of displaced people potentially unable to return to their homelands;
- the “Principle of Collective Rights for Local Population”, in particular for places and communities affected by climate change;
- the “Principle of International Assistance for Domestic Measures”, due to the fact that internal displacement is and will likely be the most probable outcome in the context of environmental and climate change;
- the “Principle of International Burden-sharing”, because global warming is a global phenomenon and every country has a role in facing and trying to solve the

89 Albert Kraller et al., *“Climate Refugees”: legal and policy responses to environmentally reduced migration*, 2001. Available at <http://www.europarl.europa.eu/>. Accessed 27 June 2016.

90 Ibid.

challenges coming from it.⁹¹

In this frame, specific agencies were considered necessary in order to put in practice the previous points and to guarantee rights and aid to environmental displaced people.

As I mentioned above, the UNFCCC has been interested in climate-related migration for years, with the Cancun Adaptation Framework (2010) being the first occasion in which the Parties explicitly spoke about displacement as a possible outcome of climate change. For this reason, it is not unjustified considering UNFCCC as a good environment where designing a legal protection for people involved in climate-induced movements.

Identifying the best option among the various alternatives available is certainly not easy; a number of considerations need to be made and this depends on the degree of involvement and interest of each country. Moreover, climate-induced migration is common just in some areas of the world, so that for the others, the management of this issue is not always a priority.

In this atmosphere of incertitude, many experts agree in saying that “preventive” policies can be crucial in avoiding -when possible- displacement and related risks. Usually these types of measures are divided into three categories:

- policies that try to act directly on environmental change and in particular global warming;
- policies seeking to enhance people's capacity to adapt to environmental and climate change;
- policies that aim at increasing communities' resilience to damage and loss.⁹²

Each of these categories has its own peculiarities and complications; however, all of them share the difficulty in being implemented, given the uncertainty that surrounds climate change and its effects. These approaches do not want to portray migration as an absolutely negative response to climate change; as affirmed above, migration can be also a positive adaptive process, necessary to improve living conditions which would be impossible to enhance in situ. However, operating on mitigation, adaptation and resilience in the place of origin can help people in avoiding, postponing or participating in the movement in a more conscious way.

The first of the previous approaches concerns climate mitigation, which is one of the most

91 Albert Kraler et al., *"Climate Refugees": legal and policy responses to environmentally reduced migration*, 2001. Available at <http://www.europarl.europa.eu/>. Accessed 27 June 2016.

92 R. Black, *Foresight: Migration and Global Environmental Change*, 2011. Available at <https://www.gov.uk/government/publications/migration-and-global-environmental-change-future-challenges-and-opportunities>. Accessed 20 may 2016.

urgent issues to consider at the global level. The main actions to put in practice in this sense concern a reduction in the emission of “greenhouse” gases and in the rate of degradation of ecosystems.⁹³ The UNFCCC is at the forefront in the battle to reduce global warming and it is usually the place in which policy-makers decide and agree on which strategy to apply. A strong mitigation policy could be crucial in reducing people at risk of drought, sea level rise and other natural disasters. However, the benefits of these measures -if implemented- would not display soon, probably just from 2030 onwards; furthermore, their efficacy will depend on the local context (for example, the political and social situation of the country) and on the characteristics of households and individuals.⁹⁴

The second type of policy concerns adaptation capacity and the ability to reduce the negative impacts of climate change on human lives. In this case, measures regard: firstly, the natural event itself and human capacity to forecast it, to spread the alarm and to project an effective emergency response. Secondly, the physical impacts of environmental changes: typical actions in this sense are, for instance, the construction of flood protection infrastructures or the provision of system to guarantee water even in periods of drought. Thirdly, the reduction in human exposure to the event, through mechanisms such as spatial and building planning, control of agricultural practices, etc. Many of these measures are already being applied in several parts of the world, but environmental change could actually challenge their effectiveness. Moreover, they are not always easy to implement, because local population may also be reluctant in applying such methods, especially if they live in poor and underdeveloped areas.

And finally, there is the possibility to increase people's resilience to climate change effects, so their ability to face adverse events and to recover from them. In this case, there are two main options: enhancement of livelihoods and insurance.⁹⁵ Actually, these plans have not been thought specifically for the context of environmental change, so that there is the possibility that they are not always effective. Usually, the first approach is employed in rural environments, with changes in the agricultural system and improvements in the access to markets and income diversification. On the other hand, insurance entails effective social protection schemes, which are not always easy to implement; the main challenge concerns the providers of these measures because it is difficult to estimate the risk premium to grant to customers, considering the uncertainty over the effects of a natural

93 R. Black, *Foresight: Migration and Global Environmental Change*, 2011. Available at <https://www.gov.uk/>. Accessed 20 may 2016.

94 Ibid.

95 Ibid.

event.⁹⁶

Nonetheless, these policies must be considered with extreme caution; indeed, many of them are short-term, suitable just for extreme natural conditions and potentially leading to future situations of vulnerability. Moreover, there may be circumstances, mainly related to sea level rise, in which communities would not have another choice rather than leaving their country, with few possibilities of return.

Thus, the political world seems still unprepared for what future scenarios portray: a planet in which environmental and climate conditions will possibly be even more hostile than the current ones. And if nowadays policy-makers are often unable to face challenges concerning environmental refugees, what would they do in the case of an exponential increase in the number of people moving? Uncertainty dominates even in this frame.

2.2 Internally Displaced Persons (IDPs): between protection and negligence

Given adverse environmental conditions, people are often forced to leave their homes; as mentioned above, however, most of them usually decide (or are obliged) to remain within the national borders. The reasons behind this choice are many and usually depend on: the amount of economic and social assets available; the local context and the political situation of the country of origin: the willingness of migrants to leave the place in which they have built their own lives. Internal displacement is currently a massive and urgent phenomenon: not only for national governments themselves, which have the primary responsibility to protect displaced people, but also for the international community as a whole. The label “Internally Displaced Persons” was formally introduced through the Guiding Principles on Internal Displacement in 1998 and nowadays it is the most widespread expression used to refer to this category of people. In particular, the Guiding Principles employ this locution to refer to individuals or groups of persons who have been forced to flee and move within their country “as a result of or in order to avoid the effects [...] of natural or human-made disasters.”⁹⁷ Actually, the definition of IDPs does not regard just the victims of natural disasters, but also those of violence, armed conflict and violations of human rights. They are described as having two basic characteristics: an extremely low degree of agency in their decision to move and their permanence within

96 R. Black, *Foresight: Migration and Global Environmental Change*, 2011. Available at <https://www.gov.uk/>. Accessed 20 may 2016.

97 United Nations, *Guiding Principles on Internal Displacement*, 1998. Available at <http://www.brookings.edu/~media/Projects/idp/GPEnglish.pdf>. Accessed 14 June 2016.

national boundaries. Despite the expression “Internally Displaced Persons” has entered in the vocabulary of the international community, nowadays it still does not enjoy an official recognition.

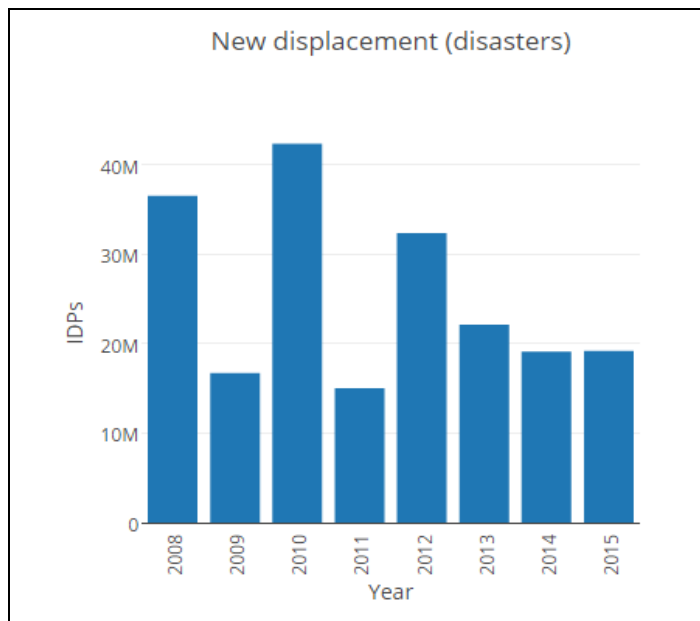


Figure 13: Estimates about internal displacement in the period 2008-2015. Source: *Internal Displacement Monitoring Centre*. Available at: <http://www.internal-displacement.org/database>

In spite of the improvement in the census system of IDPs, it is still very difficult to find a reliable database: these are usually quite rough and tend to differ depending on the source; moreover, internal displacement is typically less recorded than international migration. Generally, a good reference point for the account of these groups is the Internal Displacement Monitoring Centre, which collects the global data about internal displacement; Figure 13 is the last chart proposed by the group,

which represents the amount of IDPs in the period 2008-2015; 2015 accounts for 19.2 million people displaced because of natural disasters, but in these seven years it is 2010 that holds the records for the highest number of people affected, that is 42.4 million.⁹⁸

IDPs often lie in situations of inadequate protection and abandonment. In the immediate aftermath of the emergency (especially in the case of rapid-on-set events), they are actually well assisted with basic elements: food, clean water, a safe shelter, medical assistance, etc. In this sense, the assistance is supplied mainly by the national government, but a strong humanitarian support also comes from other countries, non-governmental organizations (NGOs) and the United Nations. However, IDPs are less protected in terms of human rights, especially in the long term: they may easily be victims of discrimination, violence, abuses, trafficking or forced recruitment.⁹⁹ For instance, discrimination can take the form of unequal distribution of humanitarian and reintegration aid or at the time of relocation or resettlement. The risk is even higher in places already characterized by great levels of discrimination and violence. IDPs may be discriminated also on the basis of their “category”, that is depending if they escape from natural

⁹⁸ IDMC's *Global Internal Displacement Database*. Available at <http://www.internal-displacement.org/>. Accessed 29 June 2016.

⁹⁹ IML Course, *Protection of Internally Displaced Persons*, 2011. Available at www.unitar.org. Accessed 27 June 2016.

disasters, armed conflicts or other circumstances. Therefore, the principles of neutrality and impartiality are needed in order to protect them. IDPs can also be limited in terms of movement: on the one hand, they may be obliged to direct to shelters and camps provided by national authorities, even against their personal will. Camps are not always a suitable situation for them, especially if they have to stay in there for an extended period of time; as a matter of fact, they may be subject to problems of health, sanitation, food and similar situations, with high risks for their well-being. On the other hand, they may also be excluded from camps and obliged to find shelter in makeshift places, without the adequate assistance. Another important problem concerns the loss of documentation: especially after extreme natural disasters, it is extremely probable to lose identification documents, with serious consequences for the possibility of accessing public services. In this frame, women and children are usually the most vulnerable; for this reason, the Guiding Principles ask for special attention towards them.¹⁰⁰ Specifically, they can be exposed to sexual abuses and gender-based violence (included in the camps), trafficking and, in the case of children, they can be victims of forced recruitment in military forces. Children must be protected also with regards to the right to family reunification and the access to education.

IDPs are generally considered an issue of internal politics. The state is supposed to be the first responsible for their security, so that, in situations of danger, the first emergency response should come from national institutions. In particular, governments should work on preventing displacement or, if it is inevitable, on protecting IDPs during the phases of displacement and return or relocation. In this sense, the instruments available are policies and laws or cooperation with the civil society and institutions. It is particularly important to include IDPs in the process of planning and management of the emergency; indeed, consulting them is a fundamental step to understand what they need and what institutions have to do to help them.

Nonetheless, there are circumstances in which the state alone does not want or cannot manage the flow of IDPs. In this frame, the international system has a massive role. Generally speaking, in adverse environmental conditions, states are more willing to cooperate with the international community than during civil wars.¹⁰¹ However, foreign humanitarian aid is not always available: restrictions and limitations may actually impede international agencies or foreign bodies to go and help IDPs in their national state.

¹⁰⁰ IML Course, *Protection of Internally Displaced Persons*, 2011. Available at www.unitar.org. Accessed 27 June 2016.

¹⁰¹ Walter Kalin, *Protection of Internally Displaced Persons in Situations of Natural Disasters*, 2005. Available at www.ohchr.org. Accessed 27 June 2016.

Nonetheless, international help is sometimes fundamental to guarantee IDPs' survival and well-being; the state can turn out to be negligent towards this issue and without an external support, IDPs can find themselves simply abandoned. This is often the case in developing countries or in places lacking a strong political and social equilibrium: thus, they are incapable of finding energy and assets to solve IDPs' situation. This is a huge problem within the international community: as a matter of fact, in these days, there are not international agencies or organizations designated to manage internal displacement. Without an international legally binding convention or institution, no country is officially allowed to participate in matters belonging to a state's internal politics. And if a state decide to intervene even without an official "investiture", it risks to damage the right of sovereignty of the other country and not to respect the principle of non-interference.¹⁰² Thus, in the last years, the international community has

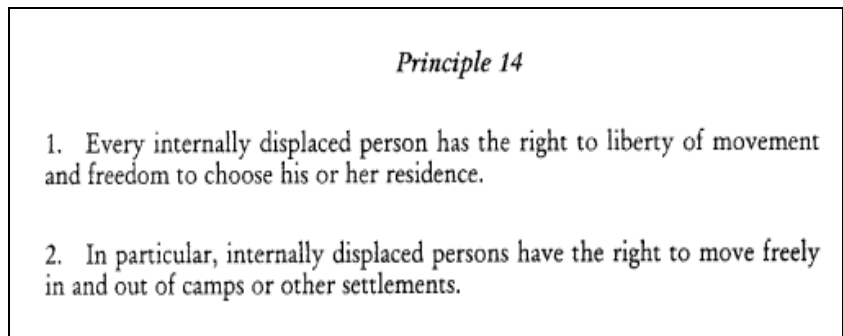


Figure 14: Principle 14 of the Guiding Principles on Internal Displacement. Source: *The Guiding Principles on Internal Displacement*. Available at <http://www.brookings.edu/>.

been trying to find an effective framework to address the issues related to internal displacement. A potential solution came from the United Nations: that is the previously mentioned Guiding Principles on Internal Displacement.

In 1993, the UN Commission on Human Rights requested to prior Representative of the Secretary-General on Internally Displaced Persons (Francis M. Deng) a study about

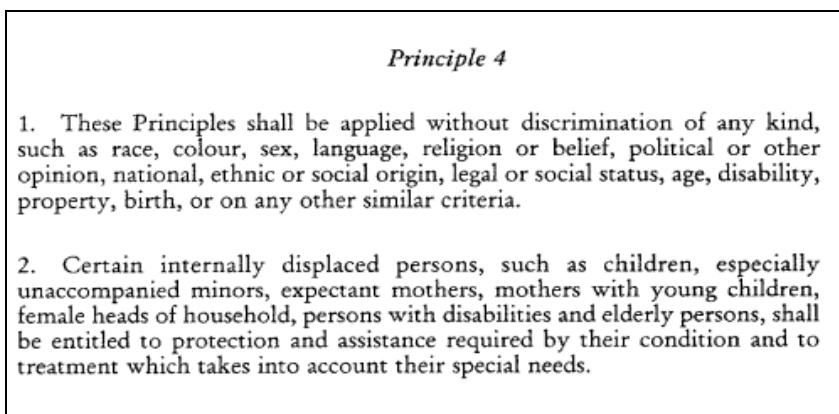


Figure 15: Principle 4 of the Guiding Principles on Internal Displacement. Source: *The Guiding Principles on Internal Displacement*. Available at <http://www.brookings.edu/>.

international standards relevant to IDP; three years later, he provided a second report, stating that there were certain protection gaps with regards to them¹⁰³. Pushed by the Commission on Human Rights and the General Assembly, Deng,

¹⁰² M. Gubbiotti et al., *Profughi Ambientali: Cambiamento Climatico e Migrazioni Forzate*, 2013. Available at http://www.legambiente.it/sites/default/files/docs/dossier_profughi_ambientali_2.pdf. Accessed 22 June 2016

¹⁰³ United Nation Office of the High Commissioner, *International Standards*. Available at <http://www.ohchr.org/>. Accessed 27 June 2016.

together with a team of international legal scholars, developed a broader document, which resulted in the actual Guiding Principles presented in 1998.¹⁰⁴

The Guiding Principles are based on international human rights and humanitarian law relevant to IDPs. They provide a definition for Internally Displaced Persons (mentioned above) and underline the rights, norms and obligations concerning them; the rights granted to IDPs are usually divided into four categories:

- rights connected to integrity and physical security, such as the right to life, the freedom of torture, rape, etc.;
- rights related to basic human needs, for instance the rights to food, to potable water, to basic health and a safe shelter;
- rights related to the economic, social and cultural situation, such as the access to education, the right to work, etc.;
- rights related to civil and political protection, such as the freedom to movement (Figure 14), the right to access the court, the freedom to political participation, etc.¹⁰⁵

The document confirms the obligation to apply rights and principles without discrimination

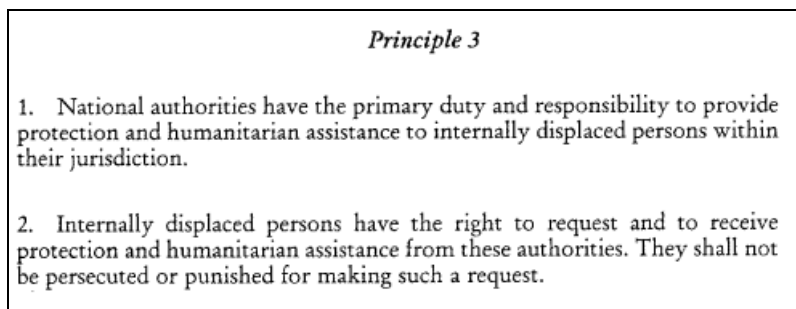


Figure 16: Principle 3 of the Guiding Principles on Internal Displacement. Source: *The Guiding Principles on Internal Displacement*. Available at <http://www.brookings.edu/>.

of any kind and considering the special needs of vulnerable individuals, in particular women and children (Figure 15)¹⁰⁶.

At the core of the Principles, it remains the idea of national responsibility: so, IDP's national state is the principle responsible

in protecting and assisting them (Figure 16).

An increasing number of states are now applying the Principles as standard.¹⁰⁷ However, they are an instrument of soft law, so they are implemented only if the states are willing to give them a place in their own legislation.

For this reason, in the 2000s some states opened negotiation to create the opportunity for the concrete implementation of the Guiding Principles. The most representative examples

¹⁰⁴ United Nation Office of the High Commissioner, *International Standards*. Available at <http://www.ohchr.org/>. Accessed 27 June 2016.

¹⁰⁵ IML Course, *Protection of Internally Displaced Persons*, 2011. Available at www.unitar.org. Accessed 27 June 2016.

¹⁰⁶ Ibid.

¹⁰⁷ United Nation Office of the High Commissioner, *International Standards*. Available at <http://www.ohchr.org/>. Accessed 27 June 2016.

in this sense took place in Africa. Africa is one of the continents most affected by the phenomenon of internal displacement: millions of people are displaced each year mainly because of armed conflicts, but also for natural disasters. Usually, the area is less affected by rapid-on-set events than other regions of the world, but it is involved in slow-on-set phenomena, especially drought. In 2011, it has been estimated that just in Somalia 1.5 million people have been displaced because of drought and famine.¹⁰⁸ Given its particular conditions, Africa has done more than any other continent or country to concretely help IDPs; these efforts resulted in the Convention for the Protection and Assistance of Internally Displaced Persons in Africa, (commonly known as the Kampala Convention) and the Great Lakes Protocol on the Protection and Assistance to Internally Displaced Persons. In 2004, the heads of state of the African Great Lakes Region met in Dar-es-Salaam (Tanzania): the objective was to cooperate in order to create an area of peace and stability, specifically in the field of migration and displacement. In particular, they sought to employ the Guiding Principles and to implement them in the States Parties' legislation to solve the challenges represented by conflicts and natural disasters. Negotiations ended in 2006 with the introduction of the Pact on Security, Stability and Development in the Great Lakes Region and a series of related protocols, including the Great Lakes IDP Protocol, mentioned above. The Protocol is legally binding for the countries involved, but it does not describe in detail the obligations of the states and the corresponding rights of IDPs; it refers directly to the Guiding Principles on Internal Displacement, as the binding elements to include in national law systems.¹⁰⁹ The Kampala Convention was adopted by a special summit within the African Union in 2009 and entered into force in 2012; it was presented as an additional instrument to address IDPs and possibly to fill the gaps left by the Great Lakes IDP Protocol. Its approach is based on four goals: presenting IDPs as rights holders, with specific needs concerning their protection, assistance and rehabilitation; pointing out the duty of national authorities of respecting and protecting IDPs; providing a guide to put in practice actions suitable to respect displaced persons' rights; creating a framework of accountability in the case state authorities violate their obligations and prove to be unable to give the necessary protection to IDPs.¹¹⁰ These aspects are particularly important not only for the displaced people themselves, but also for national, international and non-governmental actors. Indeed, the Convention does not explicate just the rights

108 Walter Kalin, Nina Schrepfer, *Internal displacement and the Kampala Convention: an opportunity for development actor*, 2012. Available at <http://www.internal-displacement.org/>. Accessed 29 June 2016.

109 Ibid.

110 W. Kalin, N. Schrepfer, *Internal displacement and the Kampala Convention*, 2012. Available at <http://www.internal-displacement.org/>. Accessed 29 June 2016.

and needs of the affected individuals, but it also provides practical instruments that authorities may employ to deal with this issue in the best way possible. Moreover, the document has a large scope: it makes reference to victims both of armed conflicts or generalized violence and of natural and human-made disasters, including climate change-related ones; even those affected by development projects are involved. The document assumes that assistance must be granted in each stage of displacement: before the actual movement, during the flight and after it. It is a legally binding instrument, so that once a state ratifies it, it is then forced to put it in practice at the domestic level through appropriate legislation. This legislation entails the presence of suitable national policies and strategies, the coordination among internal agencies and possibly the cooperation with international bodies, and the possession of the necessary resources for assistance activities. Unlike other documents, the Convention focuses on the obligations of governments and other actors, more than on the rights of IDPs, which are clearly mentioned in the Guiding Principles too.¹¹¹ This attitude helps to avoid the possibility that displaced people are left alone, without an authority responsible for their survival and well-being, which is actually the most urgent problem.

However, although 25 members of the African Union have ratified the Convention¹¹² (until April 2016), only few of them have already adopted the necessary national policies; without these, the ratification of the Kampala Convention is barely a symbolic and useless act. This lack is due to a number of different reasons: shortage of resources, lack of political will or the inadequate knowledge to understand how to implement the Convention in a practical way.¹¹³

Addressing IDPs is not just a matter of human rights or humanitarian considerations; internal displacement has also a huge impact on a country's development: it may add instability to regions which are already vulnerable, therefore increasing the potential for violence and conflicts. Moreover, internal displacement may threaten the capacity of the country to meet important development goals, damaging populations' health, environment and generic well-being. Therefore, protecting these people is not simply an investment for them, but an investment for the entire country. In these days, there have been several attempts in reminding states that they have the responsibility and the necessity to solve

111 W. Kalin, N. Schrepfer, *Internal displacement and the Kampala Convention*, 2012. Available at <http://www.internal-displacement.org/>. Accessed 29 June 2016.

112 African Union, *List of the countries which have signed, ratified/acceded to the African Union for the Convention for the Protection and Assistance of Internally Displaced Persons in Africa*, 2016. Available at <http://www.au.int/>. Accessed 02 July 2016.

113 W. Kalin, N. Schrepfer, *Internal displacement and the Kampala Convention*, 2012. Available at <http://www.internal-displacement.org/>. Accessed 29 June 2016.

IDPs' issues; the Guiding Principles are now a reference point in this sense, but more projects similar to the Kampala Convention should be organized, in order to transform suggestions in practical actions. These projects should not be seen as orders coming from above; instead as international or regional common plans, which, if implemented, can give new solutions and strength to many hopeless communities.

2.3 The international debate: proposals and agreements within the international community

The international community is now open to debate more than ever. Governments, the United Nations, international and non-governmental organizations are focusing on how to modify their strategies in view of the link between climate change and human migration.¹¹⁴ The ways in which these bodies address these issues are varied and not always compatible with one another: there are many interests and needs involved and this makes the discussion even more complicated. For years, at many international summits, the heads of state of the most vulnerable countries have been calling for help and assistance in the field of environmental change; however, many of these meetings ended up with formal promises and no concrete actions to face the matters at stake. The reasons behind this negligence are various: one of them is certainly the fact that not all countries are equally affected by climate change effects and related displacement, so not all of them are able to understand the situation in the regions most struck. Moreover, it is not rare that environmental questions are neglected and hidden behind apparently more “urgent” issues, such as conflicts, terrorism, etc. Recently, however, the consequences of climate change are more and more evident and there is growing concern about the future development of environmental-induced migration. A remarkable increase in migratory movements would affect not only the migrants' countries of origin, but also those of destination, which are usually the more developed and, apparently, the less affected by global warming. In this perspective, climate-related migration and displacement would become an international emergency. Furthermore, climate change and migration are connected to another crucial aspect of the current society: security. The prospects of “resource wars” and “statelessness” are likely to increase in the following decades, with huge risks for human and states' security. All these aspects deserve to be considered in the international debate about environmental refugees.

¹¹⁴ M. Gubbiotti et al., *Profughi Ambientali: Cambiamento Climatico e Migrazioni Forzate*, 2013. Available at http://www.legambiente.it/sites/default/files/docs/dossier_profughi_ambientali_2.pdf. Accessed 22 June 2016

The 21st century has witnessed the formation of many panel discussions, at the national, regional and international level. In the previous sections, I have illustrated some of these processes, such as those leading to the Guiding Principles on Internal Displacement or the Kampala Convention; however, while some results have come on the front of IDPs, there is still a lot to do to create a global framework for both international and internal displacement. The Nansen Initiative Process is one of the most recent and well-known attempts in this direction.

2.3.1 The Nansen Initiative Process

The so-called “Nansen Initiative” was launched in October 2012 on the part of Norway and Switzerland, with the aim of facilitating multidisciplinary dialogue and creating the adequate premises for action.¹¹⁵ The roots of this process lied in the “Nansen Principles”: these were provided during a ministerial meeting of the United Nations High Commissioner for Refugees (UNHCR), held in Oslo in June 2011, known as the Nansen Conference on Climate Change and Displacement in the 21st century. The ten Principles are shown in Figure 17: they deal with the phenomenon of environmentally-related displacement and different issues related to it; moreover, they point out the responsibility of states, civil society and various international bodies in considering the problem of climate change and in protecting people threatened by adverse climatic and environmental conditions.

The Guiding Principles on Internal Displacement are mentioned in the eighth point and they are portrayed as an important framework in the context of climate-related internal displacement. However, the Nansen Principles denounce the protection gaps concerning people forced to cross international borders to find better living conditions.¹¹⁶

The 2011 Nansen Conference was a sort of continuation of the Cancun Outcome Agreement on Long-term Cooperative Action (December 2010): this deal deserves particular attention because it represents the first time in which the international community has recognized the humanitarian consequences of climate change -first of all, human displacement- and has referred to migration as a possible adaptive strategy to face climate change effects.¹¹⁷ However, the Cancun Agreement did not explicitly mention how these movements had to be considered and managed. The 2011 Nansen Conference was

¹¹⁵ Elisabeth Rasmusson et al., *The Nansen Conference: climate change and displacement in the 21st century*, 2011. Available at www.unhcr.org. Accessed 20 June 2016.

¹¹⁶ Ibid.

¹¹⁷ Walter Kalin, *From the Nansen Principles to the Nansen Conference*, 2012. Available at <http://www.fmreview.org/preventing/kalin.html>. Accessed 02 July 2016.

organized exactly with this purpose, but the meeting did not lead to the desired results and no step forward was made. This outcome was mainly due to the incapacity of finding a common ground, given that most governments were unwilling to act.¹¹⁸

<p>I</p> <p>Responses to climate and environmentally-related displacement need to be informed by adequate knowledge and guided by the fundamental principles of humanity, human dignity, human rights and international cooperation.</p>	<p>II</p> <p>States have a primary duty to protect their populations and give particular attention to the special needs of the people most vulnerable to and most affected by climate change and other environmental hazards, including the displaced, hosting communities and those at risk of displacement. The development of legislation, policies and institutions as well as the investment of adequate resources are key in this regard.</p>	<p>III</p> <p>The leadership and engagement of local governments and communities, civil society, and the private sector, are needed to address effectively the challenges posed by climate change, including those linked to human mobility.</p>	<p>IV</p> <p>When national capacity is limited, regional frameworks and international cooperation should support action at national level and contribute to building national capacity, underpinning development plans, preventing displacement, assisting and protecting people and communities affected by such displacement, and finding durable solutions.</p>	<p>V</p> <p>Prevention and resilience need to be further strengthened at all levels, particularly through adequate resources. International, regional, and local actors have a shared responsibility to implement the principles enshrined in the Hyogo Framework for Action 2005-2015: Building Resilience of Nations and Communities to Disaster.</p>
<p>VI</p> <p>Building local and national capacity to prepare for and respond to disasters is fundamental. At the same time, the international disaster response system needs to be reinforced. The development of multi-hazard early warning systems linking local and global levels is critical.</p>	<p>VII</p> <p>The existing norms of international law should be fully utilized, and normative gaps addressed.</p>	<p>VIII</p> <p>The Guiding Principles on Internal Displacement provide a sound legal framework to address protection concerns arising from climate- and other environmentally-related internal displacement. States are encouraged to ensure the adequate implementation and operationalization of these principles through national legislation, policies and institutions.</p>	<p>IX</p> <p>A more coherent and consistent approach at the international level is needed to meet the protection needs of people displaced externally owing to sudden-onset disasters. States, working in conjunction with UNHCR and other relevant stakeholders, could develop a guiding framework or instrument in this regard.</p>	<p>X</p> <p>National and international policies and responses, including planned relocation, need to be implemented on the basis of non-discrimination, consent, empowerment, participation and partnerships with those directly affected, with due sensitivity to age, gender and diversity aspects. The voices of the displaced or those threatened with displacement, loss of home or livelihood must be heard and taken into account, without neglecting those who may choose to remain.</p>

Figure 17: The Nansen Principles. Source: *The Nansen Conference, climate change and displacement in the 21st century*. Available at www.unhcr.org.

The Nansen Initiative has been later launched to overcome this moment of incertitude: in this sense, Switzerland, Norway and Mexico underlined the necessity to cooperate in order to develop “consensus on how best to assist and protect the affected people”.¹¹⁹ The Initiative has been thought up as a state-owned consultative process, outside the United

¹¹⁸ Walter Kalin, *From the Nansen Principles to the Nansen Conference*, 2012. Available at <http://www.fmreview.org/preventing/kalin.html>. Accessed 02 July 2016.

¹¹⁹ Ibid.

Nations, with the aim of building consensus among affected states. A series of consultation meetings have been organized in various affected areas (the South Pacific, Central America and the Horn of Africa) in the period 2012-2015. In this frame, the main purpose was to broaden the scope of the Cancun Agreement: therefore, the Initiative has considered not just climate-related events, but also other environmental phenomena responsible for cross-border displacement. The process has touched on several aspects. First of all, climate change, considered as one of the main challenges of current and future generations; in particular, the meetings have considered the possible scenarios created by climate change and the consequences of a 4°C+ warming. In this case, one of the most dramatic outcomes would be the increase of climate-induced migration and the fact that moving would not be a thoughtful choice, but rather an obligation. According to the experts, this makes climate change a matter of intergenerational justice.¹²⁰

Secondly, displacement and migration have been described employing different perspectives. Displacement has been presented as a humanitarian consequence of climate change, requiring the attention of governments, the scientific community and local populations¹²¹. Authorities have stressed that investment in technology and communication is a fundamental tool to prevent forced displacement and to increase people's resilience with regards to adverse environmental conditions. Instead, voluntary migration has been perceived both as a survival and as an adaptation strategy. In both cases, however, more assistance must be granted to climate migrants, in order to achieve early warning and better preparedness in the case moving is the best option for individuals and households. The Nansen Initiative has also pointed out the gaps in the protection regime of those displaced in the context of environmental change. On the one hand, Internally Displaced Persons have been set in the context of the Guiding Principles on Internal Displacement; on the other hand, people moving internationally have been portrayed as lacking any specific national or international instrument appropriate for their protection. With reference to this category, experts have preferred to employ the term "external displacement" rather than "climate" or "environmental refugees", because the last expression is considered too much confusing and inaccurate, especially at the time of planning actions.¹²² In order to guarantee the necessary protection to externally displaced people, the protagonists of the Nansen Initiative have underlined the pointlessness of distinguishing among climate and

120 Elisabeth Rasmusson et al., *The Nansen Conference: climate change and displacement in the 21st century*, 2011. Available at www.unhcr.org. Accessed 20 June 2016.

121 Ibid.

122 Ibid.

non-climate related natural hazard, considering each of them as potentially equally damaging for individuals and communities. The efforts made during the conferences have pretended to be empirically based and action-oriented, in order to prevent any excuse or quibble that could foment inaction¹²³.

The Nansen Initiative Process ended with the publication of the Nansen Initiative Protection Agenda. The document resumes the considerations made in these years of debate and negotiations, describing in detail the phenomenon of cross-border displacement in the context of environmental change and the possible solutions to grant practical and legal assistance to those affected. The purpose of the Agenda is involving first of all States, but also local populations, civil society, regional organizations and the entire international community in the path towards a full understanding and management of this situation. Humanitarian considerations and international solidarity are considered as two basic principles on which the global system should base its actions.¹²⁴ The paper addresses every type of natural phenomenon: rapid-on-set episodes such as tornadoes, storms, floods and volcanic eruptions, but also slow-on-set events, typically drought and sea level rise. The improvement of adaptation and resilience measures, the enhancement of data collecting systems and the use of humanitarian based approaches are all seen as potential ways to help to manage these complicated patterns of movement.¹²⁵ For each theoretical consideration, the Agenda provides also effective measures to implement in both the countries of origin and destination, in order to manage as efficiently as possible the problems and needs of the people affected. During a Global Consultation in October 2015, the Nansen Protection Agenda was endorsed by 109 governmental delegations.¹²⁶ However, the Agenda alone is still considered as not sufficient to guarantee a practical response to environmental displacement; for this reason, a new forum has been presented in the immediate following months: the Platform on Disaster Displacement. The initiative has been officially launched in May 2016, during the World Humanitarian Summit; the founding members of the Platform, plus the current Chair and Vice-chair are illustrated in Figure 18. The main purpose of the Platform is to implement the suggestions offered by the Nansen Protection Agenda, providing a concrete space of action and discussion for all the people involved. The Platform has been designed as a state-led process, organized in three principal bodies:

123 Elisabeth Rasmussen et al., *The Nansen Conference: climate change and displacement in the 21st century*, 2011. Available at www.unhcr.org. Accessed 20 June 2016.

124 The Nansen Initiative, *Agenda for the Protection of Cross-border Displaced Persons in the Context of Disasters and Climate change*, 2015. Available at www.nanseninitiative.org. Accessed 02 July 2016.

125 Ibid.

126 *Platform on Disaster Displacement*, 2016. Available at www.eda.admin.ch/. Accessed 02 July 2016.

- a Steering Group, which is made up of 15 states and the 20 states of the European Union; until December 2017, Germany is supposed to rule the Group as the chair member, with the support of Bangladesh as Vice-chair. The Office of the United Nations High Commissioner for Refugees (UNHCR) and the International Organization for Migration (IOM) are permanent invitees to the Steering Group. Its task is offering a strategic leadership on coordination, policy and promotion of the Platform.
- An Advisory Committee, which gathers representatives of regional and international organizations, NGOs, academics, private sector members and civil society stakeholders with knowledge in fields such as human rights, migratory movements, climate change, humanitarian assistance and development. In this way, the Committee supports the work of the Steering Group and allows the Platform to transform proposals into concrete activities.
- A Coordination Unity, which serves the purpose of supporting the implementation of the Platform's activities; moreover, it helps States, agencies and the other parties involved in managing the necessary practices.

The Platform's work follows four purposes: improving the information about cross-borders displacement with appropriate databases; identifying and using specific procedures to



Figure 18: Founding members of the Platform on Disaster Displacement. Source: *Platform on Disaster Displacement*. Available at: www.eda.admin.ch/.

address disaster risk reduction and to manage migration and/or relocation in order to avoid as much as possible forced displacement; coordinating different fields of studies and policies, considering that the phenomenon of environmentally displaced people is multifaceted and multi-causal; and finally improving the international law to give the adequate protection for people obliged to move abroad after natural

disasters.¹²⁷

The Nansen Initiative Process and the consequent acts have proved to be a concrete attempt to fully understand what type of protection environmental refugees need. The Platform on Disaster Displacement is still a recent initiative and a lot of energy is

¹²⁷ *Platform on Disaster Displacement*, 2016. Available at www.eda.admin.ch/. Accessed 02 July 2016.

necessary to transform it into an efficient tool; however, it has much potential to become an interesting example of international cooperation, with the objective of granting the affected people the rights and instruments they require to cope with emergencies.

In a period full of global challenges such as terrorism, violence and civil wars, the question of climate-induced displacement should not be forgotten. In the future, a substantial increase in the number of displaced people is expected; thus, not having specific productive international agencies and legal systems to protect environmental refugees will probably worsen an already vulnerable situation. As for many other issues, international forums appear to be a fruitful occasion to give externally and internally displaced people the answers they are asking for. A global engagement and international cooperation should always be at the basis of every effort in this sense.

2.3.2 The connection between climate change, security and migration

The aspect of climate-induced migration is intimately connected to another crucial element, that is security. The term “security” has typically a number of different referents, but in this context, the focus is on state and human security. Recent studies tend to treat climate change as “threat multiplier”: this means that it has the potential to influence the severity of preexisting threats to security.¹²⁸ There are at least five climate change-led processes that can contribute to situations of violence and conflict:

- specific weather patterns, connected with rainfall regimes and temperatures, can affect the agricultural system, thus raising the scarcity of resources, specifically food, water and energy;
- natural disasters, in association with contagious diseases, can test the coping capacity of countries, especially the developing ones;
- adverse climate conditions and environmental degradation can contribute to unregulated migration and forced displacement, increasing the competition for already lacking resources;
- the melting of ice sheets could reveal new resources -previously inaccessible- and therefore could lead to disputes for the control of these elements;
- sea level rise, drought and correlated phenomena could make some areas inhabitable, with the risk of losing huge territories, even entire states.¹²⁹

¹²⁸ Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 213.

¹²⁹ Ibid, page 213.

Within these processes, migration and displacement usually take place in situations of difficult resource management, which can lead to violence and possibly conflicts. However, nowadays, the idea of “resource wars” represents just a potential scenario, because a similar kind of conflict has not occurred yet. In this context, the main aspect to keep in mind is that climate and environmental factors are unlikely to play an active and direct part in the fomentation of wars; instead, they will probably be responsible for the exacerbation of already unstable and difficult situations. The uncertainty surrounding “resource wars” is the reason why the academic world is currently split in two parts: on the one hand, there are scholars who are almost certain that climate change will contribute to the outbreak of these conflicts in the future; on the other hand, several experts are skeptical about this possibility: the way in which societies are organized at the present time is the principle reason why such an outcome is considered improbable.¹³⁰ Despite the incertitude, such a result should not be excluded, given the fact that situations of environmental distress are already influencing the fate of several countries. Moreover, the perspective of future “resource wars” is seriously alarming for many policy-makers, which consider them as another possible threat to state and human security. The crises that could emerge from disputes over resources could also increase the number of people displaced within and outside the national borders, thus increasing the problem of environmental refugees. Competition for the control of resources can take place in two different ways: first of all, in the form of “scarcity-conflicts”¹³¹. This scenario is based on the assumption that the quality of human life depends on the amount and availability of resources, above all water and food. The production of these resources, however, is extremely vulnerable and intimately connected with climatic conditions: if climate change effects are particularly adverse, these methods of production -in particular the agricultural one- are likely to experience great loss, leaving people in situations of scarcity. The shortage of water and similar resources is not just an hypothetical possibility, because there is already a number of communities, especially in the Southern Hemisphere of the world, suffering for these circumstances. Given these conditions, people may respond in various ways: trying to find alternative systems of adaptation, for example in the engineering field; deciding to migrate; or, in the case the period of scarcity is particularly prolonged, competing for the few resources and possibly resorting to the use of violence. However, the outbreak of conflicts is hardly ever a

130 A. Collins, *Contemporary Security Studies*, Oxford University Press, Oxford, 2013.

131 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 213.

good option, because it tends to reinforce the conditions of scarcity, so reiterating violence.¹³² Experts tend to describe scarcity-conflicts as intra-state realities, more probable in poor and developing countries. In places with weak governments, poor economies or/and ethnic, religious or ideological rivalries, environmental factors have a high potential of fomenting violence. In the recent period, some conflicts would seem to fit this model; among them, there are the ongoing conflict in Syria and the Darfur crisis started in 2003.

The civil war that has been fighting in Syria since 2011 has its roots into a concatenation of different causes. Recently, some scholars have affirmed that, among the various aspects increasing disorder and violence in the country, environmental factors have played an important part. In the last years, also as a consequence of climate change, Syria has been affected by severe periods of drought: at the end of 2010, the New York Times reported that after four years of drought -the worst in 40 years- its agricultural system was seriously compromised, so that a number of individuals and households were obliged to leave their villages.¹³³ These problems, together with difficulties at the economic and political level, pushed many people to move in the coastal areas of the country, increasing the tension among different ethnic and religious groups; the incapacity of the Syrian government to manage the situation has then led to the current violence and to civil war.¹³⁴ Certainly, climate and environmental factors have not been the crucial elements pushing people to take up arms; however, they have exercised an indirect influence on the country, exacerbating its vulnerability and instability. Better climate conditions would have helped to improve living conditions and the economic situation of the country, which, in this way, would have had some extra force to face the other challenges.

Many experts have claimed that also the conflict in Darfur in 2003 is correlated to climate change effects. A study of the United Nations Environment Programme has pointed out that environmental degradation is at the basis of the fight. Desertification, increase in average temperatures and decrease in precipitations have been tormenting Darfur for years; it is highly probable that they have fomented the climate of rivalry and friction in the region, contributing to the outbreak of this bloody civil war. Even UN Secretary-General Ban-Ki Moon affirmed that the Darfur conflict started as an “ecological crisis, arising at

132 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014,, page 214.

133 M. G. Midulla, Andrea S., *Focsiv: Migrazioni e Cambiamento Climatico*, 2015. Available at http://www.cespi.it/PDF/Stocchiero-CLIMATE_CHANGE_CESPI-FOCSIV-WWF-2015.pdf. Accessed 22 June 2016

134 Ibid.

least in part from climate change.”¹³⁵ However, Darfur is not the only African state experiencing such severe climatic phenomena, so the degree of violence observed is unjustified if the role of government and of the armed groups is not taken into consideration.¹³⁶

The second scenario concerning resource wars is the “abundance-competition” one¹³⁷. The discovery of new resources or the increase of already existing resources may transform a place into the object of desire of various pretenders. A similar outcome could show up especially in the case of energy resources, such as coal or oil; places as the Niger Delta or the Arctic for example could experiment similar experiences, considering that global warming is revealing previously hidden resources. The potential for violence usually increases if governments and local institutions are particularly weak to manage the situation; in the event of such a conflict, people are obliged to choose to migrate or to become participant in the violence.

To sum up, environmentally based conflicts may result from conditions of scarcity or abundance of resources and it may be a further responsible for human migration and displacement. In this frame, climate change could exercise a certain influence and so raise the risk of future clashes. These are not absolutely inevitable situations, but the potential danger should alert the international community and push it towards the developing of appropriate policies to prevent, or possibly, manage such conflicts and the related migratory patterns.¹³⁸

Connected to the broad discourse about the availability of resources, another important aspect concerns the reality of “food security”. This concept has been the object of different interpretations and definitions, but nowadays, most scholars agree in describing food security as that condition existing when all people have physical, economic and social access to the amount of food necessary to meet their dietary needs¹³⁹. On the other hand, food insecurity is supposed to exist when people do not have such an opportunity. Food security is made up of different dimensions and it varies a lot, depending on its duration and spatial impact. Climate change is likely to increase the levels of food insecurity worldwide: this is due mainly to its adverse impact on global agricultural production.

135 Camillo Boano et al., *Environmentally displaced people. Understanding the linkages between environmental change, livelihoods and forced migration*, 2008. Available at <http://www.unicef.org/>. Accessed 29 June 2016.

136 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, pages 213-214.

137 Ibid, page 214.

138 Ibid, page 215.

139 Food and Agricultural Organization of the United Nations, *Trade reforms and food security*, 2003. Available at <ftp://ftp.fao.org/>. Accessed 15 July 2016.

Indeed, specific climatic circumstances such as drought, storms and excessive floods can affect crops and therefore the quantity, type and price of food.¹⁴⁰ Even if the most vulnerable areas in this sense are usually the countries whose sustenance directly depends on agriculture, also industrialized developed states are involved; indeed, the global interconnectivity of food systems entails that natural disasters affecting agricultural productivity in one region may influence food prices in another.¹⁴¹ The connection between climate change and food security has implications on the households' migratory patterns too. Thus, three types of movement may occur in this context:

- voluntary labor migration, with migrants searching for temporary occupation far from their homes to respond to non-permanent situations of food insecurity;
- indefinite labor migration, with people moving indefinitely in order to have remittances of food or money to send back to their family members remained in their land of origin;
- distress migration, with households or some of their members forced to move because food is unavailable or too scarce to be affordable¹⁴². Africa and Asia tend to host several examples of famine migration in the second half of the 20th century and there are still many people obliged to leave their towns to fulfill their basic food needs.

In these cases, however, climate change is not the only responsible for the worsening of the households' situation: also political and socioeconomic instability plays a crucial role. Migration is considered as one of the possible adaptation strategies to cope with food insecurity.

The role of migration in this aspect of security has only recently been considered and just partially examined; anyway, given the future scenarios about climate change effects, it is probable to see an increase in the demand for similar research.

2.3.3 The dramatic prospect of “statelessness” in the context of sea level rise

Most scholars consider sea level rise as one of the most unpredictable effects of this climatic phenomenon. In the most dramatic forecasts, the habitable land mass of entire nations is expected to disappear under the water. Even if the image seems quite

¹⁴⁰ Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 218.

¹⁴¹ Ibid, page 219.

¹⁴² Ibid, page 221.

apocalyptic, no expert or policy-maker can completely exclude such an outcome. Indeed, as the history has taught us, the Earth surface has not always had the characteristics displayed in these days; instead it has suffered -and is still suffering- a number of structural changes. Therefore, nothing can be taken for granted. In this frame, sea level rise may alter the traditional procedures and implications of becoming “stateless”. Nowadays, a person may become “stateless” if:

- their country has ceased to exist politically;
- their nation has changed citizenship laws or has made an administrative error;
- they are persecuted in their state of origin -as in the case of the refugees recognized by the Geneva Convention;
- they are members of groups living in a territory that traverses national boundaries and they are not able to acquire the citizenship of each state.¹⁴³

In the context of sea level rise, none of the previous situations would take place; instead, people would become “stateless” because their land would be physically inhabitable, as a consequence precisely of sea level rise. What would this condition imply? Would it have any use to maintain this status of citizenship? According to several scholars, the incapacity of residing in the area that awards citizenship pushes the individual into a de facto statelessness.¹⁴⁴ In this case, not only displacement would be a compulsory move, but



Figure 19, Josaia V. Bainimarama speaking at United Nations General Assembly in September 2013. Source: *Un News Centre*. Available at: <http://www.un.org/>.

migrants and displaced people would be even less protected at a legal level because their original land would disappear completely and, with it, the rights and duties that this place entailed. The international community is currently unprepared to face such a situation; no international law, no agency

or body is now working concretely to find potential responses in the case a similar scenario becomes reality. Many Small Island Developing States (SIDS) are extremely concerned

¹⁴³ Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 199.

¹⁴⁴ *Ibid*, page 201.

about this possibility; as a matter of fact, for many years, the heads of state of numerous SIDS, such as Kiribati, Tuvalu and Palau, have claimed in international arenas -especially the United Nations- that they are exposed to a “real and existential threat”¹⁴⁵, that is obviously sea level rise. They have to face the unique challenge that consists of managing the doubts of entire populations, which fear the cruel destiny of becoming a modern Atlantis. Even if there are still no cases of entire “sinking” states, many people look at some of the current sea level rise effects -salinization, severe floods, etc.- as the first signs of what could happen in the following decades and centuries. The feelings of these communities are better represented through the words of their politicians, who, during a United Nations General Assembly in September 2013, denounced the urgency of their situations.

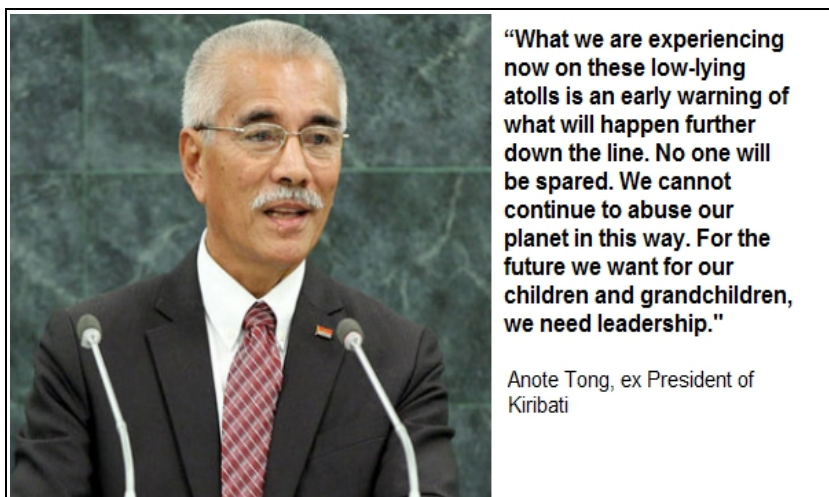


Figure 20, Anote Tong speaking at United Nations General Assembly in September 2013. Source: *Un News Centre*. Available at: <http://www.un.org/>.

The most significant interventions are portrayed in Figure 19, 20 and 21: Josaia V. Bainimarama, Prime Minister of the Fiji Islands, described climate change and sea level rise as real life-threatening phenomena¹⁴⁶; Emanuel Mori, President of Micronesia, spoke about climate change as the worst

process that has ever affected his people's well-being and general security, which is already damaging the Islands' ecosystems and forcing people to leave their original homes.¹⁴⁷ And finally, Anote Tong, ex-President of Kiribati, presented the situation in several SIDS as a projection of what is going to happen more diffusely worldwide if the mankind keeps acting like it has done during these years.¹⁴⁸

Sea level rise has serious implications for human and state security; if the words of the SIDS leaders turn to be truthful, people's safety risks to be seriously threatened, most of them will become displaced and thus they will be forced to move abroad; in this case, if legal recognition and protection of environmental refugees remains absent, these people

¹⁴⁵ Un News Centre, *Threatened by rising seas, small islands nations appeal for more aid at UN*, 2013. Available at <http://www.un.org/apps/news/story.asp?NewsID=46027#.V4iimLiLTiW>. Accessed 13 July 2016.

¹⁴⁶ Ibid.

¹⁴⁷ Ibid.

¹⁴⁸ Ibid.

will be likely to become unregulated migrants.

Even states' security is at stake: not only because the prospect of losing their own country could increase discontent and violence among the citizens, but also because physically the state risks to lose its geographical component, which is a fundamental element for a state to be recognized as such.

Therefore, this perspective about "statelessness" should not be overestimated, because it entails a number of future challenges and it adds further urgency to the necessity of finding a legal framework for environmental refugees.

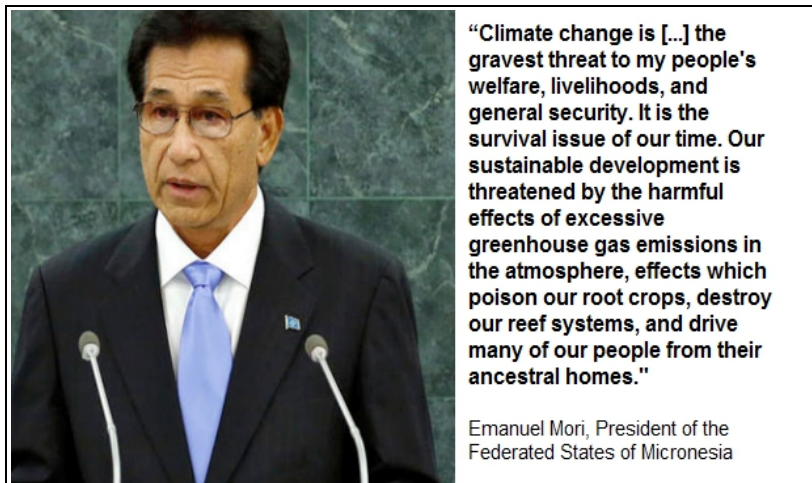


Figure 21, Emanuel Mori speaking at United Nations General Assembly in September 2013. Source: *Un News Centre*. Available at: <http://www.un.org/>.

Although the "popularity" of environmental refugees has been increasing in the recent years thanks to international agencies, mass media and scholars, in practice this category still does not exist under international law¹⁴⁹. As mentioned above, the expression "environmental

refugees" itself is still "illegitimate" considering that it is not widely accepted and it lacks an unambiguous definition. As in the case of other relevant phenomena, such as terrorism, the absence of a precise label and interpretation helps to explain the difficulty in finding a unique international legal framework for these migrants. Understanding how environmental refugees are viewed and the dimensions of this group is essential to determine which policies and legal instruments governments and organizations should provide in order to guarantee them an adequate protection. As mentioned above, the recent efforts made by the international community have been basically "formal": in fact, there is currently no legally binding system forcing governments or specific bodies to address the needs and rights of environmental refugees. Differently from the categories recognized by the 1951 Geneva Convention related to the Status of Refugees, environmental refugees are currently not protected and they neither enjoy the rights granted, instead, to other groups. The lack of legal protection is particularly dramatic in the event of cross-border

149 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 203.

displacement: in this case, people turn to be illegal migrants without having the possibility to appeal to any agency or Convention. The recent proposals made by scholars and politicians (including the extension of Geneva Convention, the introduction of a completely new framework, the broadening of the concept of Internally Displaced Persons and the addition of a protocol to the United Nations Framework Convention on Climate Change) represents an important possibility to find a place in the international law for environmental refugees. However, no many steps forward have been made and they remain just theoretical proposals. Internal displacement has acquired a certain importance in the last decades, with the creation of the Guiding Principles on Internal Displacement being the peak of this process. Being non-compulsory, further actions are needed to put the Principles in practice, as it has happened during the Kampala Convention in Africa.

Given all the elements connecting climate change, migration and public safety, the phenomenon of environmental refugees needs a response from the international law as soon as possible. Migration has always been a fundamental feature of human society, so that regulating every aspect of these movements would help governments and local populations to manage them in a safer way. The Nansen Initiative has demonstrated that a dialogue in this direction is possible: however, what is needed is that dialogue becomes action, which is something that entails efforts, time and engagement on the part of every part involved.

CHAPTER 3

CASE STUDIES

3.1 Asia

The Asian continent is one of the most exposed to the effects of climate change, both in terms of population affected and number of natural hazards taking place; for this reason, many experts are convinced that Asia will house a massive environmental migration. As mentioned above, environmental motivations are usually intertwined with other factors, especially those of economic and social nature, so that climate alone cannot justify great displacement or migration. The continent's vulnerability is mainly associated to three aspects: high degree of exposure to environmental disasters, high population density and high vulnerability of specific social groups. With regards to the first aspect, Asia is expected to be severely affected by climate-change effects, with South and South-East Asia being the major hot-spots. In the top ten of the countries mainly at risk there are several Asian countries, such as Bangladesh, which tops the list, India, Nepal, Philippines, Afghanistan and Myanmar¹⁵⁰. Population density is another crucial element when referring to Asia's vulnerability to climate change: indeed, it is the most populous continent on earth and this increases the number of people exposed to natural catastrophes. Furthermore, the most populated areas are coastal cities, which are actually some of the territories more at risk to climate-change effects; rural-to-urban migration is expected to exacerbate the vulnerability of these cities. Again, climate change will affect in particular certain groups, such as the poorest and the most vulnerable sectors of society; as a matter of fact, these communities rarely have the instruments to adapt or recover from massive environmental disasters, so that migration can be a potential response for them. Nonetheless, these people are also probable to be “trapped” in a hostile environment, given that they could lack the necessary assets to leave.

Despite the increasing importance of this phenomenon, it is still very difficult to find precise reliable data about climate-related migration and displacement. Nonetheless, experts affirm that millions of people have been displaced by natural hazards in the last years and that it is likely that they will grow in number in the future. The ways in which climate change is and will impact upon Asian populations and how they will answer to this situation

150 Asian Development Bank, *Addressing climate change and migration in Asia and the Pacific*, 2012. Available at <http://www.ipcc-wg2.gov>. Accessed 3 August 2016.

differ depending on the area in which they are situated. Climate-induced mobility is and could be just one of the options available to communities and it can take place in a variety of different forms – permanent, temporary, national, international, etc. It is probable that current migratory patterns will be even more affected by environmental refugees' flows, therefore individuals on the move need an efficient legal protection; unfortunately, nowadays, policy responses to these movements remain inadequate¹⁵¹.

Asia has always been a land of immigrants and emigrants, both at the national and international level. Globalization, job opportunities, social and economic inequalities have increased the number of people on the move in the recent years, so that Asia is now the primary source of migrants in the world; China, India and Philippines are currently the top three migrant-sending countries. In this intricate network, climate change is usually perceived as an additional factor, which influences people's decision to move interacting with a number of different migration drivers. Estimates show that environmental-induced migration will lead mostly to internal relocation, so that international migration will rarely be an option¹⁵².

As for many other areas in the world, a worrying phenomenon concerns rural-to-urban migration: Asia hosts some of the biggest cities in the world, which attract thousand and more people coming from different lands. Despite the opportunities offered by these cities, they can also represent a huge risk: indeed, they are extremely vulnerable to climate-related hazards and the increasing number of people settled there does not help in reducing their exposure. Given that they are usually located in the coast, these cities are exposed to flooding, drought and similar events; thus they are not always safer territories: on the contrary, it can happen that people actually move to even more dangerous places than their homeland.

As far as climate change is concerned, Asia together with the Pacific area are considered as the “first witnesses”¹⁵³ of global warming: observing them, the rest of the world can comprehend the humanitarian catastrophe that could happen in the future. The main consequences of climate change in Asia usually are: firstly, an acceleration in temperature warming, occurring particularly in South and North Asia. Secondly, changes in rainfall patterns, with increase in precipitations expected in North and East Asia and decrease in Central and West Asia. Thirdly, increase in the intensity and frequency of extreme weather events, such as heatwaves, flash-floods and tropical cyclones; the last ones are likely to

151 Asian Development Bank, *Addressing climate change and migration in Asia and the Pacific*, 2012. Available at <http://www.ipcc-wg2.gov>. Accessed 3 August 2016.

152 Ibid.

153 Ibid.

raise by 10-20%¹⁵⁴. The number of natural disasters reported has been increasing since 1975, but while the amount of people killed has been decreasing, that of people affected has been raising; for example, in the period 2001-2010, an annual average of 200 million people were hit by these events (that means 90% of the world total), with more 70.000 people killed in the same period¹⁵⁵. The major hot-spots were East and Northeast Asia, and South and Southwest Asia. Finally, another major challenge is sea level rise, which is likely to be greater than global average in this region, with a length of 3mm/year.¹⁵⁶ The most alarming events are usually considered sea level rise, storms, cyclones and typhoons, which are probable to cause the greatest damage.

Climate change has an impact upon specific aspects of human society, including availability of fresh water, agriculture, food security and health system.

Understanding the climate situation of this region, it is important at least to understand which could be the areas most likely to become major sources of climate-induced migrants; as a matter of fact, it is impossible to detect with certainty how people will respond to climate change and if they will choose migration as their option.

To better comprehend the dynamics linking climate change to migration and displacement, it is useful to make an analysis focusing on four main areas: East, Southeast, South and Central/West Asia.

3.1.1 East Asia



Figure 22: The Asian Continent, with a focus on East Asia (red square). Source: google: <http://images.google.com/>.

One of the major problems in East Asia (Figure 22) is related to flooding; China is certainly the most vulnerable in this sense, given that a huge number of people live in cities and plains prone to these natural events. The northern plains and cities such as Guangzhou, Haikou, Shanghai and Shenzhen are highly exposed to floods, therefore their population is extremely at risk. Also many rivers are experiencing these phenomena, and so individuals and households living near them: the Yangtze

¹⁵⁴ Asian Development Bank, *Addressing climate change and migration in Asia and the Pacific*, 2012. Available at <http://www.ipcc-wg2.gov>. Accessed 3 August 2016.

¹⁵⁵ Ibid.

¹⁵⁶ Ibid.

(Changjiang) River, Lower Yellow (Huanghe) River, and Pearl River basins are all places with similar characteristics. Glacier melting puts further pressure on Chinese river system, contributing to substantial variability in flow regimes; these changes can actually lead to severe landslides in many of the areas affected. Another crucial issue for these countries is sea level rise; South Korea, Japan and also China are all affected by this phenomenon, especially in the areas of Taipei, Guangzhou, the deltas of the Yellow, Yangtze and Pearl rivers in China, Seoul in South Korea and Osaka and Nagoya in Japan¹⁵⁷. Drought and desertification represent another major challenge for East Asia, in particular China, with large areas at risk of losing fresh water and agricultural productivity. In this frame, it is clear that there is a great potential for environmental migration and displacement in the region.

China raises the greatest concern for two reasons in particular. First of all, because of its demography: China is the most populated state in the world (with a population of 7.347 billion people registered in 2015¹⁵⁸), with large flows of immigrants coming in the recent years. The presence of such an amount of people is a concrete danger, because it entails that there are more people exposed to the negative consequences of climate change and there could be more potential environmental refugees. Secondly, China's vulnerability is linked to the composition of its population: there are a lot of citizens relatively poor and so physically incapable to face extreme climate events. Moreover, most of them are employed in agriculture (half of the Chinese workers are actually farmers or have similar jobs¹⁵⁹), which is one of the first sectors to suffer from the effects of climate change; a severe natural disaster could damage crops, so compromising these people's well-being and survival. There are three regions expected to be most affected by climate-induced migration: the upper areas of the Yellow and Yangtze Rivers, in which soil degradation and the construction of dams may force people to leave their homes; the north and northwest of China, hit by desertification and droughts that may damage local farmers; and finally the southeastern coast, which may be hit by severe and more frequent typhoons and flooding, where communities may be forced to leave in search of alternative livelihoods. According to the estimates, 10 million people risk to become displaced by 2050, with mainly three trends followed by migrants and displaced people: the first concerning rural-to-urban migration, which is already occurring at the present time; the second relating to the flee of

157 Asian Development Bank, *Addressing climate change and migration in Asia and the Pacific*, 2012. Available at <http://www.ipcc-wg2.gov>. Accessed 3 August 2016.

158 The World Bank, Population, Total | Data. Available at <http://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed 20 August 2016.

159 Asian Development Bank, *Addressing climate change and migration in Asia and the Pacific*, 2012. Available at <http://www.ipcc-wg2.gov>. Accessed 3 August 2016.

people from Northern and Western China; and the third being international migration, taking place especially in the countries belonging to the Organization for Economic Cooperation and Development (OECD)¹⁶⁰.

As mentioned above, China has already experienced huge relocation connected to environmental reasons and also related to the construction of great works, expected to decrease people's exposure to hazards. In particular, I am referring to the events associated to the construction of the Three Gorges Dam, in Hubei province. This was a massive project, realized with three objectives: controlling downstream flooding, producing electricity and facilitating navigation. During the construction, two crucial migration and displacement events took place; the first was a planned relocation of the population, necessary to make way for the Three Gorges reservoir. It is not certain how many people were displaced in the 1990s due to this work, but the estimates suggest that it was a number ranging from 1.1 million to 1.35 million people forced to leave. The relocation was not easy and many people found themselves in places where they were unable to find jobs or produce the necessary resources for living; therefore, many of them asked to move to urban centers. Apart from this resettlement, 1998 announced another great event. In that year, a pronounced El Niño event generated huge rainfall in central Asia and from June to August many locations were hit by severe flooding; by the end of the summer, around 13 hundred people were dead and 13.2 million were displaced¹⁶¹. In that frame, the government started to resettle Three Gorges displacees in more distant areas, because the clearance of upland areas for farming had been seen as contributing to the flooding. Many of those relocated actually returned or decided to leave for urban areas, given that they expected more opportunities there than in other rural regions. However, several displaced people struggled in the city and blamed the government for not having fulfilled the initial promises of well-being in the new relocation sites. The Chinese experience shows that planned relocation is not always a solution to prevent catastrophes: on the contrary, it could lead to migration and displacement as much as natural disasters. Indeed, the relocation was projected not considering people's real needs, so that many of those resettled actually decide to migrate again, voluntarily, to areas offering better advantages. In this way, despite the apparent control exercised by the Chinese government, people undertake further less controllable migration¹⁶².

160 Asian Development Bank, *Addressing climate change and migration in Asia and the Pacific*, 2012. Available at <http://www.ipcc-wg2.gov>. Accessed 3 August 2016.

161 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 134.

162 Ibid, page 136.

3.1.2 South Asia

South Asia (Figure 23) is another crucial region when talking about climate change and migration. This area includes some of the worst affected countries on earth, in particular Bangladesh. As a matter of fact, many experts refer to this state as the “ground zero of climate change”¹⁶³. Therefore, it is evident that there is great concern about the devastation that climate change may provoke in this region. The



Figure 23: The Asian Continent, with a focus on South Asia (red square). Source: google: <http://images.google.com/>.

geography of South Asia is characterized by the presence of the Himalayas and by major river systems such as the Ganges, Indus and Brahmaputra; its climate is dominated by monsoons, during which usually take place the greatest precipitations. However, climate change is expected to modify the environmental characteristics of this area: the cycle of monsoons is expected to vary, with years of heavy rainfall following periods of scarce precipitations¹⁶⁴. The river system will be affected by global warming, in particular by the melting of Himalayas' glaciers, which are retreating at worrying rates¹⁶⁵; the Himalayas are commonly known as the “Water Tower of Asia”: this means that they are at the core of South Asia water system, so that any change in the glaciers composition will affect the availability of fresh water and therefore it will have consequences on crucial human activities, firstly agriculture, which is at the basis of the region's economy. Moreover, glaciers melting and changes in the river systems will have severe effects on the strength and periodicity of flooding, which is a major issue for these communities. Regional warming is another challenge to face in this part of Asia: for example, on the 19th of May, 2016, the Indian city of Palodi registered the record temperature of 51 degrees Celsius; similar temperatures had not been observed since 1956¹⁶⁶. Periods of drought are occurring more frequently in South Asia, with the main consequences obviously registered

¹⁶³ Taken from the movie/documentary directed and created by Michael P. Nash "Climate refugees", 2010.

¹⁶⁴ Potsdam Institute for Climate Impact Research and Climate Analytics, *Turn down the heat*, 2013. Available at <http://www.document.worldbank.org>. Accessed 19 August 2016.

¹⁶⁵ K. Warner et al. n, *In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and Displacement*, 2009. Available at <http://www.ciesin.columbia.edu> Accessed 10 June 2016.

¹⁶⁶ CNN, *Mercury rising: India records its highest temperature ever*, 2016. Available at <http://edition.cnn.com>. Accessed 25 August 2016.

in the agricultural system. Pakistan is expected to be the country most affected by this problem. Given its geographical position, the region is also subject to sea level rise; several mega cities -such as Dhaka (Bangladesh), Mumbai, Kolkata and Chennai (India) are at risk. Sea level rise brings a number of problems: coastal erosion, strong exposure to extreme weather events and salt-water intrusion, which is becoming a huge problem in many parts of Bangladesh.

The vulnerability of this region towards climate change is also due to the demographic composition of South Asia. Indeed, population growth is expected to continue also in the future, raising the already high number of people living in this area; for instance, India is one of the most populated country in the world and some experts believe that its population will even exceeds the Chinese one in the next decades¹⁶⁷. The problem is that most inhabitants are settled in the most vulnerable areas, so that they are extremely exposed to natural hazards.

Among the various countries located in South Asia, two of them seem mainly involved in current and future climate-induced migration: Bangladesh and India.

Bangladesh is actually one of the most dramatic cases. Floods, cyclones and drought are part of its history and these have often caused dramatic loss of human life and displacement. However, the concern about sea level rise and the increase in the frequency and strength of extreme weather events make projections for the future even worst. The country counts millions of people living in dangerous areas: 5 million live in areas prone to cyclones and storms, and more than half of the population is settled near the coast, exposed to sea level rise and its effects¹⁶⁸. Flooding is certainly one of the most alarming issues: each year, around 20% of the national territory is flooded¹⁶⁹, with 500.000 people consequently displaced. Some future scenarios portray a terrible future for Bangladesh: one study suggests that sea level rise and storm surges associated with cyclones could be responsible of the inundation of up to 25% of the country¹⁷⁰.

However, it should be pointed out that migration is not an inevitable response to natural disasters; usually, environmental and economic factors work together in leading individuals towards migration. Nonetheless, in the future, climate change could worsen environmental conditions, so that migration could become the most probable option to choose. Even if

167 The Economist, The world's biggest country, 2015. Available at <http://www.economist.com/news/asia/21661055-worlds-biggest-country>. Accessed 28 August 2016.

168 K. Warner et al. n, *In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and Displacement*, 2009. Available at <http://www.ciesin.columbia.edu/>. Accessed 10 June 2016

169 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 129.

170 K. Warner et al. n, *In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and Displacement*, 2009. Available at <http://www.ciesin.columbia.edu/>. Accessed 10 June 2016.

internal relocation is the most probable, the international one should not be excluded: in this case, existing patterns of migration could be extremely important and lead the way to future migrants. Three roads are available in this sense: the first from Bangladesh to India; the second directed to countries belonging to the Association of Southeast Asian Nations (ASEAN); the last headed to traditional host countries, such as the United Kingdom, Australia, Canada, New Zealand and the United States¹⁷¹.

Bangladesh is already used to migration, in particular that of temporary and labor nature; climate change could actually turn these movements into permanent relocation of people inside or outside the country. Currently, temporary migration is preferred and it is typically directed to urban centers, such as Dhaka; however, this resettlement does not necessarily entails an improvement in living conditions: many centers -including Dhaka- are exposed to natural hazards and they are not even a guarantee of finding better job or housing opportunities. Migration and displacement are not always a well-accepted option: small communities living in coastal fishing villages are actually not willing to leave their homes and are determined to stay there as long as they can; but adaptation in situ might not be possible for a very long time¹⁷². In the cases of rural or fishing communities reluctant to move, the probability of new/additional out-migration is higher when the communities as a whole are significantly affected.

The history of Bangladesh has already offered a number of episodes of displacement due to environmental disasters. Floods and cyclones are on the top of this list.

Local population is actually used to flooding; however, in the last years, people have started to distinguish between “good” and “bad” floods¹⁷³: the first are useful for agricultural and fishing activities, which are the fundamental livelihood sectors in Bangladesh; the latter are the most alarming ones and also those expected to increase due to climate change. They usually entail the inundation of more than one-third of the country or, similarly, the presence of flood waters in unusual periods, such as late September; during the extreme “bad floods”, until half Bangladesh can be inundated. One of these events occurred in 1998, the year of the so-called “flood of the century”¹⁷⁴. Back then, the country was inundated for more than two-thirds of its territory; more than 30 million people were affected, and around 10 million were displaced by one of the most massive flooding in the

171 Asian Development Bank, *Addressing climate change and migration in Asia and the Pacific*, 2012. Available at <http://www.ipcc-wg2.gov>. Accessed 3 August 2016.

172 K. Warner et al. n, *In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and Displacement*, 2009. Available at <http://www.ciesin.columbia.edu/>. Accessed 10 June 2016.

173 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 129.

174 Ibid, page 129.

history¹⁷⁵. The disaster was accompanied by a decrease in rice production of more than 2.2 million metric tons and by the outbreak of several diseases -cholera, diarrhea and so on. The population was broken and international aid came all over the world. As for other floods occurred in Bangladesh, the poorest people were those most hit by the economic, health and environmental consequences of flooding. The highest vulnerability of these individuals was mainly linked to the low diversification of their incomes and their intimate dependence on farming activities. Also in the events of 1998, migration came to play an important role: the communities affected were actually strongly connected with one another and with their homeland, so that the perspective of leaving their homes for good was impossible to realize for many of them. Therefore, one of the main adaptive response to flooding was -and still is- in the form of seasonal migration to nearby centers: usually young people were the one leaving in search of temporary jobs to improve the conditions of their households¹⁷⁶.

Among cyclones hitting Bangladesh, one worthy of mention is Cyclone Sidr. The storm hit the country in November 2007, affecting 30 of its 64 districts; more than 8 million people were involved and many of them were left without shelter¹⁷⁷. Millions acres of crops were damaged, with severe consequences for people's food security in the area; houses and infrastructures were ruined and needed complete reconstruction. The cyclone also compromised water sources, with high risks for human health. The first typical response to a similar event is relocating people away from the areas mainly affected; however, this is usually not a long-term option, so that individuals and households face the great challenge of trying to return to their homes or risk and migrate in a safer place. Migration is psychologically and culturally difficult for those involved in natural disasters such as cyclones, not to mention the financial costs of this decision, which are not easy to bear for those relocated suddenly elsewhere. However, considering the traditional strategies of Bangladeshi families, one of the usual decision at the time of Cyclone Sidr was undertaking temporary labor migration to help the reconstruction in the original land. In a situation of vulnerability of this caliber, people should be protected at least partially by the authorities, to avoid the risk of being thrown in a different environment and actually not manage to improve their own situation and that of the relatives left behind.

Together with Bangladesh, also India is extremely exposed to climate change and involved

175 Carlo del Ninno et al., *The 1998 floods in Bangladesh*, 2001. Available at <http://www.ipcc-wg2.gov/>. Accessed 25 August 2016.

176 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 132.

177 The International Federation of Red Cross, *Bangladesh: Cyclone Sidr*, 2010. Available at <http://www.ifrc.org>. Accessed 24 August 2016.

in climate-related migration and displacement. As mentioned above, India is one of the most populated countries in the world and it is expected to become the most populated in the next decades. Furthermore, communities are mainly settled in certain areas -along the rivers Ganges, Indus, Brahmaputra, Mahanadi, Godavari, Krishna and in the north and east of India from Assam and West Bengal to Andhra Pradesh and Tamil Nadu- which are exposed to extreme events, particularly floods and cyclones¹⁷⁸. The country is also threatened by sea level rise, especially near Mumbai and Chennai, and by tsunamis, as in the northern regions of Bihar and West Bengal. Even these places are highly populated¹⁷⁹. This demographic characteristic is extremely important when talking about climate change: the more people live in dangerous areas, the higher is the risk to be affected by natural disasters and thus to be included in the category of environmental refugees. Climate change is a serious risk also for the economic growth of India: indeed, its impact on Indian agricultural sector, a fundamental economic field for the country, may compromise the results achieved until now. Indian migrants have traditionally moved from rural to urban areas, therefore adding further pressure on already vulnerable big cities; climate-related disasters, such as floods and loss of agricultural lands, are already inducing many people to follow the same path¹⁸⁰. India has recently suffered from severe floods, which have caused the displacement of thousands of people. In September 2014, the areas around Jammu and Kashmir were hit by the worst floods occurred in fifty years and around 812.000 were left displaced; hundreds of thousands more were displaced also in Azad Kashmir. Despite the fact that the disaster was defined as a “national level crisis”¹⁸¹, the government refused the aid offered by the United Nations and other humanitarian organizations; when new floods brought even more destruction in March and April 2015, many people were still waiting for government compensations promised for the previous disaster. In one of the poorest region of India, Assam, floods kept occurring during the summer and also in September and October 2014 and they affected the close state of Meghalaya too. 367.000 were displaced in these areas. More than a million people were displaced even in July 2014 in the state of Odisha¹⁸². Furthermore, in October, India was hit by cyclone HudHud, expected to be one of the most damaging events of 2014. This time, the government tried to be more effective, appealing to the population in order to

178 Asian Development Bank, *Addressing climate change and migration in Asia and the Pacific*, 2012. Available at <http://www.ipcc-wg2.gov>. Accessed 3 August 2016.

179 Ibid.

180 Ibid.

181 M. Yonetani, *Global Estimates Report 2015: People Displaced by Disasters*, 2015. Available at <http://www.internal-displacement.org/>. Accessed 5 June 2016

182 Ibid.

evacuate the area; a strong effort was needed, because people were actually reluctant to leave their homes. For most of those finally convinced to move from the risky land, that was actually the first time ever leaving their own houses.

3.1.3 Southeast Asia



Figure 24: The Asian Continent, with a focus on Southeast Asia (red square). Source: google: <http://images.google.com/>.

Southeast Asia (Figure 24) is a very complex territory, characterized by a number of different ecosystems. The main risks for the area in terms of climate change actually come from floods and sea level rise. As a matter of fact, the region includes several river deltas, primarily the Mekong, Red and Irrawaddy, all potential sources of flooding, and many cities -for example Bangkok, Ho Chi Minh City and Jakarta-

are expected to be affected by the effects of sea level rise. Also cyclones represent a severe risk for many countries, especially Vietnam and Lao People's Democratic Republic (PDR), and there is great concern around a possible increase in the intensity and strength of these phenomena¹⁸³. Together with more extreme storm events, even stronger precipitations will probably take place in the area. Southeast Asia has also registered an increase in regional temperatures: Vietnam, for example, warmed at a rate of around 0.3 degrees Celsius since 1971, which means more than twice the global average¹⁸⁴. The region houses extremely precious coral reefs, which are unfortunately involved in the process of deterioration caused by global warming. In addition to these changes in climate and environmental conditions, it has been observed an increase in population, which has been settling more and more in coastal areas and large cities, highly exposed to storms, floods and sea level rise.

All these events cannot occur without provoking some effects on relevant human activities. Agriculture is obviously one of the first ones affected by these changes and, in this part of Asia, it is particularly vulnerable especially to sea level rise, which provokes more frequent floods and intrusion of salinity water: all this is responsible of huge damage in the

¹⁸³ Asian Development Bank, *Addressing climate change and migration in Asia and the Pacific*, 2012. Available at <http://www.ipcc-wg2.gov>. Accessed 3 August 2016.

¹⁸⁴ Potsdam Institute for Climate Impact Research and Climate Analytics, *Turn down the heat*, 2013. Available at <http://www.document.worldbank.org>. Accessed 19 August 2016.

agricultural production. Some experts claim that an increase of 30 cm in sea levels -which could happen as early as 2040- has the potential to compromise 12% of the crops around the Mekong Delta Province¹⁸⁵. Even fisheries, in particular coral reefs ones, are expected to be damaged by the consequences of global warming, that are sea level rise, warmer oceans and ocean acidification. Possible changes in maximum catch go from a 16% decrease in the waters near Vietnam to a 6-16% increase in the north of Philippines; on the contrary, marine capture fisheries production may decline by 50% in the south of Philippines¹⁸⁶. In this frame, climate change may have a strong impact upon food security of people living in these countries.

Vietnam is one of the countries mainly at risk: in the case of a 1-meter increase in sea levels, it would be the most affected developing nation in terms of population (10.8%), wetlands flooded (28%) and GDP¹⁸⁷. Migration patterns are already influenced by environmental factors in Vietnam, particularly in the region around the Mekong Delta. The Vietnamese part of this Delta is very rich in terms of economic and human resources: it hosts 18 million people (22% of the total population), 40% of the country's cultivated territories and it is responsible for more than a quarter of the the entire GDP¹⁸⁸; the Mekong Delta also produces huge amounts of agricultural and fishing products. The Vietnamese living in this surface are used to flooding, and these actually play an important role in their economy and culture. However, as in the case of Bangladesh, in recent years, more and more "bad floods" (locally known as "ngập vừa"¹⁸⁹) are challenging people's resilience capacities and are damaging precious portions of land. The unusual frequency with which these events occur has pushed several people to undertake the decision to migrate; many migrants claim that it is very difficult to cope with strong and unpredictable flooding and to have a stable production from crops. Therefore, migration can be a positive strategy to find alternative livelihood. Giving the urban expansion taking place in Vietnam, rural-to-urban migration has become one of the main adaptive mechanism with which people try to response to adverse environmental and living conditions. From this perspective, the most vulnerable are individuals and families dependent on agriculture, indeed they are usually those migrating in flooding seasons in search of seasonal jobs to overcome negative periods. The fact is that the majority of Vietnamese are employed in

185 Potsdam Institute for Climate Impact Research and Climate Analytics, *Turn down the heat*, 2013. Available at <http://www.document.worldbank.org>. Accessed 19 August 2016.

186 Ibid.

187 Asian Development Bank, *Addressing climate change and migration in Asia and the Pacific*, 2012. Available at <http://www.ipcc-wg2.gov>. Accessed 3 August 2016.

188 K. Warner et al. n, *In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and Displacement*, 2009. Available at <http://www.ciesin.columbia.edu/>. Accessed 10 June 2016.

189 Ibid.

agriculture, so that many people may lie in this situation. In the case obstacles are too big, people see cities as a sort of “promise land” in which they could possibly re-build their existence; the perspective of better job opportunities and safer housing is what leads people towards new urban destinations.

To cope with these natural events, the government has recently launched a program known as “living with floods”¹⁹⁰. This strategy aims at organizing the resettlement of communities living in vulnerable areas prone to natural disasters; usually, people expected to relocate are those landless, so that in the case of a calamity they may be left without anything. The program also entails a shift in some communities' livelihoods, for example from rice to fishing, in order to guarantee the households' sustenance anyways. However, the initiative has been criticized by somebody because it does not allow the participation of potential residents.

Also Thailand may observe an important increase in climate-related migration in the future. This country fears the impact of three events in particular: shift in rainfall, more intense and recurrent weather events and sea level rise¹⁹¹. Changes in rainfall patterns is very dangerous with regards to key activities, such as agriculture: the unpredictability of precipitations, or changes in the amount and/or duration of rainfall can compromise crop productivity, thus threatening people's food security in the area. Moreover, floods are endangering central and northern areas, with cases of huge displacement taking place in the recent years. In 2011, for instance, Thailand was hit by one of the worst floods occurred in the world in that year: around two-third of the territory was inundated and 13 million people were affected. The economy of the country was severely damaged, with rates of unemployment raising more and more in those months.

The capital city, Bangkok, is not immune from risks either: sea level rise is actually a concrete danger for this low-lying area, and the interaction of this phenomenon with storm surges and floods may provoke significant displacement¹⁹².

Similarly to Thailand and Vietnam, even Cambodia has many vulnerable hot-spots: along the southeastern borders with Vietnam, there is a high risk of floods and drought; the Tonle Sap Basin may observe a reduction in annual precipitations, while the coastal provinces of Kampot, Koh Kong, and Sihanoukville may experience remarkable seawater intrusion and more unpredictable storms. One of the most vulnerable areas in the country is Battambang

190 K. Warner et al. n, *In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and Displacement*, 2009. Available at <http://www.ciesin.columbia.edu/>. Accessed 10 june 2016.

191 Asian Development Bank, *Addressing climate change and migration in Asia and the Pacific*, 2012. Available at <http://www.ipcc-wg2.gov>. Accessed 3 August 2016.

192 Ibid.

Province, in the northwest, due to the high rates of poverty and to the presence of a population extremely dependent on agriculture. Climate-related migration patterns are expected to follow existing paths, such as those linking rural and urban areas, those from Cambodia to Thailand and marriage migration¹⁹³.

3.1.4 Central and West Asia



Figure 25: The Asian Continent, with a focus on Central and West Asia (red square). Source: google: <http://images.google.com/>.

One of the main problems affecting Central and West Asia (Figure 25) is drought. Drought, together with water salinization, land degradation and desertification, is expected to be even more severe in the next years and this will obviously damage close ecosystems. The environmental conditions of the area have been worsening over years, with one event in particular having huge responsibilities in

this sense: the gradual disappearance of the Aral Sea. Until the 1970s, the Aral Sea was the fourth major saline lake in the world, located between Uzbekistan and Kazakhstan and it was fed by two main rivers, the Syr Darya and the Amu Darya. Figure 26 shows the changes that have affected this lake up in the period 1960-2009: barely 10% of the original system has been left¹⁹⁴. This has been usually described as one of the most dramatic alteration of the Earth's surface in history. The events leading to such an outcome are mainly of human origin; indeed, in the 1970s, the Soviet government decided to turn Uzbekistan into one of the main producers of cotton. With this purpose in mind, the course of both rivers was modified, so that the Aral Sea was left practically without water. This initiative has been destructive for local ecosystems and human communities: rainfall has become more and more rare, salinization has affected huge portions of land, impeding their plantation and fishing activities have turned to be impossible, especially because fishes started to die short before the 1970s, due to pesticides¹⁹⁵. The gradual

193 Asian Development Bank, *Addressing climate change and migration in Asia and the Pacific*, 2012. Available at <http://www.ipcc-wg2.gov>. Accessed 3 August 2016.

194 BBC News, *Waiting for the sea*, 2015. Available at <http://www.bbc.co.uk/news/resources/1dt-a0c4856e-1019-4937-96fd-8714d70a48f7>. Accessed 01 September 2016.

195 Ibid.

disappearance of the Aral Sea has been dramatic also for local populations: fishermen were left without their livelihood and without many perspectives for the future.

This event deprived many people of their hopes, causing displacement and migration; in

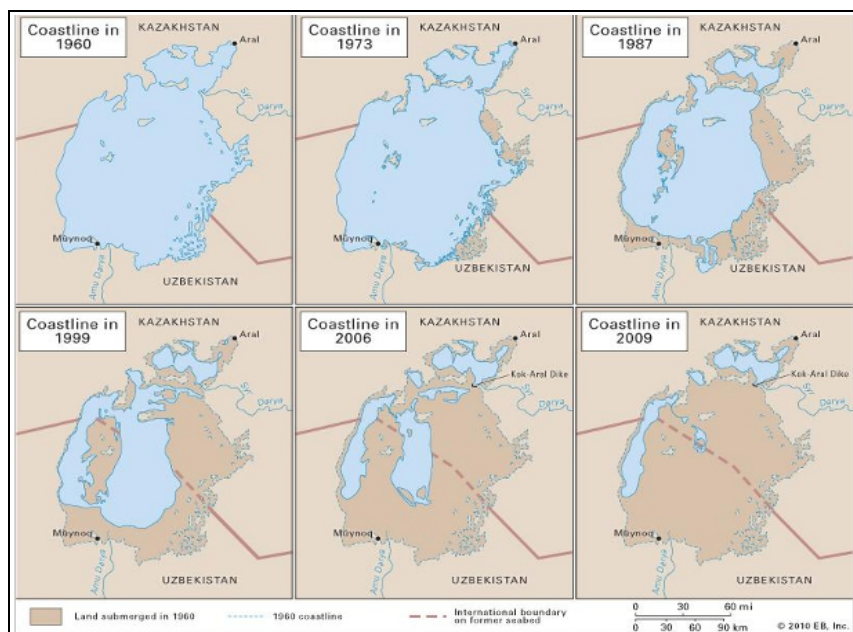


Figure 26: Gradual disappearance of the Aral Sea. Source: www.britannica.com.

1996, 100.000 individuals were displaced because of this environmental crisis¹⁹⁶.

Drought has displaced many other people in different parts of Central Asia: a 2001 study of Médecins sans Frontières affirmed that in Karakalpakstan

(Uzbekistan) half of the interviewees wanted to leave the country due to poor environmental

conditions; poverty and insufficient support on the part of institutions added further vulnerability to these communities¹⁹⁷.

In some countries, such as Tajikistan, the situation is dramatic: 95% of the population of this country is in danger because of environmental degradation and in particular floods, desertification, mudslides, water and soil erosion and salinity¹⁹⁸. Great water shortages are expected to occur in this area, and this can provoke even more migration on the part of local residents.

The absence or inefficacy of in situ strategies to enhance the resilience of the inhabitants and the lack of protection for those who decide to relocate or are forced to move can actually cost a lot in terms of environmental, economic and human capital.

¹⁹⁶ Asian Development Bank, *Addressing climate change and migration in Asia and the Pacific*, 2012. Available at <http://www.ipcc-wg2.gov>. Accessed 3 August 2016.

¹⁹⁷ Ibid.

¹⁹⁸ Ibid.

3.2 Africa

The NGO Germanwatch recently described the situation of Africa in the context of global warming with the following words: “Africa will bear the brunt of climate change without having contributed to its causes.”¹⁹⁹ This statement summarizes two crucial aspects: first of all, the fact that Africa is likely to be, together with Asia, one of the continents worst affected by the effects of climate change; and secondly, the awareness of the minimum contribution of Africa in terms of global emissions -just around 7% of total emissions are actually made by this continent²⁰⁰. Africa is extremely vulnerable with regards to climate change and for a number of different reasons. Among these, we find: the level of poverty afflicting many households, which is expected to increase even more because of climate change, together with levels of inequality among population; the very low adaptation capacity and resilience of African people, who often lack the instruments to protect themselves and react in times of huge natural disasters; the strong dependence of African communities on natural resources -indeed, agriculture and farming are absolutely the major activities in the continent; and finally the absence of strong institutions capable of providing the necessary means to face adverse environmental conditions. All these elements are expected to make migration the best option to recover from natural disasters or achieve better livelihood.

Climate change is considered to affect particularly three fields: rainfall patterns, deforestation and desertification. Decrease in precipitations has been registered in several parts of Africa, especially in the Sahel: this area is typically the most exposed to these events; according to some experts there could be a 10% decrease of annual rainfall by 2050. Even temperatures are expected to be a lot higher than the global average in Africa; this, together with decrease in precipitation and land degradation will have an extremely negative impact upon African agricultural system: in some regions, crop yields are expected to reduce by 50% by 2020²⁰¹. The previously mentioned land degradation is one of the main problems in this territory; this phenomenon is mainly attributed to human causes, such as poverty and population pressure. However, some natural events accelerates even more degradation, with droughts belonging to this category. Land degradation is extremely detrimental for agriculture and therefore risks to devastate the major livelihood for Africans; indeed, agriculture represents one-third of GDP and employs

¹⁹⁹ Germanwatch, *Climate change, development and migration: an African diaspora perspective*, 2014. Available at <http://www.germanwatch.org>. Accessed 26 August 2016.

²⁰⁰ Ibid.

²⁰¹ Ibid.

three-quarter of the entire workforce²⁰². Huge damage to agriculture has already been perpetuated, considering that since 1950 soil degradation has affected 65% of agricultural lands²⁰³.

Climate change entails a series of severe risks for the African continent: the first one is related to food security, which can be seriously compromised because of reduced crop productivity. Scarcity of food resources is also the major cause of undernutrition -which is already a plague for Africa- and this can increase the impact of several diseases. Secondly, global warming can damage livestock, coral reefs and wildlife, destroying some of the most precious ecosystems in the world. Finally, it can impact upon water resources and cause water stress in conjunction with other factors, such as over-exploitation and increasing demand.

Currently, deforestation and desertification -and their consequences- are considered the primary cause of climate-induced migration in this continent. 67 million people living in the Sahel are already affected by these phenomena and future scenarios affirm that the situation could get even worse. Africa is the driest continent on earth, with 43% of its landmass being dry²⁰⁴ and this percentage is expected to raise in the following decades if climate change keeps developing as it has been doing in the last years. Desertification implies huge socio-economic consequences, which, in association with poverty, underdevelopment and conflicts, can push people towards the choice to migrate. However, forced migration due to environmental shocks -drought, floods and so on- is a great risk for the development of any African countries and has the potential to reduce even more the possibilities that this continent has to become a prosperous place where to live.

Climate change is expected to influence, together with factors of different nature (economic, social, political, etc.), all forms of migration, even if it is actually very difficult to predict how this is going to happen – specifically, the destinations and the real reasons behind these movements. Extreme weather events are considered as capable to impact upon non-permanent and short distance displacement: after severe rapid-on-set events (floods, storms and similar phenomena) the typical response of individuals and households is leaving the area affected for a minimum amount of time, in order to search alternative livelihood to cope with the immediate difficulties. On the contrary, slow-on-set events -drought, sea level rise, desertification- usually leave more time to people to think about the various options available; in this case, migration is seen more as an adaptation

202 Germanwatch, *Climate change, development and migration: an African diaspora perspective*, 2014. Available at <http://www.germanwatch.org>. Accessed 26 August 2016.

203 Ibid.

204 Ibid.

measure, a decision made with much more awareness and with the possibility of gathering all the necessary assets to deal with the movement in the best manner possible.

In the following section, I will focus on the region called “Sahel”, which is expected to be one of the most hit by climate change and therefore as a potential source of a huge number of environmental refugees in the future.

3.2.1 The Sahel

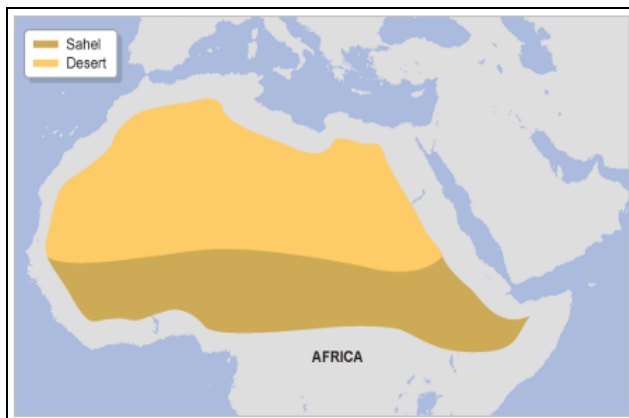


Figure 27: The Sahel. Source: www.bbc.co.uk.

The Sahel (Figure 27) is a semiarid region extending from Senegal to Sudan; it is a sort of transitional territory which divides the major Sahara desert from the humid savannas of the south. The Sahel is part of the so-called “Subsaharian Africa”, a huge area including 49 countries, 800 million people and a series of different environmental and cultural systems²⁰⁵.

Subsaharian Africa is particularly vulnerable

to climate change, specifically with regards to its agricultural system, which is highly dependent on rainfall. Considering that most Africans rely on this activity for their sustenance, this vulnerability spreads from crops to people themselves. Four climate change-related phenomena in particular affect the region: one relates to rainfall, which are likely to be more and more variable and unpredictable in the future time; for instance, West Africa has experienced a decrease in annual precipitations, while Sahel has registered an increase. In Southern Africa periods of severe drought have followed intense rainfall and viceversa. Even temperatures have been increasing since the 1960s, especially in Southern and Western Africa and projections for the future suggest that Africa is going to observe a further increase, particularly during summer, with more heat extremes occurring in these months. Aridity is another crucial problem for this region: droughts have been very frequent in the last sixty years and a number of people are at risk in this sense; the 2011 drought occurred in the Horn of Africa affected more than 10 million individuals, with severe damage in terms of malnutrition²⁰⁶. Consequently, arid lands will probably expand in the following years: some experts quantify this expansion as a 10% more than the

205 Potsdam Institute for Climate Impact Research and Climate Analytics, *Turn down the heat*, 2013. Available at <http://www.document.worldbank.org>. Accessed 19 August 2016.

206 Ibid.

percentage registered in the period 1986-2005. Finally, sea level rise will affect certain areas of Subsaharian Africa, given that this phenomenon is accelerating especially in the tropics and sub-tropics; in the case of a +4° warming, sea level along the coasts may raise of 100 cm by 2090, which would have dramatic effects on local ecosystems²⁰⁷. These phenomena can harshly compromise African crops, inducing more and more people to move to urban areas: this type of migration is not without risks, because, despite the opportunities offered by cities, these places -especially those located along the coasts- may be exposed to climate-related events, such as flooding and sea level rise; not to mention the problems linked to the access to water and sanitation facilities and to diseases, caused by poor living conditions.

In this frame, the Sahel is an area that raises particular concern, especially the western part of it. Drought, land degradation and water shortage are some of the main obstacles that local population has been facing in the last years; for example, from 1968-74 and from 1982-84 the region was hit by some of the worst drought on record. In the first period, 100.000 people died and more than 750.000 totally rely on food aid to survive²⁰⁸. Recently, these events have been linked to the warming of tropical oceans, which is generally associated with climate change. Such phenomena are destructive for the agricultural system, which is put extremely under pressure; moreover, the high population growth rate increases the number of people needing food, so that food resources are practically halved.

To cope with this situation of scarcity, migration has become a traditional coping mechanism in the Sahel: often, it is a temporary adaptation measure to overcome difficult periods and to keep providing what is necessary to families for their well-being. Generally, migratory movements are directed to coastal and urban areas, both within and outside national boundaries; these territories usually provide short-term jobs, which people abandon when the situation has improved in their own land. Obviously, if there is no improvement in local conditions, it is very likely that migration turns to be permanent. A study focused on the period 1960-2000 has demonstrated that land degradation, decrease in precipitations and violence in areas of Senegal, Niger, Mali and Burkina Faso resulted in a fast migration towards the south and a growth of cities like Dakar and Bamako. According to the estimates, half of the adult population of Burkina Faso moved at least

207 Potsdam Institute for Climate Impact Research and Climate Analytics, *Turn down the heat*, 2013. Available at <http://www.document.worldbank.org>. Accessed 19 August 2016.

208 K. Warner et al. n, *In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and Displacement*, 2009. Available at <http://www.ciesin.columbia.edu/>. Accessed 10 June 2016.

once in a year towards coastal countries²⁰⁹.

Climate change has already affected a number of people in different countries; in Senegal, for example, specifically in areas like the Peanut Basin, some individuals are planning to move if agricultural conditions do not improve. In Burkina Faso, drought and other environmental events push people to migrate just temporarily and mainly to other rural areas; nonetheless, if the original land becomes unlivable, short-term migration can actually follow other paths²¹⁰.

Global warming has also indirect consequences on people who do not rely (directly) on natural resources: merchants, for example, can be affected because in the case of droughts and land degradation, people tend to leave and they are left with no clients.

The Sahel (and in generally Africa) is probable to become one of the major sources of conflicts for local resources: for example, some fights have already erupted in the area between pastoralists and sedentary farmers²¹¹; however, there are no certainties about how resources will be managed in the future and thus about the likelihood of environmentally-related wars.

3.3 Small Island Developing States (SIDS)



Figure 28: List of Small Island Developing States (SIDS). Source: the United Nations. Available at <https://sustainabledevelopment.un.org/>.

The label "Small Island Developing States" (SIDS) is generally employed with reference to a group of 38 members of the United Nations (listed in figure 28) and 20 non-members/Associate members, characterized by specific geographical features (first of all, small dimensions and low elevation with respect to sea level) and unique

209 K. Warner et al. n, *In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and Displacement*, 2009. Available at <http://www.ciesin.columbia.edu/>. Accessed 10 june 2016.

210 Ibid.

211 Ibid.

economic, social and environmental challenges to face²¹². Despite the name seems to suggest it, the label does not refer just to islands, but also to some coastal countries. SIDS are located in three different regions of the globe: the Caribbean, Pacific, and the Atlantic, Indian Ocean and South China Sea (AIMS)²¹³. Their uniqueness has been formally recognized in 1992, during the United Nations Conference on Environment and Development organized in Rio de Janeiro: in this occasion, the international community recognized the urgent environmental issues affecting these countries and the obstacles preventing them from achieving sustainable development. Even before the intervention of the United Nations, SIDS had started their fight in highlighting their particular conditions: in 1991, the Alliance of Small Island States (AOSIS) was founded in order to find a common arena where small islands and low-lying coastal countries could share their ambitions and fears for the future²¹⁴. Efforts in this direction have been made even recently, with the SAMOA pathway being a perfect demonstration. The pathway was the result of the Third International Conference on Small Island Developing States held in Samoa in 2014; the initiative focused particularly on the problems of climate change and sea level rise and their negative impact on most SIDS' social, environmental and economic life²¹⁵.

In this frame, climate change is generally considered as one of the main difficulties for SIDS. Certainly, it does not affect all SIDS with the same intensity: everything depends on the geographical position of these countries and on their capacity to resist and adapt. However, it is a fact that these states all share a high degree of vulnerability towards climate change and their resilience in this sense is probably one of the lowest in the entire world. Their vulnerability and exposure is usually associated to two aspects: first of all, their climate; this is typically influenced by large ocean-atmosphere interactions, such as monsoons, El Niño and tropical cyclones, on which global warming exercises a high or low

Countries comprised of atolls only ^a		
	Population in 2013	Projected population in 2050
Kiribati	108,800	208,600
Marshall Islands	54,200	70,700
Tuvalu	10,900	19,600
Total	173,900	298,900

Figure 29: Population of Kiribati, Marshall Islands and Tuvalu in 2013 and 2050. Source: *Climate change and migration issues in the Pacific*. Available at www.unescap.org/.

degree of influence. Secondly, their demography: SIDS are

experiencing an increase in their inhabitants' number, and this aspect, combined with the

²¹² The United Nations, *Small Island Developing Countries in numbers: climate change edition*, 2015. Available at <http://unohrrls.org>. Accessed 10 August 2016.

²¹³ Ibid.

²¹⁴ Alliance of Small Island States, *About AOSIS*, 2015. Available at <http://aosis.org/about/>. Accessed 10 August 2016.

²¹⁵ The United Nations, *Small Island Developing Countries in numbers: climate change edition*, 2015. Available at <http://unohrrls.org>. Accessed 10 August 2016.

fact that people tend to settle in the highly-exposed coastal areas, increases the risks.²¹⁶ As Figure 29 shows, some of the most vulnerable countries, such as Tuvalu and Kiribati, are likely to experience a further increase in their population size by 2050, and this will make the situation even more complicated²¹⁷. Furthermore, their economic vulnerabilities impede local institutions to improve the adaptive capacity of their populations; consequently, climate change turns to be a further burden for the economy of these countries, which are already compromised due to the lack of resources and the distance from big markets²¹⁸.

Many SIDS leaders consider the situation of their countries as something paradoxical, in the sense that they are responsible just for less of 1% of the total amount of greenhouse gases emissions, but they are actually the most severely affected by the consequences of climate change²¹⁹. Even for this reason, local institutions point out the necessity to increase the global awareness about this phenomenon and the engagement on the part of the rest of the world.

Even if there is no absolute certainty about what will happen in the following decades, there are already many signs suggesting that, without much intervention on the part of the international community, it will not be easy for these countries to cope with the consequences of climate change. Among the different effects of global warming, one of the most alarming one concerns sea level rise; for most of the people living in SIDS, especially those located in the Pacific, this is a real and immediate danger. In certain case, the fear concerning this phenomenon is so high that it has become the priority for governments. The risk is evident especially in two cases: firstly, for countries with the majority of their land being within 5 meters above sea level, for instance, the Maldives, Tuvalu, the Marshall Islands, Kiribati and Suriname. Secondly, for states with most of their inhabitants living within 5 meters above sea level, as in the case of the Maldives, Tuvalu, Kiribati, the Marshall and the Cook Islands²²⁰. As it is clear from the chart, SIDS in the Pacific are the most exposed to the impacts of sea level rise; and there are many reasons for them to think that it will get worst, considering that just in the Western Pacific, in the period 1993-2009, rates of sea level rise of up to four times the global average (which is approximately 12 mm per year) have been recorded. In the specific case of Tuvalu for example, sea level

216 The United Nations, *Small Island Developing Countries in numbers: climate change edition*, 2015. Available at <http://unohrrls.org>. Accessed 10 August 2016.

217 John Campbell et al., *Climate change and migration issues in the Pacific*, 2015. Available at www.unescap.org/. Accessed 12 August 2016.

218 The United Nations, *Small Island Developing Countries in numbers: climate change edition*, 2015. Available at <http://unohrrls.org>. Accessed 10 August 2016.

219 Ibid.

220 Ibid.

rose at the rate of 5.1 mm per year from 1950 to 2009, a figure three times greater than the global average for that period, which was 1.8 mm per year²²¹. The threat brought by sea level rise does not refer just to the possibility for SIDS to sink under the water, as the collective imagination could portray; the phenomenon usually entails other consequences, such as coastal erosion and loss, inundation, floods, salinization of water and soils and exacerbation of storm surges. All these processes risk to make many SIDS inhabitable long before they are actually submerged. This chance is linked to the impact of sea level rise on the agricultural and fishing capacity of local populations and the availability of fresh water, which are all at the basis of people's well-being and survival. If sea level rise compromises the possibility for people to achieve their livelihood, they will probably be obliged to leave their countries for good²²². Salinization, inundation and similar processes are already playing a part in the life of many SIDS, especially those more vulnerable, exposed and lacking the financial or technical experience to adapt to all this. The possibility for these populations to abandon their homes, both in the form of migration or forced displacement, is usually particularly painful, especially in the case of very small atolls: indeed, they are characterized by a strong and intimate connection between the land (and the sea) and the local population. This spiritual tie is often the reason why many inhabitants do not accept to leave the place in which they were born and raised and why their fight for preventing this outcome has been strengthening in the last years.

Extreme weather events are another dramatic problem for most SIDS. These are a common feature for the majority of these countries, considering that 90% of them is located in the Tropics, a region naturally prone to these events. These phenomena take the form of both rapid-on-set events, such as floods, storms and cyclones, and slow-on-set ones, including changes in the water cycle and land erosion²²³. People of SIDS have been victims of weather disasters for centuries, but since 1950, an increase in their intensity and frequency has been registered. In the Pacific area, the number of rapid-on-set disasters has tripled since 1970 and more or less 90% of those recorded at the present time are climate related. Demographic growth, rapid and intense urbanization and environmental degradation are usually considered the main causes of this change. But experts also affirm that the actual trends of global warming will further contribute to increase the destructive potential of these processes²²⁴. Extreme weather events are dramatic for any population,

221 The United Nations, *Small Island Developing Countries in numbers: climate change edition*, 2015. Available at <http://unohrrls.org>. Accessed 10 August 2016.

222 Ibid.

223 Ibid.

224 Elizabeth Ferris et al., *On the front line of climate change and displacement: learning from Pacific Island Countries*, 2011. Available at <https://www.brookings.edu/>. Accessed 13 August 2016.

but in the case of many SIDS they are even more, considering that they increase the vulnerabilities, the difficulties and poverty of these countries. For small island countries such as Tuvalu and Kiribati, an even further increase in the force of these phenomena could represent an existential threat for them and their people. Displacement is a common outcome in the case of severe weather events, especially when sudden and destructive processes, such as monsoons, storms or floods, take place.

Climate change effects are recorded also on other fronts. Coral reefs, for example, have been seriously damaged because of global warming; according to UNEP, around 34 million hectares of coral reef cover have been lost in the period since the 1990s, with an estimated cost for the international economy of US\$ 11.9 trillion²²⁵. This loss was suffered in particular by SIDS. Sea level rise and oceans acidification have seriously injured coral species in the Pacific and the Caribbean, where they have decreased by over 80%²²⁶. Coral reefs are extremely important for many island populations, in the sense that they help breaking waves, protecting biodiversity, slowing down coastal erosion and increasing the storage of carbon and the number of tourists visiting the territories. With these changes in coral reefs, a strong impact on food and land security may be recorded, considering that fishing activities may be ruined and the coast may be even more exposed to severe storms and high tides. The countries likely to experience the greatest loss are considered Haiti, Grenada, Comoros, Vanuatu, Kiribati and Fiji²²⁷.

Also the availability of fresh water is a critical issue for many atolls and coastal countries and it is even more severe in the context of climate change. SIDS's fresh water usually derives from three sources: groundwater, surface water and desalinated water; many of them relies on just one of these three resources. Contamination, severe drought, acidity of oceans and saline intrusion all decrease the quality of water, increasing in this way the water stress of many communities. The lack of fresh water has obviously a strong impact on the agricultural capacity of people and the poor quality of water may be responsible for the spread of potentially lethal diseases, such as cholera or arsenicosis. According to the World Resources Institute's Aqueduct Country and River Basin Ranking, 9 of the 16 countries expected to have the highest water stress are SIDS²²⁸.

Climate change is impacting also on food security; the access, utilization and price stability

225 The United Nations, *Sea-Level Rise in Small Island Nations - Up to Four Times the Global Average - to Cost US\$ Trillions in Annual Economic Loss and Impede Future Development: Shift to Green Policies and Investment Critical*, 2014. Available at <http://www.unep.org/>. Accessed 17 August 2016.

226 The United Nations, *Small Island Developing Countries in numbers: climate change edition*, 2015. Available at <http://unohrrls.org>. Accessed 10 August 2016.

227 Ibid.

228 Ibid.

of food are all influenced by this dynamic. Sea level rise, the increase in the frequency and intensity of extreme weather events, persistent drought, etc. are already raising the vulnerability of many SIDS with regards to their food security. A decline in the local agricultural production is obviously risky and it is one of the first reasons why an area turns to be inhabitable²²⁹. However, the majority of SIDS is composed of food-importing countries, so that they are extremely vulnerable also to the changes in the availability and prices of foreign stock²³⁰. The effects of climate change perceived by food production abroad may in this sense affect also the well-being of local SIDS communities.

In developing countries such as SIDS, even public health is intimately connected to the dynamics of climate change. The lack of resources, technology or strong infrastructure system make many of these countries extremely exposed to the negative consequences of global warming, with the consequence of a wider spread of diseases. In this frame, human health challenges come from heat-related diseases, derived from cardiovascular or respiratory problems, which can also lead to premature mortality²³¹. But human health can similarly be subjected to issues linked to the quality of water or changes in natural systems, which can modify the way in which disease vectors appear and spread; parasites, viruses and so on may easily circulate in a poor and damaged environment, increasing the risks not only of infection, but also of mortality.

Climate change is perceived as an alarming issue for SIDS communities also because of its impact on biodiversity and what is commonly known as Cultural and Natural World Heritage. Many of the islands which fall within the definition of SIDS host large numbers of endemic species of flora and fauna, which are already experiencing worrying rates of loss. Specifically, if future scenarios for climate change will take place, it is extremely likely to witness a degradation, redistribution or fragmentation of ecosystems and a consequent loss of large biodiversity, especially in the Pacific²³². As far as World Heritage Sites are concerned, at least 20 SIDS host some of them, therefore they are more or less at risk. One of the countries mainly exposed to climate change effects, Kiribati, houses the Phoenix Island Protected Area (PIPA), a huge territory in the Southern Pacific Ocean including a number of marine and terrestrial habitats; in this area, there is also the Phoenix Island Group, which is the largest Marine Protected Area in the world. Losing such a treasure due to global warming would be dramatic not only for local populations, but for the

229 John Campbell et al., *Climate change and migration issues in the Pacific*, 2015. Available at www.unescap.org/. Accessed 12 August 2016.

230 The United Nations, *Small Island Developing Countries in numbers: climate change edition*, 2015. Available at <http://unohrrls.org>. Accessed 10 August 2016.

231 Ibid.

232 Ibid.

entire world.

In this frame, migration and displacement become an absolutely plausible response. Not only flight could be one of the adaptive strategies to face rapid-on-set events, but a thought and planned migration is a potential outcome also in the case of slow-on-set processes, such as drought or sea level rise. In the case of SIDS, many experts affirm that there are many premises for considerable human movement to occur in order to face the problems related to climate change. Displacement of people has already occurred in some countries, in particular those in the Pacific, such as Kiribati, the Marshall Islands, the Solomon Islands and the Federated States of Micronesia²³³. But numbers are expected to increase in the following decades. As it has been explained in the previous chapters, the decision (or the obligation) to move from their own original land does not derive directly and just from the effects of climate change: together with environmental degradation, the other causes for migration are usually of economic, social, demographic and cultural nature²³⁴. Using a different perspective, people may also be pushed to migrate because they feel that their own security and that of their land is endangered. Some scholars affirm that security can be threatened in three different ways²³⁵. Firstly, certain climate change-related effects, such as sea level rise, severe floods and storms and/or coastal erosion can put land security of many SIDS at risk. In these circumstances, territories would become partially or totally incapable to support habitation, so that local inhabitants would be obliged to search for other sites suitable for the construction of homes and buildings. Secondly, climate change can impact on livelihoods, both the cash-based and the subsistence ones; this means that, even if people have still the chance to physically reside in their country, their territory may become less able to guarantee the necessary food stocks or opportunities of employment. Finally, even if settlement locations and livelihoods are not seriously affected, deterioration may involve habitat conditions; typical examples in this context are for example changes in the availability of fresh water, spread of new and unpredictable disease vectors or increase in the intensity of extreme events and consequent raise of human exposure and vulnerability. These scenarios have all the potential to lead both to forced displacement or to voluntary migration; the presence of one or the other outcome usually depends on the severity of these phenomena. In particular, forced migration is expected to occur in the case of severe loss of land, livelihood or

233 The United Nations, *Small Island Developing Countries in numbers: climate change edition*, 2015. Available at <http://unohrrls.org>. Accessed 10 August 2016.

234 John Campbell et al., *Climate change and migration issues in the Pacific*, 2015. Available at www.unescap.org/. Accessed 12 August 2016.

235 Ibid.

habitat security. Practical examples involve substantial erosion or inundation of atolls or coastal/delta sites; great salinization or persistent drought leading to scarcity of fresh water and crop failure; changes in disease vectors and spread of dangerous illnesses, such as malaria, ciguatera or dengue²³⁶. In these cases, local populations may be forced to relocate in order to achieve better living conditions (and in the most extreme cases survival), something that would not be possible to do in situ. Instead, voluntary migration, usually at the individual or household level, is more probable when the previous phenomena are not extremely intense, so the ones who leave are usually those with financial and social assets, who plan their movement consciously and not as a sudden response to a situation of emergency. For instance, if an island or a coastal country is “just” periodically affected by extreme events and it has the opportunity to recover from that, people would usually migrate just on a temporary basis and return when the emergency has subsided.

As I previously mentioned, SIDS located in the Pacific are typically considered the most vulnerable to the effects of climate change and thus, the most likely to be affected by climate-related migration and displacement. For this reason, they need specific attention and assistance on the part of the international community. However, local inhabitants and politicians do not want to be considered simply as inactive “victims” of these events; they are keen to propose their countries as “knowledge-supplying areas”²³⁷, that is as places that should be observed and studied internationally in order to get precious information about climate change-related trends and about what these processes entail for local communities. Nonetheless, many affirm that there is still little attention towards this reality on the part of most experts. In this frame, it is useful to consider the case of Pacific SIDS in order to comprehend the current and possibly the future situation of climate-induced migration and how the estimates are expected to increase if global scenarios become real.

3.3.1 The Pacific area: sources, destinations and characteristics of climate-related migration

When speaking about the link between climate change and migration/displacement in the Pacific area, atolls are usually at the center of discussion. This is due first of all to their extreme vulnerability to climate change: even if future damage of these islands is still not

²³⁶ John Campbell et al., *Climate change and migration issues in the Pacific*, 2015. Available at www.unescap.org/. Accessed 12 August 2016.

²³⁷ Ibid.

predictable with confidence, there is actually a greater and greater concern about what will happen to these coral formations. Sea level rise, droughts and other extreme weather events are all expected to affect the well-being of these places. The high vulnerability of these atoll countries is also due to the increase in their population density and to the population growth that is taking place, for instance, in Kiribati and Tuvalu. Having more inhabitants means having more people at risk: if the worst scenarios for the future turn to be right, the expected total population of these atolls -350,000 people- could become displaced²³⁸. Even if future conditions were less severe than expected, the high population density of these countries will certainly increase the pressure to migrate. Therefore, the small low-lying atolls with these characteristics are likely to become main source areas in the context of climate-related migration. However, migration and displacement in the field of climate change should not be excluded even in more extended countries: places with densely populated river deltas and riverbanks are also likely to be affected by the effects of global warming, with a consequent movement of people from the areas most affected. In this sense, Papua New Guinea, Fiji and Solomon Islands could be involved in this phenomenon²³⁹, even if there is no certainty or projection about how many people could be displaced in the future time. Also drought could have a certain influence in leading people to leave their own countries: the areas most affected by long periods of persistent drought may easily become migrants' source areas. Tuvalu, Kiribati and the Marshall Islands all have fragile freshwater resources, so that drought becomes a further problem to solve and migration a possible outcome. Neither the Highlands of Papua New Guinea are immune to this problem: instead, they are involved in the severe droughts caused by El Niño events, which in the past provoked huge migration. However, after the 1970s, the potential for migration was reduced thanks to advent of the disaster relief plan.

Even if it is still impossible to project the correct number of people moving from the Pacific area following adverse climate change-related phenomena, some experts have tried to provide at least some scenarios for the decades to come. One of these proposals came from Professor John Campbell from the University of Waikato, New Zealand: according to his prevision, an estimated 665,000 to 1,7 million people could migrate or be displaced, considering the combined effects of climate change and population growth²⁴⁰.

With regards to migrants' destinations, it is likely that future movements will follow already

238 John Campbell et al., *Climate change and migration issues in the Pacific*, 2015. Available at www.unescap.org/. Accessed 12 August 2016.

239 Ibid.

240 Elizabeth Ferris et al., *On the front line of climate change and displacement: learning from Pacific Island Countries*, 2011. Available at <https://www.brookings.edu/>. Accessed 13 August 2016.

existing pathways, both internally and abroad²⁴¹. The preference, even nowadays, usually consists in remaining inside national boundaries and directing towards urban areas; rural-to-urban movements are typical of individual migrants who move in search for better market opportunities, with the perspective that city centers have much more to offer than rural outskirts (which is not always the case). This aspect is not always positive: many cities are themselves at risk of adverse environmental events and the increase in population density may raise the number of people exposed, not to mention the environmental degradation to which a great amount of individuals can contribute while living in urban areas. Moreover, these places are often neglected in terms of disaster risk reduction, so that levels of security are not always much higher than rural or less urban areas. The highest rates of urbanization are visible in small atoll States, such as Tuvalu, Kiribati and Marshall Islands²⁴²; these numbers are actually expected to increase, also thanks to climate change effects that can raise the phenomenon of rural-to-urban migration and displacement.

By the way, international migration should not be excluded; this is typically direct at other Pacific countries, as it has happened in the past in Kiribati, Tuvalu, Fiji and similar atolls²⁴³. This preference is usually justified because of cultural and environmental similarities. However, this outcome is not always possible, considering that also these destinations may have their own demographic and environmental challenges to face. Moreover, considering that migrants, in particular those moving on a voluntary basis, are expected to settle in urban areas, the host states may deal with new difficulties related to excessive urbanization, such as lack of employment opportunities or of safe homes and environmental degradation. On the contrary, when displacement occurs, people are likely to be relocated also in rural areas.

Migrants may also decide to head towards other foreign targets, that are usually former colonial powers: first of all Australia and New Zealand, geographically more close to these countries, but also the United States, the United Kingdom and France²⁴⁴. Relocation to such destinations is facilitated and preferred especially when some agreements exist between the source countries and the host ones: one example is the New Zealand Pacific Access Category, granted to citizens of Tuvalu, Kiribati, Tonga and Fiji aged between 18 and 45 years old, with the aim of providing the opportunity to work, study and live in this

241 John Campbell et al., *Climate change and migration issues in the Pacific*, 2015. Available at www.unescap.org/. Accessed 12 August 2016.

242 Ibid.

243 Elizabeth Ferris et al., *On the front line of climate change and displacement: learning from Pacific Island Countries*, 2011. Available at <https://www.brookings.edu/>. Accessed 13 August 2016.

244 Ibid.

state for an indefinitely period of time²⁴⁵. Even if this instrument has certainly some limits (indeed, people allowed to settle in New Zealand with this VISA have to comply with specific conditions), it is a potential path to follow in the case of adverse climate events leading to migration or displacement. Nonetheless, other countries expected to have high number of migrants – for instance Nauru, Papua New Guinea, Vanuatu and the Solomon Islands - currently do not have similar access to international migration, so that it would be much more difficult for them to head towards farther foreign destinations.

What scares more many SIDS inhabitants is actually the possibility not to return to their homeland. Moving to another area or country should not be seen always as a dramatic outcome, imposed on populations; in certain cases, it is also a positive strategy, which can lead to a great improvement in people's living conditions. However, many communities, especially those living in small atoll countries, have a strong connection with their original land, which is extremely important for them from a cultural and psychological point of view. The land and its inhabitants are usually considered as inseparable, so that in many Pacific languages the terms to refer to these two realities are similar or even the same. Actually, the attachment to the land has not impeded population mobility: in certain circumstances, people are keen to accept to migrate, but with the idea that they will always have a home open for their return. Nonetheless, in the last years, this idea cannot be taken for granted: the perspective of losing huge portions of land due to sea level rise or the possibility for a community to be entirely relocated may put this connection between people and their land in serious danger, with the result that displacement is perceived as a critical dramatic outcome²⁴⁶.

Climate change-induced migration also entails specific costs and benefits. Obviously, these aspects change depending on whether people are involved in voluntary movement or in forced relocation; usually the last option is perceived as more costly, considering that people do not have much freedom to decide the basic elements of their movement -when, where and how to organize it. In general, costs related to flight have economic, social, political, demographic, environmental, psychological and cultural dimensions²⁴⁷. They can range from the difficulties of changing culture, language and environment to the lack of a political status in the new country or the incapacity of finding a home or the basic resources for living. Similar problems are typical after a forced relocation, when people have not planned in detail their movement or are not properly protected by the authorities.

245 About this visa: *Pacific Access Category Resident Visa*. Available at <https://www.immigration.govt.nz/>. Accessed 16 Aug 2016.

246 John Campbell et al., *Climate change and migration issues in the Pacific*, 2015. Available at www.unescap.org/. Accessed 12 August 2016.

247 Ibid.

Often, the feeling is that these people are not able to take the reins of their lives. As Figure 30 shows, these costs are higher when people flee to a farther destination: in particular, the peak is reached when they move beyond the Pacific region.

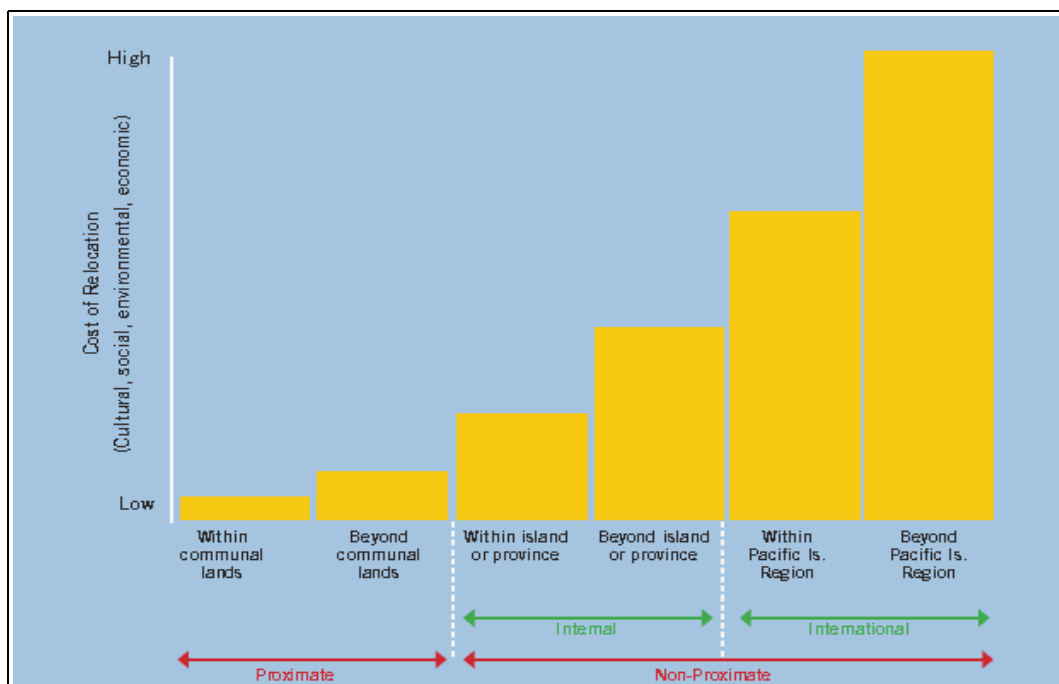


Figure 30: Conceptual costs of forced relocation depending on the distance travelled. Source: *Climate change and migration issues in the Pacific*. Available at www.unescap.org/.

Even if it is based on a generally more cautious decision, also migration comes with certain costs. Differently from forced relocation, in the event of migratory

movements, individuals and households may move to different destinations, losing in this way community cohesion. Moreover, if migration affects a large part of the original social unit, this can be damaged, in the sense that important segments of it -young people, men and women- may leave it: the result is a society in which there is no balance and no people capable of leading it towards development. Actually, after arriving in the destination country, also voluntary migrants have to face some challenges; unemployment, low paying job, different language or traditions are all possible difficulties²⁴⁸. Migrants' economic problems in the host states have repercussions also in their homeland, considering that those that they left "behind" rely on remittances sent by them.

However, migration in the context of climate change also entails some profitable opportunities. As I previously mentioned, migration can be a positive adaptive response in the case people's living conditions are extremely damaged because of adverse environmental phenomena. When instruments of adaptation in situ have exhausted and individuals or households still have the basic assets to support the costs of migration, this can be a positive solution. Even communities' planned relocation may be a beneficial tool;

²⁴⁸ John Campbell et al., *Climate change and migration issues in the Pacific*, 2015. Available at www.unescap.org/. Accessed 12 August 2016.

however, it is generally an option of last resort and its utility is perceived just if local populations are included in the management of the process²⁴⁹. Displacement, on the contrary, is usually excluded from this frame, because, differently from voluntary migration or planned relocation, it is simply considered a negative impact of climate change.

Given the opportunities offered by migration, this is a strategy almost rooted in many Pacific communities to face environmental and economic risks: in the past and at the present time, movements take place mainly within and between islands and for many individuals, these have become a part of everyday life. In a study carried out in 2011 by Shen and Gemenne, they found that the majority of the Tuvaluan migrants interviewed, settled in New Zealand, had moved between their homeland and other countries several times in their lives; some of them moved even eight times²⁵⁰.

Apart from improving migrants' well-being, migration offers important opportunities also for those remained in the original land; in particular, it can help to reduce some of the risks related to climate change in three ways: first of all, through remittances, that is the transfer of goods or money from diaspora to homeland communities. These cash flows are an important source for many Pacific countries, such as Samoa, Tonga and Kiribati²⁵¹. Remittances are very useful for local communities: they can aid in meeting basic needs when resources are lacking; they may improve development opportunities in Pacific atolls and thus enhance services necessary for the population, such as education and health. However, measuring the amount of remittances in these countries is still quite difficult and more research is required in this direction. Secondly, migrants can also transfer skills, knowledge and technology to their homeland; when returning in their countries, both permanently or just periodically, they can introduce instruments and techniques observed in the host state, and these can be extremely useful when projecting tools of adaptation and resilience towards climate-related processes occurring in these places. Finally, migration, especially that direct abroad, can function as a "pressure release valve"²⁵²: this means that it can reduce the demand of resources in the homeland, which is crucial when environmental degradation and population pressure reduce the access to them. Actually, internal migration is usually more common in Pacific islands, and this movement can compromise the availability of resources, primarily if migration is towards urban areas. Similar problems take place, for example, in South Karawa, Kiribati, where just 22% of the

249 John Campbell et al., *Climate change and migration issues in the Pacific*, 2015. Available at www.unescap.org/. Accessed 12 August 2016.

250 Ibid.

251 Ibid.

252 Ibid.

residents are native; this process is partially responsible for the pressure put on freshwater resources and sanitation systems in the area²⁵³.

Despite the opportunities offered by migration or relocation as adaptive measures to climate change, many Pacific islanders are reluctant to accept them; in particular, they find difficult to be considered “environmental refugees”, because this label could compromise their identity, which is intimately connected to land and community²⁵⁴. Furthermore, while migration derives from a personal decision and mindset, relocation is actually much more hard to accept, considering that usually entire communities are relocated, with the risks of breaking off their link with the homeland. For this reason, in the case relocation is seen as the best option for the well-being (and in extreme cases survival) of communities, this should be organized through policies and methods that respect these people's ideas and believes. Specifically, two aspects should be taken into account: first of all, historical migratory paths should be considered while organizing a planned relocation; secondly, people should be able to consider themselves as protagonists and planners of this initiative, so that this does not appear as an imposed process in which they have no voice and no power. In this way, the movement would be less upsetting, in terms of cultural and psychological loss. Actually, such a standpoint entails a shift in the perspective of the islanders: only in this manner they would consider the relocation as really voluntary. Nonetheless, citizens should be properly educated for this shift to occur. In these days, the only country seriously engaged in the preparation of a well-planned international migration as a possible response to climate change is Kiribati, with the project called “Migration with dignity”; considering its vulnerability towards the effects of global warming, the State is trying to prepare its citizens in the case of migration or relocation, creating opportunities for the actual migration and improving their skills and knowledge in order for them to aspire to respectable jobs outside their country of origin. However, the details of this plan will be further explored in the following sections.

Although SIDS share a high vulnerability towards climate change, their exposure and response to it vary a lot, depending on which country we are referring to; therefore, in the following paragraphs, the specific conditions and policies of five atoll countries - Maldives, Tuvalu, Kiribati, Papua New Guinea and Haiti- are presented. In this way, it should be easier to comprehend in detail the practical implications of climate change and how

253 John Campbell et al., *Climate change and migration issues in the Pacific*, 2015. Available at www.unescap.org/. Accessed 12 August 2016.

254 Ibid.

specific populations are trying to cope with it. Providing these specific examples could be also useful to understand the situation of SIDS in its entirety.

3.3.2 The Maldives

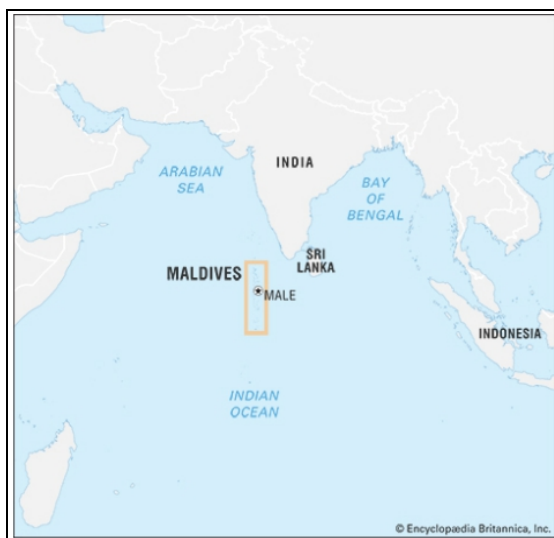


Figure 31: The Maldives. Source: www.britannica.com.

The Maldives (Figure 31) are an atoll country, made up of 1190 small islands, with a total dry area of almost 300 km², located in the Indian Ocean. Their current population comprises around 409.000 inhabitants²⁵⁵, with their capital, Malé, holding more than a third of the country's entire population; this aspect makes the city one of the most densely populated in the entire world. The Maldives are also the lowest laying country on earth, with their highest point being 2.3 meters above sea level²⁵⁶. Given their geographical position and conditions, the land is

extremely exposed to climate change-related events, in particular sea level rise, extreme events and changes in the rainfall regimes and temperatures.

As for many SIDS, sea level rise is one of the most alarming issues. Sea level around the Maldives is expected to rise under all the scenarios portrayed by IPCC²⁵⁷. The recorded long term trend in relative sea level for the Maldives is 1.7mm/year, while the hourly one is raising by around 7mm/year: there is some concern that the hourly sea level of 70 cm which has been taking place as a 100-year event will be an annual event by 2050. If sea level rise will reach one meter, the Maldives' authorities have identified plenty of different risks: coastal erosion, land loss, damage to infrastructure and settlement, harm to coral reefs, negative changes in fresh water availability, agriculture and food security.

Risks related to climate change are so alarming for the islanders that, seven years ago, international newspapers received theshocking announcement made by the former president of the Maldives, Mohamed Nasheen: in that occasion, he affirmed to have the intention to buy portions of land elsewhere as a sort of “insurance policy” for the citizens of

255 The World Bank, Population, Total | Data. Available at <http://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed 20 August 2016.

256 K. Warner et al. n, *In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and Displacement*, 2009. Available at <http://www.ciesin.columbia.edu/>. Accessed 10 june 2016.

257 Republic of Maldives, *National Adaptation: Program of action*, 2006. Available at <http://unfccc.int/resource/docs/napa/mdv01.pdf>. Accessed 20 August 2016.

his country, who were (and are) in danger because of sea level rise and correlated issues²⁵⁸. Such a declaration was destabilizing, especially for those unaware of what climate change could provoke in certain countries. However, Nasheen considered this strategy necessary, given that the island alone could not force the rest of the world to reduce GHG emissions. Nasheen's initiative came to be known as “Safer Islands Plan”: he considered relocation to bigger and safer islands or to completely new countries -such as India or Australia- as a concrete possibility to protect people from adverse environmental conditions.²⁵⁹

Despite the fact that this initiative could seem a bit “exaggerated”, Nasheen's words demonstrate the atmosphere of uncertainty that surrounds the future of people living on the Maldives, who really fear to become hopeless environmental refugees in the following decades. The Maldives are currently some of the main tourist attractions on earth, but their climate-related problems are often misunderstood, if not ignored. For such small islands, the perspective to leave their country for good is traumatic and in many cases it would not be a personal decision, but just an obligation. At the present time, the Maldives are not subject to huge displacement or migratory movements, but projections for the future are not so positive, so that local institutions have often spoken about these strategies as “an important prerequisite for development and [their] own survival²⁶⁰”.

3.3.3 Tuvalu

Similarly to Maldives, Tuvalu (Figure 32) is an atoll country located in the central Pacific Ocean; it is made up of five coralline atolls (Nanumea, Nui, Nukufetau, Funafuti, Nukulaelae), three table reef islands (Nanumaga, Niutao, Niulakita) with one composite island (Vaitupu). It is the fourth smallest nation in the world and one of the most low-lying states, with its highest elevation being just 5 meters above sea level²⁶¹. As other Pacific SIDS, also Tuvalu is characterized by a demographic

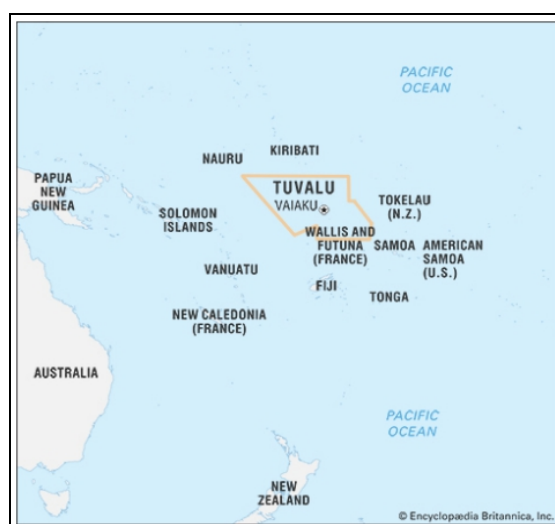


Figure 32: Tuvalu. Source: www.britannica.com.

²⁵⁸ The Guardian, *Paradise almost lost: Maldives seek to buy a new homeland*, 2008. Available at <https://www.theguardian.com/>.

²⁵⁹ K. Warner et al. n, *In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and Displacement*, 2009. Available at <http://www.ciesin.columbia.edu/>. Accessed 10 june 2016.

²⁶⁰ Ibid.

²⁶¹ Ibid.

boom, with its population reaching the peak of 9916 citizens in 2015²⁶². By 2050, the population is expected to increase to 19.600 inhabitants, with a growth rate of 86%. Due to its low elevation, Tuvalu is extremely exposed to adverse climatic events, in particular sea level rise, drought and tropical cyclones²⁶³. The northern islands are typically subject to long periods of drought (up to three months or more), while the Southern island of Niulakita is exposed to violent cyclones, usual in the area of Southwest Pacific²⁶⁴. Sea level rise is another major problem in Tuvalu: coastal erosion, flooding, salinization and damage to food and water security of the population are all current issues. Moreover, increasing sea surface temperatures are affecting Tuvalu coral reefs ecosystems, with serious harm to local fauna and flora and consequences also for the citizens' well-being. Overpopulation adds further pressure on the island, increasing the problems related to fresh water availability, health and food security and management of infrastructures and settlements. The risks for the population are even higher, considering that the majority lives near the coast, being primarily exposed to severe climatic events. People's direct reliability on natural resources makes any change in the native environment a potential threat to their sustenance. Given its low economic development, for Tuvalu is particularly difficult to find proper instruments and technology to face the climatic challenges of its territory; nonetheless, its government is one of the most active in trying to improve the conditions of its country and to impede a substantial migration or relocation of its citizens. Indeed, it is one of the members of AOSIS, the Association of Small Island States, which fights for the international recognition of SIDS peculiar challenges. The Prime Minister of the country, Elene Sosene Sopoaga, has affirmed that there is “an overwhelming cry-out for action” that nobody can ignore²⁶⁵. The main actions are expected on the side of the countries most responsible for CO₂ emissions, in order to guarantee a sustainable future to those living in the most vulnerable areas of the planet, as SIDS. Tuvaluans, as other population in SIDS, consider their situation unfair and many of them do not accept the possibility of migrating from their land, not before anything has been done in the rest of the world to reduce global warming and mitigate its consequences. However, migration is already part of Tuvaluans' life; usually, it follows two paths: one internal, direct from the outer islands to the capital, Funafuti, and the other international, with migrants settling

262 The World Bank, Population, Total | Data. Available at <http://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed 20 August 2016.

263 John Campbell et al., *Climate change and migration issues in the Pacific*, 2015. Available at www.unescap.org/. Accessed 12 August 2016.

264 Tuvaluan Ministry of Natural Resources, Environment, Agriculture and Lands, *Tuvalu's National Adaptation Programme of Action*, 2007. Available at <http://www.sids2014.org/>. Accessed 20 August 2016.

265 Taken from the statement presented by the Prime Minister Tuvalu Honorable Enele Sosene Sopoaga at the 20th Conference of Parties to the UN Framework Convention on Climate Change in December 2014.

mainly in Fiji and New Zealand. At the present time, around 3000 Tuvaluans have migrated in New Zealand, in particular to Auckland²⁶⁶. The principal reason for their migration is usually the climate of uncertainty surrounding their future in Tuvalu: environmental degradation together with lack of economic and social opportunities call into question their well-being and survival on the islands. In EACH-FOR project held in 2007, almost all Tuvaluan migrants living in New Zealand affirmed that climate change and sea level rise played an important role in their choice to migrate. The idea of many Tuvaluans is summarized in the sentence of a migrant interviewed for EACH-FOR report: “I prefer to leave now before I have no choice.”²⁶⁷

As it is known, climate-related migrants and refugees are not given a legal status under international law, so that currently people do not have a proper protection in the case they have to move or want to do so to escape from adverse environmental conditions. For this reason, many Tuvaluans turn to alternative channels, usually those devoted to labor migration; among them, there is the previously mentioned PAC, an agreement between New Zealand and Pacific atoll countries -such as Tuvalu itself- which allows the movement of people between 18 and 45 years old to follow job and school opportunities. Nonetheless, there are still no explicit policies referring to climatic events -first of all sea level rise- as the main reasons for migration and displacement; a huge gap remains between what the law provides and what Tuvalu and many other countries actually need.

3.3.4 Kiribati

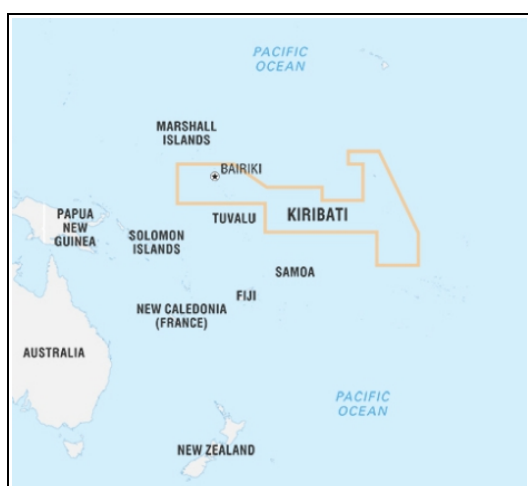


Figure 33: Kiribati. Source: www.britannica.com.

Kiribati (Figure 33) belongs to that group of SIDS located in the central Pacific ocean. It is composed of 33 islands, with a total surface reaching 811 km². Even if it does not equal the levels of Maldives or Tuvalu, it is still considered one of the lowest-lying country in the world, with a maximum peak of 81 meters above sea level²⁶⁸. Population has been increasing in the recent decades: in the 1960s, the number was around 41.234 people, while in 2015

²⁶⁶ K. Warner et al. n, *In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and Displacement*, 2009. Available at <http://www.ciesin.columbia.edu/> Accessed 10 june 2016.

²⁶⁷ Ibid.

²⁶⁸ John Campbell et al., *Climate change and migration issues in the Pacific*, 2015. Available at www.unescap.org/. Accessed 12 August 2016.

the amount registered has been 112.423²⁶⁹. Considering this huge increase in population, Kiribati is even more vulnerable to the effects of climate change. According to the estimates provided by Kiribati government, temperature, annual rainfall and sea level have been increasing in the last years. Temperatures have raised at a rate of 0.18 degree Celsius per decade, being in line with the growth rate registered at the global level. Rainfall trends have been subject to substantial variation from year to year, but a clear growth in annual and wet season rainfall has been observed²⁷⁰. It is very likely that air and sea surface temperatures will continue to rise in the future: as reported by high emissions scenarios, by 2030, temperatures growth could be in the range of 0.3-1.3 degrees Celsius for the Gilbert Islands (the western atolls of Kiribati) and of 0.4-1.2 degrees for the Phoenix (the central atolls) and Line Islands (the eastern atolls). Even if there are no certain projections about it, even rainfall patterns are expected to increase and more extreme rainfall days are probable²⁷¹. There is also great concern about sea level rise: sea level naturally fluctuates each year and decade depending on natural phenomena occurring in the area, such as El Niño-Southern Oscillation; however, ocean water warming and the melting of glaciers and ice-sheets -results of climate change- are all contributing to sea level rise. According to satellites, sea level across Kiribati has increased by 1-4 mm per year since 1993 and future scenarios are even more alarming. Sea level rise is extremely detrimental for countries like Kiribati: it affects ecosystems, including human communities and their resources. Moreover, it entails a series of adverse consequences, such as coastal erosion, severe flooding and even more extreme weather events such as cyclones. The increased acidification of ocean water is another problem, which compromises the conditions of coral reefs and thus increases the potential damage of climatic events. The risks for I-Kiribati are such that they have been described by many as “the most vulnerable of the vulnerable”²⁷². Kiribati's government is one of the few in the world to consider the relocation of its population as a concrete possibility, so that it has introduced the project “migration with dignity”. The basic idea of this initiative is that relocation is a last resort solution, but people should not be unprepared in the case there are no alternatives to the movement; the objective, indeed, is to preserve their dignity in order to minimize any possible damage for the migrants themselves but also for the host countries. The project is based on two main actions: firstly, migration will be facilitated for people who are already

269 The World Bank, Population, Total | Data. Available at <http://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed 20 August 2016.
270 Republic of Kiribati, *Changing climate* | *Climate change*, 2011. Available at <http://www.climate.gov.ki/changing-climate/>. Accessed 23 August 2016.

271 Republic of Kiribati, *Future climate* | *Climate change*, 2011. Available at <http://www.climate.gov.ki/changing-climate/>. Accessed 23 August 2016.

272 Republic of Kiribati, *A call to the world*, 2011. Available at <http://www.climate.gov.ki/changing-climate/>. Accessed 23 August 2016.

prepared to leave or are willing to do so in the near future; in this context, diaspora has a crucial role in establishing a solid community suitable for welcoming the great amount of migrants expected to move in the following decades and for sending useful remittances to those able to remain in Kiribati²⁷³. Secondly, I-Kiribati will be trained in order to achieve levels of qualification observed in receiving countries, especially New Zealand and Australia; in this way, migration would be a “win-win” situation for both parties²⁷⁴. Despite the efforts demonstrated by Kiribati's authorities, neither in this case migrants or displaced people enjoy a specific legal recognition. Kiribati is one of the countries that benefits from the Pacific Access Category granted from New Zealand, but this does not address specifically to climate migration, therefore it is useless in this sense. Nonetheless, the idea of “migrating with dignity” could be a model for other countries: it could help to open the eyes about the situation of these territories and give some instruments to manage migratory movements properly.

3.3.5 Papua New Guinea



Figure 34: Papua New Guinea. Source: www.britannica.com.

Papua New Guinea (Figure 34) is one of the largest and most populated countries among the SIDS in the Pacific: its surface is 462.840 km²²⁷⁵, while its population in 2015 was 7,619,321. The state has observed a huge demographic boom, in particular since the 1980s²⁷⁶. Although its dimensions and population are not comparable with those of other small atoll countries -such as Tuvalu, Kiribati or Maldives- Papua New Guinea is equally vulnerable to climate change effects.

Given its proximity to the equator, the country is characterized by a very volatile environment and by a large amount of natural hazards, whose frequency and intensity is typically associated to global warming trends. In particular, Papua New Guinea is affected by storms, cyclones and floods: one fifth of its land is generally hit by inundation²⁷⁷. Apart from extreme weather events, it is subject also

273 Republic of Kiribati, *Relocation*, 2011. Available at <http://www.climate.gov.ki/changing-climate/>. Accessed 23 August 2016.

274 Ibid.

275 J. C. et al., *Climate change and migration issues in the Pacific*, 2015. Available at www.unescap.org/. Accessed 12 Aug. 2016.

276 The World Bank, *Population, Total | Data*. Available at <http://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed 20 August 2016.

277 IOM, *Assessing the evidence: Migration, Environment and Climate Change in Papua New Guinea*, 2014. Available at <https://publications.iom.int>. Accessed 24 August 2016.

to slow-on-set phenomena such as sea level rise and correlated processes, first of all coastal erosion and salinization. Therefore, a substantial flow of people displaced need to be managed as a result of these disasters; some processes of relocation have been taking place in this country for years and are usually considered as real adaptive instruments in response to climate-change related events. One well-know example in this sense concerns Carteret Islands. Some sources refer to this location as the first on earth in which all residents have been relocated because of climate change and therefore they are often considered as the first official “environmental refugees”. The Carteret Islands are six islands located in the Atolls District of the Autonomous Region of Bougainville (ARB); five of them are currently uninhabited and this is not surprising considering their environmental conditions: indeed, not only the highest peak of the islands is just 1.2 meters above sea level, but their territory is also mainly composed of sand and soil and this compromises any agricultural activity. Relocation is actually part of the Carterets' history, but in the last years their case has gained more and more popularity, also thanks to the attention provided by global mass media. There is not a sole explanation for the recent resettlement of these communities and experts keep providing new insights about the possible reasons. One of these relates to sea level rise; indeed, local populations are extremely concerned about raising sea levels and fear that their homeland could disappear under the water any time soon. Sea levels around the islands have risen 10 cm in the last 20 years and some researchers claim that 60% of the atolls in the North Bougainville has been submerged²⁷⁸. Furthermore, more powerful and frequent storms have been threatening the area, leading to a substantial resettlement of the population. Another interpretation considers the lack of resources, together with economic underdevelopment and population growth as the main reasons why people have been forced to leave their homeland. In 2007, the government of Bougainville tried to clarify these dynamics, providing an official list of the principal factors inducing urgent resettlement of Carterets; among them, we actually find: sea level rise, lack of arable land and trees, undevelopment and also demographic growth. It is evident that elements of different nature are responsible for what has been happening on Carteret Islands. However, resettlement did not take place overnight, but it has been developing in various phases. Already in the 1980s, Bougainville institutions affirmed that local conditions were such that a new resettlement site was necessary. The plan was to transfer forty families immediately from the Carteret Islands, reaching the number of 120

278 International Organization for Migration, *Assessing the evidence: Migration, Environment and Climate Change in Papua New Guinea*, 2014. Available at <https://publications.iom.int>. Accessed 24 August 2016.

households resettled in the next fifteen years. Actually, the project was not very successful: many migrants found difficult to get used to the new environment and with the outbreak of the Bougainville Civil War many families decided to come back. In 2007, local authorities restated the need to resettle vulnerable communities from the atolls north-east to Bougainville, in order to improve their living conditions. The project, usually known as “Atolls Integrated Development Policy”, aims at relocating the islanders by the end of 2020, on the basis of specific criteria and with the engagement of both parts involved. Nonetheless, in 2006, many people, fearing the severe increase in sea levels and the slowness of official talks, were supported by local groups in order to migrate on a voluntary basis. The main help in this sense was offered by the so-called Council of Elders, which found a local NGO – the “Tulele Peisa”²⁷⁹ – supposed to sustain individuals and households in this difficult decision. The first movements took place in 2009. The project has a special relevance, even because it helps to understand the complications linked to communities' relocation, which are usually connected to the availability of land, money and jobs and the differences between the migrants and the host community.

The example of Carteret Islands shows the difficulty in preparing a safe and well-detailed plan of relocation able to guarantee sufficient resources and well-being to people displaced. A number of different actors and interests are involved and the necessity of connecting local and national dimensions is a crucial aspect to take into consideration at the time of these events. However, despite the obstacles, relocation could be the last and most efficient way to save a community from poverty and, in the most extreme cases, death. Moreover, these dynamics underline another important aspect: if relocation appears to be so hard within national boundaries, think about the consequences of a relocation happening in a foreign state. This is a problem to keep in mind, because many SIDS could actually need to relocate their own populations abroad and in this case the situation would be even more complicated.

²⁷⁹ International Organization for Migration, *Assessing the evidence: Migration, Environment and Climate Change in Papua New Guinea*, 2014. Available at <https://publications.iom.int>. Accessed 24 August 2016.

3.3.6 Haiti



Figure 35: Haiti. Source: www.britannica.com.

In 2014, the UN Institute for Environment and Human Security described Haiti (Figure 35) as the most vulnerable country in the Caribbean area and Latin America in terms of natural disasters; moreover, it was portrayed as the second most vulnerable on earth and as one of the first fifteen countries lacking adaptive capacity in the case of natural hazards²⁸⁰. The environmental aspect is crucial in the case of Haiti. Indeed, its economy and society are extremely dependent on natural resources and

conditions, so that any disaster has a huge destructive potential on this country. The high poverty rates of Haiti are connected to its environmental degradation and the lack of the necessary natural resources. Moreover, demographic growth adds a further pressure on this land, which leads to an over-consumption of energy²⁸¹. One of the most dramatic phenomena in Haiti is certainly deforestation: according to the estimates, in the 15th century, 85% of its territory was covered with trees; nowadays, the number has fallen to 2-4% of the land. Thus, Haiti already faces a number of risks connected to climate, with climate change representing a further challenge to front. The main effects of climate change on the island are: unstable and unpredictable weather conditions, with periods of extreme drought followed by heavy rainfall and vice versa; higher exposure and vulnerability to cyclones. 96% of Haiti populations is currently at risk and for example, in the period 2005-2015, around 4.4 millions people were affected by natural disasters²⁸². Migration and displacement are common in Haiti, but people's vulnerability towards natural disasters is alarming and it is likely to lead to massive movements. Both rapid and slow-on-set events are responsible for people's relocation. Storms and cyclones are part of the country's history, but their frequency and intensity has increased in the last years. One famous example is Hurricane Sandy, which hit Haiti in December 2012: it was the third natural disaster affecting the nation in that year, after a severe period of drought and the

280 International Organization for Migration, *Defis, Enjeux et Politiques: Migrations, Environnement et Changement Climatiques en Haïti*, 2014. Available at <https://publications.iom.int>. Accessed 24 August 2016.

281 Ibid.

282 Ibid.

tropical storm Isaac. Moreover, the country was still recovering from the terrible earthquake occurred in 2010, so that at the moment of the hurricane, thousands of people were still living in camps²⁸³. In this complex situation, institutions decided to plan preventive evacuations, with 20.000 people displaced. Despite these efforts, the hurricane had dramatic consequences on population: 3.44 million people were affected by the effects of the hurricane, together with the long-term consequences of the previous drought and the storm Isaac. All this obviously had a huge impact on people's inclination to migrate²⁸⁴.

Environmental migration is a typical response also in other cases, such as in the event of earthquakes, landslides and inundations. These phenomena have affected the agricultural, economic and health system of Haiti, thus pushing people in several cases to undertake migration. The influence of slow-on-set events on migration is actually more complex and still needs further investigation; nonetheless, many aspects can be taken into account. First of all, sea level rise, which is a common problem even for Haiti; sea levels have increased, on average, 1.8 millimeters each year, with serious consequences concerning flooding and coastal erosion²⁸⁵. Sea level rise has also affected coral reefs, so that human activities as fishing have been highly damaged; in this case, the authorities are supposed to intervene in order to relocate the most vulnerable communities²⁸⁶. Other problems concern the increase in temperatures and salinization, which have huge impact on special ecosystems such as mangroves and coral reefs. Fishing is extremely vulnerable in this sense and given that it is at the basis of the Haitian food supply, there are massive risks also for people's food security. Even in this case, a response can be migration, especially if environmental problems concern small vulnerable communities, whose survival is based on fishing. Finally, desertification is another major issue in the country: long and severe periods of drought and the degradation of the hydrographic system are responsible for this phenomenon. Usually, droughts affect all national territory and this provokes seasonal migration, especially on the part of farmers, who migrate to close territories to find work. Together with the massive deforestation that is occurring, desertification could turn Haiti into a real desert in the next fifty years.

Even urban areas are extremely vulnerable, considering their geographical position, but especially the rural exodus headed to cities that has been occurring in recent years. The

283 International Organization for Migration, *Defis, Enjeux et Politiques: Migrations, Environnement et Changement Climatiques en Haïti*, 2014. Available at <https://publications.iom.int>. Accessed 24 August 2016.

284 Ibid.

285 Ibid.

286 Ibid.

main cities are coastal, so that they are more exposed to sea level rise, flooding and storms; however, people keep migrating in urban areas, because they are considered safer and richer than rural territories, so that they hope to find better job opportunities and better living conditions. Actually, this is not always the case: many migrants end up settling in areas exposed to pollution and environmental problems, with high risks for their health. Similar outcomes are common, especially if migrants are not supported in their movement and are forced to settle wherever they manage to.

3.4 The American continent

Climate-induced migration and displacement do not spare even such a big continent as the American one. Increase in regional temperatures, sea level rise and extreme weather events already caused relevant relocation and migration movements in the past and they are expected to do it even more in the following decades. This section will focus particularly on two territories: the United States and Central and Southern America.

3.4.1 The United States: the cases of New Orleans and the Newtok Village (Alaska)

Recently, NASA has listed the main effects of climate change observed in the United States²⁸⁷. The predominant shifts concern three fields; first of all, precipitations: the amount of rainfall fallen over the country has been increasing since 1900, but rainfall patterns have also become more and more variable in the last years. The second field regards droughts: these phenomena are particularly severe especially in the Southwest and central plains of the US and will probably raise in intensity together with heat waves. Some experts affirm that, by the end of the century, what have been once-in-a-20-years extreme heat days could occur instead every two or three years over most of the nation.

One of the worst drought affecting this country took place in the 1930s, in the period of the Great Depression; this event was one the main displacing-drought in the history of the United States. The areas affected were the North American Great Plains, extending not only in the US, but also in Canada. In the years before the Great Depression, the American and Canadian institutions pushed people to move to these territories and try to

287 NASA, *Climate Change: Vital Signs of the Planet – Effects*, 2016. Available at <http://climate.nasa.gov/effects/>. Accessed 04 September 2016.

find a job in the agricultural sector; therefore, in the 1930s, the area was much more populated than in the previous decades. However, with the Great Depression and then with the severe droughts that started hitting the Plains, many people found themselves in extremely difficult situations: even if droughts were not rare in this territory, many of the inhabitants were experiencing them for the first time and were incapable to face their effects. By the mid-1930s, a lot of people started to abandon their houses and farms, lacking adaptation measures, financial assets and instruments to overcome that period remaining in the plains. Kansas, Nebraska, Oklahoma, North and South Dakota all experienced huge out-migration and consequently net population losses²⁸⁸. In this case, permanent migration was the preferred strategy and involved entire households.

Droughts are highly detrimental and they are also one of the major causes of reduced soil moisture mainly in the western and central part of the US.

Finally, the frequency and intensity of hurricanes need to be considered; these have been increasing since the 1980s, with more hurricanes of category 4 or 5 taking place²⁸⁹. Even if a growth in the power and recurrence of hurricanes is very likely in the future, there are still controversies around the cause of these shifts and the real responsibility of climate change in this process. Despite disputation, hurricanes and correlated storms are with no doubts some of the events causing the highest number of displaced people in the US, with Hurricane Katrina being one of the most dramatic examples in this sense.

Hurricane Katrina hit the Gulf of Mexico coast of the US in August 2005. During the emergency, around 1.800 people were killed and one million were evacuated or displaced, half of them just from the area of New Orleans; 200.000 houses were destroyed or severely damaged only in Louisiana. At the end of the emergency, the total damage registered in New Orleans reached US\$23 billion²⁹⁰. Before Katrina, New Orleans was not “new” to extreme weather events and flooding: nonetheless, with the expansion of the city over the years, natural protection was reduced, leaving New Orleans much more exposed to adverse environmental conditions. Hurricane Katrina shifted from being a 5-category hurricane to a 3-category one during its journey; however, it was not the power of the wind the main destructive force in the city: instead, the consequent heavy rains and the massive storm surge were the main responsible of the destruction. In some points, the coast was inundated reaching a level of nine meters; the water was drained only forty days after the

288 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 171.

289 NASA, *Climate Change: Vital Signs of the Planet – Effects*, 2016. Available at <http://climate.nasa.gov/effects/>. Accessed 04 September 2016.

290 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 95.

storm. Before the actual outbreak of Katrina, local institutions insisted on evacuating as many people as possible; 70% of those living in New Orleans were actually resettled, while the rest (approximately 100.000 people) remained stuck in the city, because they lack a shelter or the financial and social capital to move. After the hurricane, 40% of those evacuated were settled in private houses, while 50% of them were located in commercial accommodations or temporary shelters²⁹¹. These ones were mainly occupied by African Americans, who were the most vulnerable to the consequences of the hurricane considering their economic status. The displacement and relocation following Katrina changed completely the profile of New Orleans: the population was less numerous than before, because many people decided not to return there; it is possible to say that Katrina somehow exacerbated out-migration pressures in the city. Those less likely to return were mainly African Americans: the percentage of those settled in New Orleans shifted from 68% before the disaster to 59% after it. This trend was mainly related to the socio-economic conditions differentiating the various communities present in the town at the time of Katrina. Indeed, white people were usually those having higher economic and social capital and their houses were often less damaged because better built. On the other hand, many African Americans did not own the places where they lived or possessed low-quality buildings, more exposed to the violence of the hurricane²⁹², so that they did not have place to which return. Other changes in the population concerned people's average age and the characteristics of the households: the population was 6-year-older after the disaster and households, if able to reunite, were made up of much more people than before. Some communities, despite a general marginalization suffered in the eve of Katrina, were actually able to return to New Orleans thanks to their social capital – as in the case of the Vietnamese community – or as laborers to contribute to the reconstruction – as the Latinos²⁹³. There are some crucial lessons to learn from how New Orleans reacted to Katrina: firstly, the fact that damage to housing is one of the main determinants in people's decision to return or to move; secondly, that the role of institutions is fundamental with regards to citizens' capacity to face environmental disasters; and finally, that social capital and job opportunities can actually foment the return to the original land, even if this is severely damaged.

Certain areas in the US are also exposed to the negative effects of sea level rise and ice-sheets melting, and their inhabitants are at risk of being completely displaced by the end of

291 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 96-97.

292 Ibid, page 98.

293 Ibid, page 101-102.

the century; one example in this sense is the small village of Newtok, located in the western coast of Alaska (Figure 36). The town is close to two rivers, the Newtok and the Ninglick: in 1996, actually, the latter swallowed the Newtok river, in this way worsening one of the major problem of the village: erosion.

The level of erosion reached by Newtok in the last years has never been observed before and, together with other environmental problems such as flooding, glaciers melting and sea level rise, it risks to destroy an entire community. Newtok sits mainly on permafrost, which is melting with the increase in temperature registered in the Arctic. Temperatures have raised so much that the in the last fifty years the average temperature in winter has increased of 6.3 degrees²⁹⁴.



Figure 36: the village of Newtok. Source: google: <http://images.google.com/>.

As a matter of fact, Newtok is very vulnerable: its buildings and infrastructures are made just with wood, therefore their resistance can be tested harshly; moreover, it is extremely isolated: in 2005, a huge storm transformed the village practically into an island²⁹⁵. Considering the high risks to which Newtok is submitted, in the 1990s its community voted in favor of its relocation. This was a tough choice to made, considering that the inhabitants of Newtok are mainly fishermen or hunters, not used to migrate or to leave their homeland. However, the exile seems more and more probable and people want to be prepared in the case the situation gets worst. Some families have already been relocated, but the path is very complex; first of all, in economic terms: the relocation of an entire village is extremely expensive, and so finding funds for it. Moreover, Newtok has extremely peculiar culture and customs, so that the integration in a new community can be particularly difficult for both the receiving country and the relocated people. In this atmosphere of stagnation, Newtok is left alone and is falling apart. What many people in the village blame to the high offices is that they prefer the tactic of “we will rebuild” rather than that of prevention²⁹⁶; and this could be the worst strategy, especially in a case as the Newtok one, where in the future there could be nothing left to save or rebuild.

²⁹⁴ The Atlantic, *The village that will be slept away*, 2015. Available at <http://www.theatlantic.com/business/archive/2015/08/alaska-village-climate-change/402604/>.

²⁹⁵ Ibid.

²⁹⁶ Ibid.

3.4.2 Central and South America: the case of Hurricane Mitch and the challenges of Mexico and Brazil

Aridity, droughts and land degradation are the main factors that are currently testing Latin America from an environmental, social and economic point of view. A substantial level of aridity has been observed in various areas of Brazil, Argentina, Chile and Peru, and this problem is increasing over time. Aridity, together with severe periods of drought, is contributing to a deep land degradation in these countries; and this phenomenon has repercussions on a number of fields: agriculture, the quality and quantity of water sources, social costs, costs of production, resistance of territories in time of environmental disasters, land productivity and also poverty. This process could cause economic losses in the amount of US\$27 billion per year²⁹⁷. The areas spreading near the Andes are particularly at risk of degradation also due to the phenomenon of El Niño, which is intensifying drought (reducing the availability of food and water), and which is provoking more and more strong flooding. In Latin America, environmental, social and economic factors create a sort of vicious cycle: droughts and land degradation increase the level of poverty in many countries, but poverty itself, together with raising pressure over resources are contributing even more to deteriorating lands.

Desertification and land degradation are already fostering rural-to-urban migration in many areas of Latin America, even if the correlation between environmental factors and migration in this region is a subject that still needs more investigation on the part of the experts. Nonetheless, many researchers agree in considering land degradation as a crucial element in the decision process pushing people to migrate. For example, migrants moving from Ecuador to Spain affirmed that economic reasons were at the basis of their decision, but also the environmental conditions of their land contributed to the final call²⁹⁸. The fact that cities are usually the favorite destination is somehow alarming, considering that many urban areas in South America are actually vulnerable and exposed to a number of environmental problems, so that migrants do not necessarily found a safer shelter when moving from their original land.

In certain areas, such as in Potosí Norte and San Julián (Bolivia), internal temporary migration is a widespread practice, which many people choose in order to help their households to overcome difficult periods with regards to agricultural production.

297 IOM, *Migración, Desertificación, Degradación de Tierras, Sequía y Cambio Climático en América del Sur*, 2015. Available at <http://argentina.iom.int/ro/migracion-medio-ambiente-y-cambio-climatico>. Accessed 12 August 2016.

298 Ibid.

Actually, migration is not an automatic process: it needs social and economic capital, which is not always available, especially in the case of the poorest and the most marginalized people. Indeed, Latin America may experience an increase in the number of people trapped in dry territories without the necessary freshwater or food; differently from extreme weather events, which mobilize institutions and organizations immediately, slow-on-set phenomena like droughts barely raise public attention. However, the situation is expected to be even worse in the long term, so that these people need assistance in finding adequate adaptation measure -even a conscious relocation could work in this case- to oppose the effects of desertification and land degradation. Some steps forward have been made in the last years, for instance in the case of Brazil. This country has been experiencing, since the 16th century, more and more droughts, in particular in the North-East²⁹⁹; these events have contributed in pushing local populations to move towards the coast and to leave their original homes. The area is actually “used” to seasonal droughts, but the current problem is represented by “unexpected” droughts, occurring in unusual periods of the year. These dynamics produce dramatic consequences on water availability, agriculture, animal stocks and obviously food security; the uncertainty surrounding the future of local communities may be determinant in the decision to migrate. In order to face the problem of desertification, the Brazilian government ratified in 1997 the UN Convention to Combat Desertification and in 2004 it introduced the National Action Program to Combat Desertification and Mitigate the Effects of Drought, also known as PAN-Brazil³⁰⁰. Despite the efforts, the country is now facing an enormous challenge, in order to protect local people forced to migrate due to droughts. Moreover, many migrants are now moving to cities, where new issues are waiting for them: for instance, those settled in the “favelas” of Rio de Janeiro are highly exposed to landslides and floods, so that they are not much safer than at the beginning of their journey.

Also Mexico lies in difficult environmental conditions: hurricanes, sea level rise and droughts are all urgent problems for this country. Some of the most severe hurricanes hit Mexico in the recent years (for instance Hurricane Mitch in 1998 and Hurricane Stan in 2005) and sea level rise is threatening many low-lying territories in the Gulf Coast and the Caribbean³⁰¹. Land degradation and desertification are similarly major challenges: as a matter of fact, more than 60% of Mexican lands are considered to be in a severe state of

299 M. Gubbiotti et al., *Profughi Ambientali: Cambiamento Climatico e Migrazioni Forzate*, 2012. Available at http://www.legambiente.it/sites/default/files/docs/dossierprofughi_ambientali.pdf. Accessed 22 June 2016.

300 Ibid.

301 K. Warner et al. n, *In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and Displacement*, 2009. Available at <http://www.ciesin.columbia.edu/>. Accessed 10 June 2016.

erosion³⁰². As mass media show, migration is a common practice in Mexico, both internally and internationally; however, in the case of climate-induced migration, the possibility to leave is possible just for people having the necessary economic and social capital to bear the costs of the journey. For this reason, many decide to follow the path of seasonal and temporary migration, which they carry out in periods of stress, such as during severe droughts and when crops productivity is particularly low. The choice to migrate seasonally, after sending significant remittances to their own families, is a concrete example of migration as an adaptation strategy in the case of deteriorating environmental conditions³⁰³.

As I previously mentioned, even hurricanes represent a great challenge, especially in Central America. Displacement, relocation and migration all play a huge role when such events take place. An interesting case study in this sense is Hurricane Mitch. Hurricane Mitch hit Central America in October 1998; it was a 5-category hurricane, moving particularly slowing in the area. It is generally portrayed as one of the deadliest hurricanes in the history of the Caribbean, with around 17.000 people found dead just in Honduras³⁰⁴. Only in this country, 12.000 people were injured and 600.000 were displaced; infrastructures and crops were severely damaged. Experts believe that Hurricane Mitch provoked such damage because deforestation had destroyed important natural protections. The event highlighted the conditions of poverty and the lack of proactive adaptation that characterized these countries: indeed, the main affected by the destruction caused by the hurricane were rural poor people. In the aftermath of the hurricane, migration became a key form of adaptation; levels of internal, intra-regional and international migration all increased in the period after the disaster. The main destinations were the United States and Costa Rica, even if in the first case, much more money were needed to sustain the costs of the movement. Given the high amount of people who entered the country illegally in the months after Mitch, the American government made a particular move and decided to implement the so-called "Temporary Protected Status"³⁰⁵ in favor of El Salvadoran, Guatemalan, Honduran and Nicaraguan citizens.

What the case of Hurricane Mitch underlines is the importance of having good social and economic capital: indeed, those with limited financial assets and social connections found more difficult to organize long-distance permanent migration; for them the best option

302 K. Warner et al. n, *In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and Displacement*, 2009. Available at <http://www.ciesin.columbia.edu/>. Accessed 10 June 2016.

303 Ibid.

304 Robert A. McLeman, *Climate and Human Migration: Past Experiences, Future Challenges*, Cambridge, Cambridge University Press, 2014, page 104.

305 Ibid, page 107.

turned to be internal temporary migration. Migration to foreign destinations, first of all the United States, was not possible for anyone, given the high costs that it entailed. Therefore, it should be evident that a single event like Hurricane Mitch produces a number of different outcomes in terms of migration, depending on the social-economic composition of the population.

3.5 The Mediterranean area: current and future complications

At the present time, the Mediterranean is one of the main subjects recurring in mass media; however, the environmental adversities of this area are rarely discussed. Indeed, the Mediterranean is commonly known for the number of ongoing conflicts and socio-politic crises and for being a major pole of interest with regards to hydrocarbons, rather than for its environmental characteristics. Nonetheless, there are several aspects that are putting pressure on the Mediterranean environment. First of all, demographic growth: the population of this region has doubled since the 19th century and this means that more resources are necessary for the sustenance of this people. Secondly, the area is highly subject to pollution, both due to industrial discharge and to the increase in maritime transports; together with pollution, also an unsustainable use of energy has been taking place in recent years, thus compromising the amount of resources available in the area. For instance, a substantial deficit of freshwater has already been experienced in many countries of the Mediterranean³⁰⁶. One last problem concerns urbanization, which is growing at a faster pace, in this way increasing the expansion of many urban areas.

In the context of climate change, two major problems are affecting the Mediterranean and are expected to become even more severe in the future. One is sea level rise: in territories within 10 meters above sea level, flooding can be much stronger due to this phenomenon and it may affect entire communities. 33 million people living in the so-called MENA (Middle East and North Africa) are potentially exposed to these risks³⁰⁷. Sea level rise is damaging also because it causes saline water intrusion and decreases the availability of fresh water in the area; this, together with the unequal distribution of water typical of this land, can seriously compromise many lives.

Not only sea level rise, but also desertification represents an important threat to the Mediterranean; apart from the region of MENA, also other countries -such as Spain,

306 M. Gubbiotti et al., *Profughi Ambientali: Cambiamento Climatico e Migrazioni Forzate*, 2013. Available at http://www.legambiente.it/sites/default/files/docs/dossier_profughi_ambientali_2.pdf. Accessed 22 June 2016.

307 Ibid.

Portugal, Italy and Greece- can be severely affected by this phenomenon in the future. Desertification is associated with a number of factors, one being the growth in temperature: in the period 1970-2004, the Mediterranean has registered an increasing warming and, consequently, a decrease in precipitations, which have raised the levels of water stress in many countries. Actually, in the area of MENA just five countries lie above the level of water stress (that is defined as possessing more than 1600 m³ of renewable freshwater per year per capita) and these are Iran, Iraq, Sudan, Turkey and Mauritania³⁰⁸. Given the climate of political uncertainty of many Mediterranean countries, the likelihood of future “resource wars” is very high; in particular, water is expected to become one of the most disputed objects in this frame.

The Nile delta summarizes in itself all the previous considerations. This territory is highly exposed both to sea level rise and desertification: sea level rise could actually affect an additional 16% of the population and push people towards different and more concentrated areas³⁰⁹. Moreover, 800.000 hectares of this region are likely to become simply sand dunes, that is desert. Desertification, together with land degradation, has already driven some people to migrate in search of alternative livelihoods. Attempting to relief the most vulnerable communities from the problems related to desertification (but also poverty and overpopulation) the government of Egypt proposed an internal migration scheme linked to Mubarak National Project in the Western and Eastern Delta³¹⁰. The idea was to relocate some people from urban areas to rural ones towards the edges of the Delta, giving them a specific land parcel from which they could obtain the necessary resources. However, the project was not very successful: many landowners found themselves unable to bear the costs of their lands and decided to sell them; furthermore, initial investments granted to poor people to migrate started to disappear, declaring the end of this initiative.

Apart from the scarce solidity of governmental plans, another obstacle to migration is the resistance of people; indeed, many of them actually oppose to the possibility of leaving their land of origin, due to cultural and sentimental reasons. As a matter of fact, many households have inherited their lands from their ancestors and do not want to give up: one interviewee of EACH-FOR project has recently affirmed that the only thing communities can do is “to economize [...] consumption and hope that things will get better”³¹¹.

308 M. Gubbiotti et al., *Profughi Ambientali: Cambiamento Climatico e Migrazioni Forzate*, 2013. Available at http://www.legambiente.it/sites/default/files/docs/dossier_profughi_ambientali_2.pdf. Accessed 22 june 2016.

309 K. Warner et al. n, *In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and Displacement*, 2009. Available at <http://www.ciesin.columbia.edu/>. Accessed 10 june 2016.

310 Ibid.

311 Ibid.

Conclusion

According to the previous considerations, no place is completely immune to the effects of climate change. If we listen to the most negative scenarios, every part of the world will be affected by at least a consequence of global warming and it is just a matter of time before humanity has reached the limit. However, even the most naive perspectives raise the idea that nobody is really safe. Omitting for a moment scaremongering, the problem is that climate change and its consequences should not be ignored when talking about the future of men; indeed, it is extremely likely that climate change will modify some aspects of the planet and people will be forced to face and live with these new features. Higher temperatures, severe extreme weather events, sea level rise, changes in the ecosystems are all part of what current scenarios portray at the present time and what will probably take place in the future.

Moreover, further attention and investigation are required with reference to the link between climate-change effects and migration/displacement. As I previously explained, climate change has the potential to influence -mainly indirectly- drivers of migration and displacement, thus contributing to new (or renewed) resettlement. With the expected increase in the amount of natural disasters, there will be more and more people displaced or deciding to migrate: what they need is consideration and a precise classification. Until the phenomenon of environmental refugees is not defined in all its possible dimensions and until the international community do not agree even on a common name for them, it is impossible to think about a complete legal protection and to plan a correct management of their flows. The key word in this sense is "prevention": instead of acting after catastrophes and after reaching the maximum tolerance level, it could be useful to think about proactive strategies. These initiatives may range from in situ adaptation programs -tough infrastructures, late technology and so on- to the conscious relocation of communities. One of the major challenges in this sense is preventing forced displacement and irrational relocation; on the contrary, well-planned migration should be promoted. Knowing exactly the safest destinations and how to carry the relocation out could help reducing the number of people moving to even more dangerous areas being unaware of their real risks. In this sense, relocation would not be a reaction to adverse environmental conditions or simply an emergency response, but a real adaptation measure, to plan through the mediation between people who needs to be resettled and institutions. Programs based just on abstract considerations and neglecting the opinion and the needs of local populations are

usually expected to fail.

Some areas already need this type of programs: Asia, Africa and Small Island Developing Countries are the most vulnerable in the context of climate change; therefore, they could become very soon some of the main sources of environmental refugees on earth. In order to avoid such a result, prevention is essential. People should not be left alone in deciding if they should move or not from their homeland: they need to be informed about the dangers to which they are exposed and about the possible adaptation strategies to cope with these threats.

Obviously, this is a massive project to promote and not all communities possess the necessary economic, social and political instruments to organize things in this way. However, if this idea is applied gradually, including local, national and international realities, it could be realized more easily. Furthermore, more actors should be involved: not only governments, but also international organizations, NGOs, local groups and both public and private sectors. The objective is strengthening cooperation and facilitating the exchange of information among these agencies. These aspects are at the basis of a good strategy to protect and manage the reality represented by environmental refugees.

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