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**HOW DOES THE SWISS
ENVIRONMENTAL POLICY SHAPE ITS
ROLE IN INTERNATIONAL
SUSTAINABILITY NEGOTIATIONS**

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LIST OF ABBREVIATIONS

CBD	Convention on Biological Diversity
CIA	Climate and Innovation Act
EAA	European Accounting Association
EU	European Union
FDFA	Federal Department of Foreign Affairs
FOEN	Federal Office for the Environment
IEA	International Environmental Agreement
IPCC	Intergovernmental Panel on Climate Change
NATO	North Atlantic Treaty Organization
NDC	Nationally Determined Contributions
OSCE	Organization for Security and Co-operation in Europe
PfP	Partnership for Peace
SDC	State Secretariat for Development and Cooperation
SDS	Sustainable Development Strategy
UNCED	United Nations Conference on Environment and Development
CCPI	Climate Change Performance Index (CCPI)

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Riassunto in Italiano

La tesi analizza il modo in cui la politica ambientale interna svizzera contribuisce a definire e a rafforzare il ruolo del paese nelle negoziazioni internazionali sulla sostenibilità. Partendo dall'identità politica della Svizzera, in particolar modo dal principio di neutralità, questo studio mostra come tale caratteristica, insieme ad un solido quadro istituzionale, consenta al paese di esercitare un'influenza significativa nei dibattiti internazionali sulla governance ambientale globale. L'analisi combina politica estera con diritto ambientale internazionale e politiche climatiche, evidenziando come la Svizzera agisca da mediatore affidabile, essendo promotore e sostenitore di meccanismi basati su evidenze scientifiche. Come dimostrato, la coerenza tra politiche domestiche e impegni internazionali costituisce la sua principale fonte di legittimità nel campo della sostenibilità. Il primo capitolo fornisce un quadro concettuale e storico affinché si possa comprendere il ruolo svizzero nella governance ambientale internazionale. Al centro dell'analisi vi è il principio di neutralità, il quale rappresenta uno degli elementi fondamentali dell'identità politica svizzera e che influenza profondamente il suo posizionamento internazionale. La neutralità svizzera emerge come risposta storica alle dinamiche di potere europee a partire dal sedicesimo secolo, trovando riconoscimento formale nel Congresso di Vienna del 1815. Nel corso dei secoli questo principio ha garantito alla Confederazione di sopravvivere come uno Stato indipendente in un contesto storico caratterizzato da conflitti ricorrenti tra le maggiori potenze dell'epoca. Tuttavia, la neutralità non deve essere intesa come isolamento, ma al contrario si è progressivamente trasformata in uno strumento di potere persuasivo, in grado di accrescere la credibilità della Svizzera come attore imparziale e affidabile. Durante il ventesimo secolo, in particolare nel secondo dopoguerra, la Svizzera ha adottato un'interpretazione prudente della neutralità, evitando quindi l'adesione a organizzazioni politiche e militari. Tuttavia, le trasformazioni del sistema internazionale e la crescente interdipendenza economica hanno progressivamente spinto il Paese verso una partecipazione più attiva alle istituzioni internazionali. L'adesione al Consiglio d'Europa, all'OSCE e successivamente alle Nazioni Unite testimonia questa evoluzione. Un elemento centrale sottolineato nel primo capitolo è il rapporto tra la neutralità e il sistema di sicurezza collettiva delle Nazioni Unite. Sebbene il concetto tradizionale di neutralità sembri entrare in collisione con l'obbligo di solidarietà previsto dal sistema ONU, l'analisi dimostra come i due approcci possano essere considerati complementari. La Svizzera, infatti, sostiene le sanzioni non militari adottate dal Consiglio di Sicurezza, interpretandole non come atti belligeranti, ma come strumenti di difesa collettiva del diritto internazionale. Nel capitolo viene evidenziato inoltre il ruolo della Svizzera come mediatrice nei conflitti internazionali. Sebbene questo ruolo sia diminuito rispetto al passato, esso rimane centrale nella sua politica estera, soprattutto in ambiti

quali la diplomazia umanitaria e ambientale. La sua posizione geografica, l'elevato livello di sviluppo e la fiducia dei proprio cittadini nelle istituzioni conferiscono alla Svizzera una posizione privilegiata nel contribuire alla governance globale. Anziché essere un limite, la neutralità va intesa come risorsa strategica per il contributo del Paese a livello internazionale, in particolar modo nei settori caratterizzati da forte conflittualità politica come la sostenibilità ambientale. Nel secondo capitolo viene analizzato l'impegno concreto della Svizzera nei principali fora internazionali dedicati all'ambiente e al clima. Dall'evoluzione del diritto ambientale internazionale, il secondo capitolo colloca l'azione svizzera all'interno di una trasformazione più ampia della governance ambientale globale. Analizzando gli accordi ambientali internazionali, si evidenziano le difficoltà strutturali della cooperazione tra Stati in presenza di problemi ambientali transfrontalieri. Attraverso il riferimento alla letteratura teorica, citando il professor Scott Barrett per esempio, il secondo capitolo illustra le principali fasi del processo di negoziazione dei trattati ambientali e delle dinamiche strategiche che lo caratterizzano. In questo contesto la Svizzera emerge come un attore particolarmente attivo nella fase di pre-negoziazione grazie alla sua capacità di costruire coalizioni, facilitare il dialogo e promuovere soluzioni basate su evidenze scientifiche. In tal senso, il Paese si distingue per il suo approccio pragmatico e orientato al consenso. In particolare, l'attenzione è rivolta alla transizione concettuale dal concetto di "sostenibilità" a quello di "cambiamento climatico". Storicamente, a partire dal Rapporto Brundtland del 1987, la governance ambientale internazionale ha progressivamente riconosciuto la natura sistemica e planetaria delle crisi ecologiche. La Svizzera ha accompagnato e sostenuto questo progresso, contribuendo attivamente ai processi avviati dalla Conferenza di Rio del 1992. Il ruolo svizzero nei negoziati ha contribuito significativamente all'adozione della Convenzione quadro delle Nazioni Unite sui cambiamenti climatici, anche chiamata UNFCCC. Questo contributo è un esempio emblematico di un'efficace diplomazia ambientale, in cui il Paese ha svolto una funzione chiave di mediazione, favorendo compromessi tra paesi industrializzati e paesi in via di sviluppo e impegnandosi nella riduzione delle emissioni. Il secondo capitolo, inoltre, esamina la partecipazione della Svizzera ai successivi accordi climatici dal Protocollo di Kyoto all'Accordo di Parigi, evidenziando una coerenza tra gli impegni internazionali e le sue politiche nazionali. Il Paese si distingue per il sostegno a meccanismi di mercato, alla cooperazione internazionale e al rafforzamento delle capacità dei paesi più vulnerabili. Un ulteriore ambito di intervento è rappresentato dal commercio internazionale e il suo ruolo nell'Organizzazione Mondiale del Commercio, poiché il Paese promuove l'integrazione tra politiche commerciali e ambientali; sostenendo la compatibilità tra liberalizzazione degli scambi e protezione dell'ambiente. Complessivamente, il capitolo mostra come la credibilità istituzionale, la competenza tecnica e la tradizione siano utilizzati per esercitare influenza nei fora internazionali sull'ambiente, pur rimanendo un attore di piccole-medie dimensioni. Il terzo capitolo analizza il quadro normativo e

istituzionale della politica ambientale svizzera, evidenziando come esso costituisca la base della credibilità internazionale del Paese. Il tema centrale è che l'efficacia dell'azione svizzera nei negoziati internazionali non derivi esclusivamente dalla neutralità o dalla tradizione di accordi multilaterali, ma dalla coerenza tra impegni esteri e corrette politiche domestiche. La Svizzera dispone di un quadro normativo ambientale particolarmente articolato, che si è sviluppato progressivamente a partire dagli anni Settanta, in risposta alla crescente sensibilità ambientale della popolazione, così come all'emergere di problemi ambientali transfrontalieri. Il sistema è caratterizzato da una forte integrazione tra federazione, cantoni e comuni; riflettendo la struttura federalista dello Stato e consentendo flessibilità nell'implementare le sue politiche, pur mantenendo obiettivi comuni a livello nazionale. Al centro di questo sistema si colloca l'Ufficio federale dell'ambiente, che svolge un ruolo di coordinamento, monitoraggio e proposta normativa. L'Ufficio collabora con altri dipartimenti federali, in particolare con quelli competenti per l'energia, l'economia e gli affari esteri, affinché sia assicurata l'integrazione ambientale nelle politiche pubbliche. Questa integrazione intersettoriale rappresenta uno dei punti di forza del modello svizzero, poiché evita una visione frammentata della sostenibilità. La legislazione rappresenta un pilastro fondamentale della politica ambientale svizzera. La Legge federale sulla protezione dell'ambiente stabilisce principi chiave, come il principio di prevenzione, il principio di precauzione e il principio di "chi inquina paga". Questi principi si traducono in strumenti concreti, tra cui standard di emissione, sistemi di autorizzazione e meccanismi fiscali. Soprattutto, l'uso di strumenti economici è coerente con l'approccio svizzero orientato all'efficienza e alla responsabilizzazione degli attori economici. La Legge sul CO₂ costituisce uno degli strumenti più importanti nel contesto della politica climatica. Essa mira a ridurre le emissioni di gas serra attraverso la combinazione di obiettivi giuridicamente vincolanti e incentivi economici. La tassa sul CO₂, applicata ai combustibili fossili, rappresenta un esempio emblematico di politica basata sul mercato e che mira a internalizzare i costi ambientali senza imporre rigidi divieti. Parte delle entrate generate viene redistribuita alla popolazione e alle imprese, rafforzando così il consenso della misura. Inoltre, la Svizzera ha sviluppato anche strategie di lungo periodo che forniscono un quadro di riferimento per l'azione pubblica. La Strategia per lo sviluppo sostenibile definisce obiettivi trasversali, che integrano dimensioni ambientali, economiche e sociali. Essa è aggiornata periodicamente e funge da strumento di coordinamento tra i diversi dipartimenti federali. Essa riflette un approccio sistematico alla sostenibilità in maniera coerente con le agende internazionali, come l'Agenda 2030 delle Nazioni Unite. Un ruolo centrale è svolto dalla Strategia energetica 2050, rappresentante della risposta Svizzera alle sfide della transizione energetica e climatica. Questa strategia prevede l'uscita graduale dal nucleare, l'aumento della quota di energie rinnovabili, il miglioramento dell'efficienza energetica e la riduzione delle emissioni di gas serra. La scelta di combinare sicurezza energetica e sostenibilità ambientale riflette la consapevolezza che la politica climatica

non può essere separata dalle esigenze economiche e sociali. Un elemento distintivo della politica ambientale svizzera è il suo investimento in ricerca, innovazione e tecnologie ecosostenibili. Questo orientamento non solo contribuisce alla transizione ecologica interna, ma rafforza anche la capacità della Svizzera di esportare soluzioni sostenibili e di essere un modello per gli altri paesi. Il Paese figura tra i leader mondiali per la spesa in ricerca e sviluppo, con un ecosistema che coinvolge università, istituti di ricerca, imprese e startup. Questo orientamento assume particolare rilevanza nel contesto della diplomazia ambientale, dove la capacità di offrire soluzioni concrete rafforza la credibilità negoziale. In aggiunta, la Direzione dello Sviluppo e della Cooperazione integra i suoi obiettivi ambientali nelle politiche di cooperazione internazionale, rafforzando così il nesso tra sostenibilità, sviluppo e politica estera. Attraverso progetti mirati, la Svizzera sostiene la resilienza climatica, la gestione sostenibile delle risorse naturali e la diffusione di tecnologie pulite nei Paesi in via di sviluppo. Questo approccio evidenzia come la sostenibilità sia concepita come un bene pubblico globale. In sostanza, si evince che la politica ambientale interna non sia un ambito separato dalla politica estera, ma ne costituisca una componente essenziale. La coerenza, la stabilità istituzionale e l'orientamento all'innovazione rappresentano i principali fattori che consentono alla Svizzera di esercitare un ruolo attivo e credibile nei negoziati internazionali sulla sostenibilità. Il quarto capitolo rappresenta il punto focale dell'analisi, poiché esplora il legame tra la politica ambientale interna e il ruolo internazionale della Svizzera. L'argomento centrale è la coerenza di questo legame, essendo fonte di legittimità e influenza nelle negoziazioni globali. Le politiche domestiche fungono da laboratorio per soluzioni che possono essere successivamente promosse a livello internazionale. Attraverso il trasferimento di tecnologie, competenze e finanziamenti, la Svizzera contribuisce attivamente alla diffusione di pratiche sostenibili, dimostrando così la fattibilità di politiche climatiche ambiziose in un'economia avanzata. Questo approccio rafforza la posizione negoziale del Paese, consentendogli di sostenere obiettivi ambiziosi senza apparire incoerente. Un aspetto centrale riguarda il modello in cui la Confederazione utilizza la propria esperienza domestica per sostenere meccanismi di cooperazione internazionale. Il Paese promuove strumenti di mercato, quali meccanismi di scambio delle emissioni e le cooperazioni bilaterali previste dall'Accordo di Parigi. Tali strumenti riflettono l'approccio pragmatico svizzero, orientato all'efficienza economica e alla flessibilità. Entrambi gli aspetti sono coerenti con le politiche interne basate su incentivi piuttosto che su rigide imposizioni. La Svizzera svolge un ruolo attivo nell'esportazione della sostenibilità, attraverso il trasferimento di tecnologie, competenze e risorse finanziarie. Questo avviene sia tramite canali bilaterali sia attraverso organizzazioni multilaterali. La cooperazione tecnica e finanziaria rafforza la capacità dei paesi partner di implementare politiche ambientali efficaci, contribuendo al raggiungimento degli obiettivi globali ambientali. Il capitolo analizza inoltre il ruolo delle istituzioni finanziarie e del settore privato. In quanto centro finanziario globale, il Paese è chiamato a confrontarsi con le

sfide della finanza sostenibile. Le politiche volte a orientare i flussi finanziari verso investimenti compatibili con gli obiettivi climatici rappresentano un'area in cui la coerenza tra politiche interne e impegni internazionali risulta particolarmente complessa. La tesi evidenzia come, nonostante i progressi, permangono tensioni tra interessi economici e obiettivi ambientali. Il quarto capitolo, tuttavia, sottolinea i limiti del modello svizzero. Le dimensioni ridotte del Paese implicano una capacità di impatto diretto limitata sulle emissioni globali. Inoltre, la dipendenza economica dalle esportazioni e dall'integrazione nei mercati internazionali rende la Svizzera vulnerabile a dinamiche esterne. Il capitolo sottolinea anche come queste limitazioni richiedano una strategia orientata alla cooperazione al multilateralismo, piuttosto che ad un'azione unilaterale. Nonostante tali limiti, il Paese riesce a mantenere un ruolo rilevante grazie alla sua capacità di mediazione e alla reputazione di attore affidabile. La neutralità, combinata con una solida base domestica, consente al Paese di fungere da ponte tra stati con interessi divergenti, facilitando compromessi e soluzioni condivise. In questo senso, la politica ambientale interna non solo rafforza la legittimità internazionale della Svizzera, ma ne amplia anche lo spazio di manovra diplomatica. Il capitolo si conclude con la riflessione che l'interazione tra politiche domestiche e globali non sia un processo lineare, ma un dialogo continuo in cui le dinamiche internazionali influenzano le scelte interne e viceversa. Il capitolo conclusivo, il quinto, sintetizza i principali risultati dell'analisi e ne trae implicazioni teoriche e pratiche per lo studio delle relazioni internazionali e della governance della sostenibilità globale. L'obiettivo è quello di offrire una riflessione complessiva sul ruolo della Svizzera come attore internazionale in un contesto caratterizzato da crisi ambientali interconnesse, crescente frammentazione geopolitica e indebolimento del multilateralismo. L'argomentazione centrale della tesi trova conferma nell'analisi teorica sviluppata, ossia che la politica ambientale interna svizzera costituisce un elemento determinante nel plasmare il ruolo del Paese nelle negoziazioni internazionali ambientali. La sua credibilità non deriva unicamente dalla tradizione di neutralità, ma dalla coerenza tra impegni internazionali, politiche domestiche e capacità istituzionali. In tal modo, la sostenibilità non rappresenta un ambito settoriale della politica estera, bensì una dimensione trasversale che attraversa sicurezza, economia, cooperazione allo sviluppo e governance globale. Uno dei risultati principali di questo lavoro è la reinterpretazione della neutralità come risorsa attiva piuttosto che vincolo passivo. Storicamente concepita come strumento di non allineamento militare, la neutralità si è progressivamente trasformata in una fonte di potere, che consente alla Svizzera di operare come facilitatore, mediatore e promotore di soluzioni cooperative. In ambito ambientale, dove le divisioni geopolitiche sono spesso profonde e gli interessi nazionali divergenti, la percezione di imparzialità rappresenta un vantaggio significativo. La Svizzera è in grado di costruire ponti tra Stati industrializzati e Paesi in via di sviluppo, tra attori pubblici e privati, e tra comunità scientifiche e politiche. Non vengono ignorate tuttavia le ambiguità e le tensioni che caratterizzano il modello svizzero. Da un lato, la Svizzera si presenta come leader

nella promozione della sostenibilità, mentre dall'altro la sua posizione di centro finanziario globale e la forte integrazione nei mercati internazionali sollevano interrogativi sulla coerenza complessiva delle politiche climatiche. Il settore finanziario, in particolare, rappresenta un'area in cui le sfide della sostenibilità non sono ancora pienamente risolte. Questa tensione riflette una contraddizione più ampia comune a molti paesi industrializzati: la scelta tra obiettivi ambientali o interessi economici. Nonostante questi limiti, il modello svizzero offre importanti lezioni per la governance globale della sostenibilità. In primo luogo, si è dimostrato come anche gli Stati non dotati di grande potere militare o economico possano avere un'influenza significativa attraverso tecnica, credibilità istituzionale e capacità di mediazione. In secondo luogo, è stata dimostrata l'importanza di integrare politiche domestiche e internazionali, superando la tradizionale separazione tra politica interna e politica estera. Infine, è stato sottolineato come il valore della scienza e dell'evidenza empirica siano la base della formulazione delle politiche ambientali e del consenso internazionale. In conclusione, si evince che la politica ambientale svizzera non solo riflette le dinamiche della governance globale della sostenibilità, ma contribuisce attivamente a plasmarle. La Svizzera emerge come un attore che, pur operando entro i limiti imposti dalle sue dimensioni e dalla sua neutralità, riesce ad esercitare un'influenza significativa attraverso coerenza, competenza e multilateralismo. In un'epoca segnata da crisi ambientali sempre più urgenti e da crescenti tensioni geopolitiche, il caso svizzero offre un esempio di come la diplomazia ambientale possa diventare uno strumento centrale per la costruzione di un ordine internazionale più cooperativo.

CHAPTER 1

Swiss engagement in Global Affairs

When thinking about Switzerland, the first word that comes to our mind is “Neutrality”. The historical evolution of Swiss neutrality has been instrumental in defining the country’s international role, particularly in regards of its participation in environmental diplomacy. Traditionally characterized by its avoidance of military alliances, Swiss neutrality later developed into a form of soft power that enhances the nation’s credibility and legitimacy in multilateral negotiations. This reputation for impartiality enabled Switzerland to serve as a trusted facilitator and host for international environmental agreements, fostering dialogue among diverse political and economic actors. Neutrality thus transcended its original geopolitical function, positioning Switzerland as an active contributor to global environmental governance and sustainable development initiatives. Switzerland has a distinctive position in international relations, which is shaped by a long standing tradition of neutrality, strong institutional governance and a high level of economic and social development. In an era defined by transboundary environmental challenges, this unique position raises important questions about how national identity, domestic policy choice and international engagement intersect. This first chapter provides the conceptual and historical foundations for the analysis developed in the present dissertation by examining Swiss political identity, with a particular focus on neutrality, and its relevance for environmental diplomacy and global sustainability governance.

1. Swiss neutrality and non-EU alignment

Neutrality emerged from the politico-military constellation of the 15th century, when the Confederates were defeated by the French army at the Battle of Marignano, which eventually led to the withdrawal of their army from Italy.¹ From the 16th century on, the noninterference in other countries’ affairs enabled Switzerland to survive as an independent nation amidst the warring European superpowers.² However, only two centuries later, in particular in 1815, Swiss neutrality was formally recognized under the international law at the Congress of Vienna. The 1815 Act of Acknowledgement and Guarantee of the perpetual Neutrality of Switzerland, signed also by Russia, England, Prussia, Austria and France stated that Switzerland had shown capable of making great sacrifices for the common good in support of a cause that all the Powers of

¹ Schweizerische Eidgenossenschaft, *Neutrality*, Federal Department of Foreign Affairs (FDFA), 2021. Available at: <https://www.aboutswitzerland.eda.admin.ch/en/neutrality> (Accessed: 05 September 2025).

² Eidgenössisches Department für auswärtige Angelegenheiten (EDA), “White Paper on Neutrality, Annex to the Report on Swiss Foreign Policy for the Nineties of 29 November 1993”, 1993.

Europe defended³. Permanent neutrality allowed the Confederation to survive the wars of 19th and 20th centuries, while emerging unscathed from the First and the Second World War. At the present time, Swiss neutrality constitutes a pillar of the country's foreign policy. Being neutral, Switzerland is committed to avoid any conflict, regardless of the belligerents' identity and the battlefield's location. This permanent feature is contrary to the second feature of its neutrality – the Swiss army. In fact, in case of any aggression, and to prevent any belligerent act that can be perpetrated on its territory, the Swiss army is at disposal to defend itself militarily. Under international law, the Confederation has the right, and the liberty, to decide whether or not to maintain this status. This means that, in light of changes in its environment, it can redefine or give up its neutrality. Over the centuries, the Confederation has altered periods where it was more concentrated on domestic issues, and reserved in its foreign policy, and periods where it acted as active player on the international stage. Between the 16th and the 19th century, the country signed defence pacts with other powers, raising mercenary troops and granting foreign armies the right of passages. Member of the League of Nations since 1920, the Confederation agreed to participate in economic sanctions, but refused the military ones. It remained neutral during the First and Second World War, despite great opposition from the pro-German and pro-French factions within the country. Nevertheless during the Two World Wars, Switzerland was criticized for its pragmatic neutrality. Thus, the final report of the Independent Commission of Experts Switzerland, referring to the Second World War stated that the country did not always strictly fulfill its duties under the neutrality law. Granting loans to Germany and Italy, inadequate export and monitoring of the transit of war materials constituted law violations. According to the document, hiding behind the neutrality umbrella, the term was invoked to justify all kinds of decisions and legitimate their inaction.⁴ The final report also emphasized the no response for humanitarian needs, in particular no Swiss policy was issued with regard to refugees. Although with conflicting elements, neutrality had a major role in defence, foreign, and economic policies. The experience of the Two World Wars led Switzerland to develop a narrow approach towards neutrality. Thus, after 1945, the Confederation initially refused to participate in any international organizations with a political character. Yet, as countless twists and turns in history, the Confederation shifted its vision in 1963, when it joined the Council of Europe. One decade later, in 1975, it joined the now OSCE, with the signature of the Final Act of the Conference on Security and Co-operation in Europe. All the changes in the international landscape lead neutrality to become a pragmatic instrument, changing its needs and interests in order to adapt

³ Eidgenössisches Department für auswärtige Angelegenheiten (EDA), “Acte portant reconnaissance et garantie de la neutralité perpétuelle de la Suisse et de l'inviolabilité de son territoire du 20 novembre 1815”, 2022.

⁴ Independent Commission of Experts Switzerland, *Final Report of the Independent Commission of Experts Switzerland – Second World War*, 2002, page 508.

and adjust to the international situation.⁵ After the Berlin Wall's fall, in 1989, and the collapse of the Soviet Union, Switzerland's foreign and security policy environment changed. At the European level, opportunities for a united and peaceful Europe rose, while new instability in the disintegrated old power countries emerged. In this context, the Federal Council met on the 29th November 1993 and wrote the Paper on Neutrality, laying the foundation that security is achieved through cooperation, where neutrality have a great part in it. At the domestic level, in order to prevent any form of division among its culturally and linguistically different citizens, neutrality plays a unifying and stabilizing role. As the various cantons share a neutral vision of the foreign policy, all the different viewpoints and divergencies are overcome. Therefore, neutrality is a core part of the Swiss identity, deeply rooted in the minds of many Swiss citizens.⁶ By the "non-involvement in the affairs of others", the Confederation has almost exclusively focused on its own affairs, cultivating its own peaceful development. At the present time, neighbouring countries embrace respect for human rights, democracy and the rule of law. In terms of its geography, historical development, cultural traditions, and economic structures, Switzerland can be regarded as an inherently European state, providing Good Offices for international peace efforts. Since the Middle Ages, Swiss mediation evolved from resolving internal disputes within the Confederation to facilitating dialogue and conflict resolution between external actors. The practice of offering Good Offices has become a central element of Swiss foreign policy, recognized internationally as a reflection of the country's commitment to peace, solidarity, shared responsibility, and cooperation within the global community. Neutrality enhances Switzerland's credibility as a mediator, as parties to a conflict generally value the involvement of a state, which is perceived as impartial and free of direct national interests in the dispute. This impartial stance has enabled Switzerland contributing to fostering negotiations and settlement processes. However, neutrality can also impose constraints, as Switzerland has traditionally refrained from undertaking highly sensitive political mediation tasks that might compromise its neutral status, leaving space for non-neutral or major powers to assume such responsibilities.⁷ Since the end of the Second World War, Switzerland has been called upon less frequently to provide Good Offices. Several factors explain this decline, including the decrease of the value attributed to neutrality in the context of peace facilitation. Moreover, many contemporary conflicts have occurred outside Europe, where local actors often prefer to exclude European involvement. More importantly, international organizations, particularly the United

⁵ Eidgenössisches Department für auswärtige Angelegenheiten (EDA), "White Paper on Neutrality, Annex to the Report on Swiss Foreign Policy for the Nineties of 29 November 1993", 1993, page 7.

⁶ Eidgenössisches Department für auswärtige Angelegenheiten (EDA), "White Paper on Neutrality, Annex to the Report on Swiss Foreign Policy for the Nineties of 29 November 1993", 1993, page 9.

⁷ Eidgenössisches Department für auswärtige Angelegenheiten (EDA), "White Paper on Neutrality, Annex to the Report on Swiss Foreign Policy for the Nineties of 29 November 1993", 1993, page 11.

Nations and its Secretary General, increasingly assumed responsibility for mediation, peacekeeping, and related functions. Regional organizations, such as the European Union, also gained prominence in the area. Recognizing these developments, the Swiss Federal Council emphasized the need to adapt and to expand its contribution to international peace and security. This includes reinforcing Switzerland's material and human resources for peace missions and considering participation in United Nations peacekeeping operations through the deployment of Swiss personnel. Based on its long-standing tradition of good offices and humanitarian aid, Switzerland participated in the Partnership for Peace since 1996, and deployed Swiss Army Forces personnel on international peacekeeping missions under the United Nations mandate, such as Bosnia and Herzegovina (EUFOR Althea) and Kosovo (EULEX rule of law).⁸ Neutrality and the UN collective security system represent two distinct phases in the evolution of international law and order. Neutrality, rooted in earlier conceptions of war, reflected an era when armed conflict was considered a lawful and legitimate method of resolving disputes. States could therefore justifiably remain neutral without moral or legal approach. By contrast, the UN's collective security framework, established under the Charter, is premised on the prohibition of war and the use of force, with only two exceptions: self-defence in case of armed attack and coercive measures authorized by the international community. This system declines the concept of neutrality, instead it obliges states to act collectively against aggressors and to preserve international peace and security. The Security Council serves as the central mechanism for implementing collective security. Under Chapter VII of the Charter, it may identify threats or breaches of peace (Article 39) and impose a range of measures, including provisional arrangements (Article 40), non-military sanctions such as economic or diplomatic restrictions (Article 41) and, if necessary, military enforcement actions (Article 42).⁹ The Security Council can impose sanctions only with the support of at least nine members and without a veto from any of the five permanent members. This veto power has historically limited the Council's ability to act, resulting in infrequent use of the UN collective security system. Despite this framework, armed conflicts continued worldwide since 1945. Non-military sanctions were implemented sparingly, such as the embargoes against Rhodesia (1966), South Africa (1977), Iraq (1990), Yugoslavia (1991) and later Somalia, Liberia, Libya, and Serbia/Montenegro in the early 1990s.¹⁰ Switzerland generally complied with these measures, often aligning them with its domestic legal framework, including restrictions on arms exports under its 1972 War Material Law. It also participated in sanctions against Iraq and applied measures against Libya and Serbia/

⁸ Schweizerische Eidgenossenschaft, *Swiss neutrality*, 2022, page 11.

⁹ United Nations, *Charter of the United Nations, Chapter VII*, New York.

¹⁰ Eidgenössisches Department für auswärtige Angelegenheiten (EDA), "White Paper on Neutrality, Annex to the Report on Swiss Foreign Policy for the Nineties of 29 November 1993", 1993, page 18.

Montenegro independently, a policy that received broad approval domestically and internationally. Humanitarian intervention emerged as another form of military enforcement, aimed at protecting civilian populations or enabling humanitarian aid. Switzerland, adhering to its traditional neutrality, refrained from participating in military operations. During the Gulf War, as a matter of fact, it denied overflight rights to combat aircraft and suspended export licenses for war materiel linked to the conflict, while continuing to support humanitarian activities and relief operations. Following the war, by providing experts to dismantle Iraq's chemical and biological weapons programs and by supplying humanitarian assistance in Somalia and Bosnia-Herzegovina, Switzerland actively contributed to UN efforts. Switzerland's policy of neutrality and the United Nations collective security system pursue similar objectives, namely safeguard of state sovereignty, prevention of armed conflict and promotion of peaceful international coexistence. Nevertheless, the distinction lies in their methods. Neutrality is essentially defensive, allowing a state to remain outside disputes when consensus is lacking, but the UN system relies on collective sanctions imposed by the international community against aggressor states. Because they differ only in their treatment of states that breach the peace, the two approaches are not mutually exclusive but can be regarded as complementary.¹¹ For a small state like Switzerland, the effective functioning of the UN's security system is of particular importance. Upholding the prohibition on the use of force and ensuring the enforcement of international law provides protection against domination by more powerful states. This rationale underpins Switzerland's obligation to demonstrate solidarity with the international community when it acts in unison.¹² Refusing to apply sanctions not only risks isolating Switzerland diplomatically, but also provides implicit support to the violating state, undermines collective enforcement efforts and yields unfair economic advantages. In this view, UN enforcement actions represent the collective defence of international law rather than belligerent warfare, freeing permanently neutral states to participate without contradiction. Finally, with regard to the final report of the Independent Commission of Experts Switzerland cited above, Switzerland's approach to UN sanctions is guided by a balance between national interest, solidarity obligations and the principles of neutrality. In the *1993 White Paper on Neutrality*, the Federal Council acknowledges that Switzerland should voluntarily support non-military measures, economic sanctions in particular, when they are adopted by the Security Council under the UN Charter and enjoy broad international backing.¹³ Yet, Switzerland retains the discretion to abstain from

¹¹ Eidgenössisches Department für auswärtige Angelegenheiten (EDA), "White Paper on Neutrality, Annex to the Report on Swiss Foreign Policy for the Nineties of 29 November 1993", 1993, page 19.

¹² Eidgenössisches Department für auswärtige Angelegenheiten (EDA), "White Paper on Neutrality, Annex to the Report on Swiss Foreign Policy for the Nineties of 29 November 1993", 1993, page 20.

¹³ Eidgenössisches Department für auswärtige Angelegenheiten (EDA), "White Paper on Neutrality, Annex to the Report on Swiss Foreign Policy for the Nineties of 29 November 1993", 1993, page 20.

participation if consensus among major powers is lacking or if overall international unity on sanctions begins to fragment. Decisions regarding military enforcement measures or humanitarian interventions authorized by the Security Council are more complex. Swiss participation or acquiescence in such actions depends on a careful assessment of the country's interest, its responsibility to international solidarity and broader humanitarian considerations. Given that armed conflicts are unpredictable, and that Switzerland traditionally avoids direct involvement in warfare, the Federal Council is expected to adopt a cautious stance. Nonetheless, Switzerland generally refrains from opposing military actions endorsed by the UN or carried out by states with Security Council authorization, recognizing its interest in ensuring accountability for violations of international law. Non-participation in sanctions does not strengthen Switzerland's ability to provide diplomatic mediation. Under the UN Charter, the organization is not a belligerent party but the custodian of international order, mandated to restore peace on behalf of the global community. In situations where the entire UN membership collectively condemns a state, neutrality is not a viable option, nor is third-party mediation necessary. In conflicts outside the scope of UN collective security, however, Switzerland continues to rely on its traditional neutrality. In such cases, it contributes by offering Good Offices, seeking to mediate disputes and promote peaceful resolution, consistent with its established humanitarian and diplomatic role. In relation to military alliances, Switzerland excludes the possibility of joining NATO, because its membership would conflict with its policy of neutrality. NATO's collective defence clause obliges to provide mutual assistance in the event of an armed attack, which is an incompatible commitment with the Confederation's stance of not aligning with any party in international conflicts.¹⁴ Nonetheless, since 1996, Switzerland engaged in the initiative Partnership for Peace (PfP), launched by NATO in 1994 to strengthen stability across the Euro-Atlantic region. The initiative aimed at fostering cooperation with former Warsaw Pact countries and neutral states. Swiss participation in the PfP is fully consistent with both its neutrality law and foreign policy, as the government clearly affirmed its neutral status prior to joining. For the country, the PfP represents an instrument to advance peace and security through voluntary and interest-based collaboration with NATO and partner states. This framework allows Switzerland to engage selectively in joint activities, thereby contributing to international stability without compromising its neutral position.

1.2 Foreign policy principles and multilateralism

The twentieth century had been marked by rising interdependence among states, limiting the scope of independent decision-making, in particular for smaller countries. While Swiss political

¹⁴ Schweizerische Eidgenossenschaft, *Swiss neutrality*, 2022, page 13.

independence remains intact, its effective independence, especially in the economic sphere, faces potential vulnerabilities due to the country's limited self-sufficiency. Switzerland's economic ties to the European Union illustrate this reality, as over 70% of its imports originate from EU member states, and more than 58% of its exports are directed to the European Union¹⁵. The degree of Swiss economic integration with the European Union exceeds that observed among some EU members themselves. Such economic entanglement carries implications beyond trade, extending into other areas of policy and directly affecting the credibility of Swiss neutrality. Greater reliance on the European Union reduces Switzerland's effective independence and autonomy, thereby weakening the essential conditions of its neutrality, regardless of its eventual membership. Active engagement at the international level therefore represents a possible strategy to counterbalance the relative decline in de facto independence brought about by economic interdependence.¹⁶ As a non-member state, Switzerland relies on framework of bilateral sector agreements, which have gradually expanded and deepened since the signing of the 1972 Free Trade Agreement. This framework consists today of around twenty core agreements and numerous complementary treaties, endorsed through popular referenda, reflecting broad domestic support for the so-called "bilateral approach".¹⁷ This incremental and pragmatic strategy provides flexible, tailor-made contractual solutions across a wide range of economic and political areas. It guarantees extensive reciprocal market access while also fostering cooperation in key policy domains. The bilateral approach thus secures Switzerland's openness to Europe and strengthens its capacity for close collaboration with its EU partners, while preserving a degree of autonomy outside full EU membership. To balance these interests, both parties negotiated a new Swiss-EU package between March 2024 and May 2025, building on the foundations of the Bilateral Agreements I (1999) and II (2004).¹⁸ These earlier agreements demonstrated the viability of the bilateral path, particularly after Switzerland's rejection of the European Economic Area membership in 1992, and supported mutually beneficial cooperation over the past two decades. The new package encloses thematic agreements in areas such as electricity, food safety and health, alongside institutional arrangements to ensure legal harmonisation, uniform interpretation, monitoring and dispute settlement. It also extends Switzerland's participation in EU programmes covering research, innovation, education, youth, sport and culture. Negotiations were accompanied by domestic consultations with Parliament, cantons and socio-economic

¹⁵ Schweizerische Europapolitik, *Switzerland-EU in figures*, 2025.

¹⁶ Eidgenössisches Department für auswärtige Angelegenheiten (EDA), "White Paper on Neutrality, Annex to the Report on Swiss Foreign Policy for the Nineties of 29 November 1993", 1993, page 14.

¹⁷ Schweizerische Eidgenossenschaft, *Overview: Bilateral path*, 2025.

¹⁸ Schweizerische Eidgenossenschaft, *Switzerland-EU package: package to stabilise and further develop bilateral relations*, 2025.

partners. Key provisions address state aid in transport and electricity, free movement of persons with safeguard to wage protection and social system, and a binding framework for Swiss financial contributions. Moreover, the European Union has become the central political and economic framework in Europe, shaping not only regional order and security but also responses to emerging threats and the formulation of economic and military policy. Switzerland's domestic and foreign policies, including its neutrality, are strongly influenced by the EU regardless of whether it formally joins the organization. In 1991, the Swiss Federal Council expressed its intention to seek membership in the European Community (EC), filing an accession request in May 1992.¹⁹ Although the Swiss electorate rejected the European Economic Area Treaty later that year, the government continue to uphold EU accession as long-term goal. Central to Swiss debates is the claim that neutrality would remain a relevant tool of foreign and security policy even within the EU framework and the membership would not be incompatible with a neutral stance. From its inception, the European Community, later European Union, has carried a political and security dimension alongside its economic integration. The overarching purpose of economic unification was to secure lasting peace and political cohesion in Europe. Nevertheless, integration in security matters had proceeded more cautiously than in the economic sphere. The proper functioning of the European Union's internal market depends on stability and cohesion, which are also of direct interest to Switzerland given its sectoral participation in the single market. Since 2007, Switzerland has supported EU efforts to address economic and social inequalities and to regulate migration flows, referring to such engagement as an investment in European security and prosperity.²⁰ In this matter, it has provided two major financial contributions: the enlargement contribution, which initiated in 2007, and the second Swiss contribution of 2019. These funds have been allocated to specific projects and programmes in selected EU member states. Exploratory discussions have already outlined a proposal for a legally binding framework establishing regular Swiss contributions. However, the precise structure of this mechanism – its duration, financial scope, beneficiary countries and thematic priorities – remains undefined and will be settled during formal negotiations. The upcoming Swiss contribution is expected to serve as a transitional measure, preceding the establishment of the new framework. To enable the implementation of regular contributions, Switzerland must also create a new domestic legal basis, which will be developed in parallel with negotiations. The institutional adjustment would formalize Switzerland's financial participation in fostering cohesion within the EU while strengthening bilateral cooperation. Recently, between December 2024 and June 2025, a series of key developments shaped Switzerland's participation in EU research, innovation and digital programmes. On 20th December 2024, Switzerland and the EU

¹⁹ European Parliament, *The European Economic Area (EEA), Switzerland and the North*, EU Fact Sheets, Sheet 169, 2025.

²⁰ Schweizerische Eidgenossenschaft, *Swiss contribution to selected EU member states*, 2023.

concluded negotiations on an overall cooperation package, which included agreements on Horizon Europe, Euratom programme, Digital Europe Programme and International Thermonuclear Experimental Reactor.²¹ At the same time, the European Commission activated a transitional arrangement effective on the 1st of January 2025, allowing Swiss researchers and innovators to participate as beneficiaries and coordinators in Horizon Europe. Access to EU defined strategic areas, such as quantum technologies and space research, was reserved for further technical discussions. The transitional framework also extended to the Digital Europe Programme, enabling Swiss participation from 2025, except in cybersecurity and semiconductors, which remain restricted to EU and selected EEA states. In early April 2025, Switzerland and the EU further advanced institutional arrangements. On the 2nd of April, negotiators initialled the EU Programmes Agreement, followed by the Federal Council approval one week later, on April 9th. The approval authorized the signing and ensured the retroactive application of Swiss association in Horizon Europe, Euratom and the DEP from the 1st of January 2025. Subsequent developments confirmed Switzerland's growing access to European research frameworks. In the same year, on April 28th, the European Commission recognized Switzerland's eligibility for full participation in strategic research areas within Horizon Europe's 2025 work programmes and in the 2025-2027 Digital Europe Programme. Finally, on the 20th June 2025, the Federal Council addressed anticipated oversubscription to direct funding linked to 2021-2024 calls by allocating an additional CHF 75 million.²² The State Secretariat for Education, Research and Innovation simultaneously applied priority measures to manage pending requests under the relevant ordinance. Broadly, at international level, Switzerland views multilateralism as an essential tool for addressing global challenges such as poverty, climate change, health crises, armed conflicts and food insecurity. It advocates for a strong and effective international system, which is capable of setting global standards, reducing human suffering, and advancing sustainable development and peace.²³ Alongside its bilateral and thematic initiatives, multilateral cooperation represents a core pillar of Swiss international engagement, allowing it to support global solutions even in countries where it has no direct presence. The State Secretariat for Development and Cooperation (SDC), guided by the Federal Council's Foreign Policy Strategy and International Cooperation Strategy, plays a central role in this framework. Its activities in multilateral cooperation are structured around four main areas. Firstly, approximately 40% of SDC's multilateral resources are dedicated to core contributions, strengthening the mandates of international organizations such as UN agencies and development banks. These contributions not only support global priorities, as the 2030 Agenda for Sustainable

²¹ Schweizerische Eidgenossenschaft, *Horizon Package 2021-2027*, 2023.

²² Schweizerische Eidgenossenschaft, *Horizon Package 2021-2027*, 2023.

²³ Schweizerische Eidgenossenschaft, *Multilateral Cooperation*, 2025.

Development, but also enhance the Confederation's ability to influence the strategic direction of these institutions. Switzerland provides targeted funding for specific programmes aligned with its country and thematic priorities. Secondly, collaboration with multilateral partners include joint research, capacity-building and the deployment of Swiss experts through the Humanitarian Aid Unit and the Expert Pool for Civilian Peacebuilding. These measures bolster the international community's ability to respond effectively to crises and long-term development needs. Thirdly, through membership in multilateral organizations, financial support and active participation in international forums, Switzerland helps shape a global policy agendas and advocates for reforms aimed at creating a more efficient system. It seeks to act as a bridge-builder, promoting innovative solutions and ensuring that international development goals are effectively implemented at local, regional and global levels. Lastly, Switzerland also contributes by supplying skilled professionals to multilateral organizations. This includes partnerships with Swiss companies, the placement of experts and opportunities for young professionals through programmes such as Junior Professional Officers and United Nations Volunteers. These initiatives enhance both the technical expertise of international institutions and the career development of Swiss specialists. To sum up, the four main areas of multilateral cooperation are funding, technical support, policy dialogue and human resources. Through this multifaceted engagement, Switzerland strengthens its role in multilateral cooperation, reinforcing its commitment to global peace, sustainable development and humanitarian action. Switzerland's relationship with the United Nations reflects both the strengths and vulnerabilities of its foreign policy, shaped by a political culture in which the public plays an active role. Although its engagement with multilateralism was initially cautious and contested, participation has gradually become normalized, including in areas like international sanctions. While debates persist regarding the benefits of involvement, the UN provides the Confederation with a crucial platform to advance its constitutional commitment to a just and peaceful international order.²⁴ Its historical experience, political system and role as host of the major international institutions enhance the credibility and the capacity to multilateral cooperation. Its influence depends on careful prioritization, with greater opportunities for leadership in areas such as human rights, development and international cooperation, while its small size and commitment to neutrality impose clearer limitations in the domains of security and peacekeeping. In order to succeed, Switzerland must leverage its expertise, adopt early and principled positions and form alliances, avoiding overdependence on major powers that could provoke domestic debates over neutrality. Effective UN diplomacy requires balancing idealistic principles with pragmatic considerations, thereby ensuring both domestic legitimacy and external credibility.²⁵

²⁴ T. Bernauer (et All.), "A Swiss Foreign Policy for the 21st Century", NZZ Libro, 2022.

²⁵ T. Bernauer (et All.), "A Swiss Foreign Policy for the 21st Century", NZZ Libro, 2022.

1.3. The role of Switzerland in global governance

Over the past thirty years, globalization fostered widespread prosperity and significant decline in extreme poverty. This transformation altered the global economic balance: the G7's share of world GDP fell from 68% in 1992 to 44% in 2022, while the G20's emerging economies expanded their share to 36%.²⁶ East Asia has become a central hub of economic power and with these shifts, also political frameworks evolved. Authoritarian regimes gained influence, while democratic systems face pressure. Skepticism toward Western leadership and values is no longer limited to autocracies, as part of the democratic Global South also challenge the Western role as a global model. The most decisive factor in this transition is the rise of China, whose GDP share surged from 3% to 19% between 1992 and 2022.²⁷ China promotes a governance model that emphasizes economic growth without political pluralism, combining authoritarianism with extensive social surveillance. Its growing economic, technological and military capabilities underpin a foreign policy aimed at reshaping the global order. Through massive investments, credit provision and global supply chain integration, China has created dependencies, particularly in developing countries. Its self-assertive security posture and ambition to build a Sino-centric order position it as a systemic challenger to US global leadership.²⁸ Strategic rivalry among major powers increasingly defines global politics, with power competition and geopolitical tensions overshadowing multilateral cooperation. Furthermore, the contemporary international environment is characterized by volatility, fragmentation and rapid change, which creates significant challenges for Switzerland's foreign policy. Recent global crisis, as the COVID-19 pandemic and Russia's war of aggression against Ukraine, had wide repercussions beyond health and security, including energy insecurity, rising debt, food shortages, climate impacts and technological risks that are associated with artificial intelligence.²⁹ The future international environment is expected to be marked by uncertainty, fragmentation and heightened geopolitical competition, carry significant implications for Switzerland's foreign policy.³⁰ The erosion of multilateralism and arms control, combined with re-emergence of power politics, weakens the international systems. New challenges include the weaponization of cyberspace, the spread of disinformation and the growing role of non-state actors and urban centers in shaping

²⁶ Schweizerische Eidgenossenschaft, *Foreign Policy Strategy 2024-2027*, 2024, page 6.

²⁷ Macrotrends LLC, *China GDP – Historical Chart & Data*, 2025, Available at: <https://www.macrotrends.net/global-metrics/countries/chn/china/gdp-gross-domestic-product> (Accessed 12 September 2025).

²⁸ Schweizerische Eidgenossenschaft, *Foreign Policy Strategy 2024-2027*, 2024, page 6.

²⁹ Schweizerische Eidgenossenschaft, *Foreign Policy Strategy 2024-2027*, 2024, page 5.

³⁰ I. Cassis, "Switzerland's 2028 Foreign Policy Vision", Swiss Federal Department of Foreign Affairs, 2 July 2019, page 4.

global governance. While governance networks diversify, they also become more fragmented. For Switzerland, a small and highly interconnected state, which is dependent on international rules and stability, these dynamics make it increasingly difficult for safeguarding interests and security in the coming years.³¹ The foreign policy is increasingly central to its prosperity and security, as it needs to adapt to a dynamic international environment. It actively participates in numerous international organizations dedicated to promoting peace, security, human rights, democracy and the rule of law. Such memberships are consistent with its neutrality, provided they do not entail obligations to join military alliances or engage in armed conflicts.³² These developments highlight the fragility of interconnected societies. For the Confederation, these shifts bring both risks and opportunities. The country retains a strong foundation: it ranks as the world's most developed country according to the United Nations Development Program.³³ In fact, it remains among the top twenty economies globally, with high levels of innovation and competitiveness. It also benefits from public trust in state institutions. In this regard, a notable milestone was the Confederation's accession to the United Nations in September 2002. The accession followed a referendum in which 54.6% of the electorate endorsed membership. Switzerland remains unique as the only state to have joined the UN through a popular vote. Its declaration of accession emphasized that neutrality, enshrined in international law, continues to apply within the framework of UN membership. Swiss foreign policy objectives closely align with those of the UN, particularly in areas of global peace, sovereign equality and the prohibition of violence in interstate relations. Switzerland leveraged its credibility and evidence-based diplomacy to facilitate compromise and contribute to institutional reforms, such as its role in establishing the UN Human Rights Council in Geneva. It consistently advocates for a more transparent and effective UN, including reforms to the Security Council. Switzerland's candidacy for a non-permanent seat on the Security Council illustrates its willingness to contribute more directly to global security while remaining consistent with neutrality.³⁴ The country's longstanding reputation for dialogue, compromise and advocacy of international law enhances its credibility, as demonstrated by its current role of non-permanent member of the UN Security Council. Nevertheless, Switzerland faces increasing difficulty in safeguarding its interests amid heightened geopolitical polarization. The Federal Council emphasizes that Switzerland must pursue a foreign policy that balances flexibility, coherence and modesty, while ensuring effective

³¹ I. Cassis, "Switzerland's 2028 Foreign Policy Vision", Swiss Federal Department of Foreign Affairs, 2 July 2019, page 4.

³² Schweizerische Eidgenossenschaft, *Neutrality*, 2021, page 12.

³³ United Nations Development Programme (UNDP), *Human Development Reports: Schweiz*, 2025. Accessible at: <https://hdr.undp.org/data-center/specific-country-data#/countries/CHE> (Accessed 15 September).

³⁴ Schweizerische Eidgenossenschaft, *Neutrality*, 2021, page 12.

communication of its positions. Given limited resources, the focus is on prioritizing key objectives, maintaining close coordination with European partners and sustaining a global outlook that reflects both Switzerland's European identity and its broader foreign economic and humanitarian commitments.³⁵ Instruments, such as good offices, Geneva and Swiss expertise are at the intersection of diplomacy and science remain central to its contribution to global peace and security. The Foreign Policy Strategy 2024-2027 sets out these priorities, which continue the 2020 practice of adopting a four-year strategic cycle. With the violent conflicts of these decades, mediation activities are carried out by Switzerland and other states, notably Germany, Finland, Norway and Sweden, as well as UN and non-governmental organizations. Switzerland plays a dual role in the field of international mediation, acting both as an active mediator and as a financial supporter of mediation initiatives led by others. This dual function requires a high degree of caution and strategic focus.³⁶ In its 2018 report on Good Offices, mediation and facilitation, the Federal Council recommended concentrating resources on selected conflicts and pursuing them in a targeted and sustainable manner. Advancing professionalization in mediation is essential through capacity building and the application of technical expertise. In addition, it aims at promoting gender equality in mediation processes and at increasing the Swiss experts' presence in leading roles. Another important dimension of Swiss peace diplomacy is its function as a host state for peace negotiations, whether under national auspices or those of the United Nations. The broader framework of "International Geneva" serves as a hub for humanitarian policy and peacebuilding, by offering a space for innovation and cross-sectoral collaboration through various cooperation platforms. To reinforce its competitive position as a host state, Switzerland adopted a four-year strategy for 2020-2023. This framework seeks to enhance infrastructure and expertise, foster networks for dialogue and knowledge exchange, ensure inclusive representation of UN member states in Geneva, and strengthen international coordination and partnerships. Beyond its traditional roles in Good Offices, mediation and host-state functions, Switzerland pursues a broader multilateral peacebuilding agenda that encompasses areas such as disarmament, water, peace and digital cooperation. The country is an active member of the UN Peacebuilding Commission and a contributor to the Secretary General's Peacebuilding Fund. Notably, it chaired the Burundi configuration of the Commission and convened to a donor conference in Geneva in support of Burundi's 2012-2015 development plan. To sustain its success through 2028 and beyond, the Confederation must pursue a foreign policy that is focused, networked and agile.³⁷ In the report for the 2028 foreign vision, the

³⁵ Schweizerische Eidgenossenschaft, *Foreign Policy Strategy 2024-27*, 2024, page 5.

³⁶ T. Bernauer (et All.), "A Swiss Foreign Policy for the 21st Century", NZZ Libro, 2022.

³⁷ I. Cassis, "Switzerland's 2028 Foreign Policy Vision", Swiss Federal Department of Foreign Affairs, 2 July 2019, page 6.

Councilor Ignazio Cassis highlighted that cooperation with Swiss enterprises and integration of trade and foreign policy enhances market access and contribute to sustainable development goals, with Geneva positioned as a hub for global tech diplomacy and collaboration with industry and scientific stakeholders. Councilor Cassis also emphasized that Switzerland, even though it is not a major country, it is characterized by a solution-oriented and innovative approach, shaped by a cosmopolitan outlook and guided by core values that emphasize security, prosperity and independence.³⁸ Switzerland's international role is shaped less by military or political dominance and more by its humanitarian tradition and commitment to peacebuilding. Its influence rests on soft power, demonstrated through institutions such as the Geneva Centre for Security Policy, which contributes to the education of global security leaders.³⁹ In an era of increasing global interdependence, the Confederation promotes dialogue grounded in legal frameworks rather than force, reflecting both its foreign policy priorities and its commitment to advancing international law. International law underpins peace, stability and cooperation. While traditionally focused on states, its scope has expanded to include international organizations, and in certain cases, non-state actors such as individuals, particularly in areas like human rights, humanitarian law, and international criminal law. Within Switzerland, adherence to international treaties requires parliamentary approval and, in some cases, public referenda, ensuring that such commitments align with national sovereignty and democratic principles.⁴⁰ By strengthening legal certainty and predictability, international law facilitates cooperation in critical areas such as trade, environmental protection, counterterrorism, communication and transport. For Switzerland, whose economy and security are closely tied to global stability, active participation in shaping and implementing international law serves both national interests and the broader international community. International Geneva has increasingly positioned itself as a pivotal center for redefining multilateral cooperation in response to the complex global crises and institutional limitations of the present time. Far from serving merely as a traditional diplomatic hub, Geneva is conceptualized as a laboratory for innovative forms of diplomacy, which are capable of addressing emerging global challenges.⁴¹ Unlike conventional state-centric diplomacy, Geneva fosters approaches that engage a broad spectrum of actors. This includes multi-stakeholder diplomacy, which brings together governments, civil society, academia, businesses and philanthropic organizations in order to collaboratively address global problems. Moreover, a form of diplomacy focused on specific global issues has developed, aiming to address interlinked

³⁸ T. Bernauer (et All.), "A Swiss Foreign Policy for the 21st Century", NZZ Libro, 2022.

³⁹ Geneva Centre for Security Policy (CSP), "Switzerland's Unique Soft Power Connection in International Security Policy", 2024.

⁴⁰ Schweizerische Eidgenossenschaft, *Respect and promotion of international law*, 2024.

⁴¹ Geneva Graduate Institute, *The Graduate Institute Review*, n. 35, 2025.

challenges such as climate change, AI regulation, global health emergencies and the disruptive impact of new technologies. Geneva's ability to lead these transformations derives from several unique strengths. It hosts a dense concentration of international organizations, mission, research centers and philanthropic foundations, which provide an ecosystem of expertise. Its global connectivity extends to virtually every conflict and actor, reinforcing its centrality in peace and security dialogues. Underpinning this infrastructure is the "Spirit of Geneva", a tradition of humanitarian values, cooperation and rejection of violence, which continues to shape the city's diplomatic identity.⁴² Current multilateral institutions face severe pressures, including geopolitical polarization, financial constraints, declining trust in international cooperation, and standstill in institutions such as the UN Security Council. Geneva, however, is presented as a space where alternative can be tested and scaled. Initiatives such as the proposed "Global Coalition for Sustainable Peace" exemplify this ambition, by seeking to transcend state boundaries and incorporate civil society and academia, and promote conflict prevention and planetary sustainability. Geneva's ongoing humanitarian, scientific, and mediation initiatives continue to expand its role as a facilitator of cooperation, even though Geneva's leadership is with obstacles. In fact, funding shortfalls, geopolitical rivalries and competition from emerging diplomatic centers pose significant challenges. At the same time, the city's concentration of expertise, its reputation for neutrality and the increasing involvement of non-state actors provide fertile ground for diplomatic innovation. Advances in technology and governance models further enhance its potential. The vision of International Geneva extends beyond its function as a host city for global institutions. It is increasingly portrayed as a platform for reimagining multilateralism in the twenty-first century. By moving beyond established practices, Geneva could play a decisive role in shaping new forms of cooperation that both address existential global threats and uphold the humanistic values that define its identity. To conclude, Switzerland's role in international affairs reflects a careful balance between its longstanding principle of neutrality and the demands of an increasingly interdependent and globalized order. Rather than remaining confined to defensive isolation, neutrality has been reinterpreted as a proactive instruments for mediation, dialogue and cooperation at international level. The shift from a rigid post-World War II neutrality to a more pragmatic form of engagement with international organizations illustrates Switzerland's capacity to adapt its guiding principles to evolving global contexts. Its bilateral relations with the European Union and selective participation in multilateral frameworks exemplify an approach that safeguards sovereignty while enabling meaningful collaboration and integration. Switzerland's influence today rests less on conventional measures of state power and more on soft power assets such as expertise, credibility and its reputation for impartiality. In a fragmented and multipolar international system, its function as a neutral facilitator and host to numerous international institutions has

⁴² Geneva Graduate Institute, *The Graduate Institute Review*, n. 35, 2025.

become increasingly valuable. The notion of “International Geneva” as a space for experimental diplomacy highlights Switzerland’s potential contribution for shaping new models of global cooperation that move beyond state-centric paradigms. This vision yet requires ongoing adaptation to ensure that neutrality remains both credible and relevant amid intensifying great power competition and transnational challenges. Ultimately, its effectiveness in global affairs depend on sustaining this equilibrium, by preserving the neutrality and trust that define its international identity, while engaging flexibility enough to address the complex and interconnected issues of the twenty-first century.

CHAPTER 2

Swiss role in International Sustainable Fora

Building on the historical foundations established in the previous chapter, which examined Swiss neutrality as a source of diplomatic credibility and soft power, this chapter shifts the focus from identity to action. It explores how Swiss political traditions and institutional capacities translate into concrete engagement in international environmental climate governance. While neutrality provides the normative structure that underpins its international legitimacy, it is through sustained diplomatic participation and policy leadership that this legitimacy is operated in practice. Switzerland has a long-standing tradition of active engagement in international cooperation and diplomacy. As host to remarkable concentration of international organizations, permanent diplomatic missions, non-governmental organizations and academic institutions, the country serves as a key hub for global dialogue and coordination. Beyond its hosting role, the Confederation takes a proactive stance in addressing pressing global challenges, particularly in the areas of environmental protection and sustainable development.⁴³ The following chapter provides an analysis of the climate policies' evolution, with particular emphasis on the Swiss active participation in international negotiations and its leading role. Within this context, the present chapter traces the historical development of Swiss climate and environmental policies by positioning them in the broader international dynamics. It analyses how Switzerland contributed to shape global climate regimes, from early environmental agreements to contemporary negotiations such as the Paris Agreements. Particular focus is put on the Swiss role as a consensus builder, its reliance on scientific expertise and its advocacy for market based and cooperative mechanisms in international negotiations.

2.1 Environmental Law: Treaty-Making and Focus Shift

The growing importance of international environmental policy and economic brought increased attention to two major themes, namely the relationship between environmental quality and international trade, and the challenges of fostering effective international cooperation to manage transboundary environmental issues. Within this context, Scott Barrett's *Environment and Statecraft* (2003) represents a significant contribution to the literature on international environmental agreements (IEAs), by offering a comprehensive examination of both theoretical frameworks and empirical case studies. IEAs constitute formal and legally binding frameworks through which state collectively address cross-border environmental problems. Contrary to customary international law, which evolves through state practice and opinion juris, treaties are the result of explicit negotiation processes and are legally binding only for states that consent to

⁴³ Schweizerische Eidgenossenschaft, *Host State Switzerland*, 2017.

their terms.⁴⁴ The development of international environmental treaties generally proceeds through five interrelated stages: pre-negotiation, negotiation, ratification, implementation and renegotiation. Each phase plays a distinct role in shaping the final agreement and determining its effectiveness. To begin with, the pre-negotiation stage encompasses the preparatory work and strategic positioning that take place before the begin of diplomatic negotiations. This phase typically includes three major components, namely the formation of negotiation positions, coalition building and strategic behavior. During this stage, states synthesize a range of domestic interests into a coherent national position. This is often intricate, particularly in pluralistic or democratic systems where multiple governmental departments, industry groups and civil society organizations seek to influence policy outcomes. The process becomes more complex before contributing to the national negotiating stance. The process becomes more complex for supranational entities, such as the European Union. As a matter of fact, individual member states must first establish their own positions, as internal consensus can reduce flexibility and slow decision-making during international negotiations. Prior to the start of formal negotiations, countries frequently form alliances or coalitions to advance shared objectives and enhance collective bargaining leverage.⁴⁵ These coalitions also facilitate information exchange and coordination among compatible states. For example, during the negotiation of the Montreal Protocol, the “Toronto Group” - United States, Canada, Finland, Norway, Sweden and Switzerland - collaborated closely to harmonize their positions. Similarly, international climate negotiations have produced numerous coalitions, including the Umbrella Group, the Alliance of Small Island States and the G77 plus China coalition. Switzerland actively participates in multiple environmental coalitions and negotiation groups, as the High Ambition Coalition for the plastics treaty, the Western European and Others Group for the UNFCCC negotiations.⁴⁶ Furthermore, Barrett applies game-theoretic models, as the prisoner’s dilemma, to explain the structural difficulties of cooperation among sovereign states. By doing so, he integrates insights from behavioral economics, demonstrating that in non-cooperation strategic contexts players may be influenced by fairness norms of conditional cooperation, thereby opening pathways for trust-building and informal rule formation. Therefore, states often engage in strategic signaling during the pre-negotiation phase, making public declarations about preferred outcomes or policy, such as “cheap talk” with limited influence on actual negotiation results, especially in context

⁴⁴ S. Barrett, “Environment and Statecraft: The Strategy of Environmental Treaty-Making”, OUP Oxford, 2003, page 134.

⁴⁵ S. Barrett, Environment and Statecraft: The Strategy of Environmental Treaty-Making, page 140.

⁴⁶ UNFCCC, *Party Groupings*. Accessible at: <https://unfccc.int/process-and-meetings/parties-non-party-stakeholders/parties/party-groupings> (Accessed 10 October).

resembling the prisoner's dilemma.⁴⁷ Publicly stating preferences that diverge from genuine national interests risks domestic criticism and loss of credibility. Even non-democratic regimes face reputational constraints when official statements contradict evident strategic interests.⁴⁸ Formal environmental treaty negotiations convert divergent national preferences into cooperative outcomes through structured procedures and strategic interactions. These negotiations operate within institutional frameworks that shape both process and substance. According to Barrett, successful multilateral negotiations typically rely on agreed procedural arrangements, including committee organization, voting mechanisms and drafting methods.⁴⁹ For instance, the Third United Nations Conference on the Law of the Sea employed a multi-committee structure and majority voting for substantive issues, while climate change negotiations adopted a consensus rule requiring universal agreement. Each approach carries trade-offs, as consensus ensures inclusivity and voluntary commitment but grants every state veto power, while majority voting accelerates decisions but risks excluding key participants. In dealing with customary international law and soft mechanisms of cooperation, Barrett suggests that norms, reputation and a desire to be seen as reliable international partners can facilitate cooperation, even in the absence of centralized enforcement. Barrett, nevertheless, remains cautious while emphasizing that national self-interest remains a powerful barrier to forming and sustaining IEAs. Growing transparency in international diplomacy yields different consequences. While openness enhances democratic accountability, it can also reduce the flexibility of negotiators and discourage compromise. Many critical discussions continue to occur in closed sessions, even as formal proceedings become more public. Negotiators frequently adopt a sequential approach, beginning with broad framework conventions, which are followed by more detailed protocols, as exemplified by the Vienna Convention and the UNFCCC Kyoto Protocol pairings. This structure facilitates early consensus on principles while postponing divisive technical matters, though it can also prolong negotiations and complicate coordination. Ratification serves as the crucial mechanism, which links international negotiations with domestic legal and political systems. The mechanism functions as a "two-level game", where outcomes depend on both international bargaining and domestic approval processes.⁵⁰ While bilateral treaties may become legally binding upon signature, multilateral environmental agreements usually require formal ratification. The signature demonstrates the intention of a state to ratify, but it does not create binding obligations. Nonetheless, under international law, signatory states are expected to avoid actions that would defeat the purpose of the treaty, even if they later may choose not to ratify it.

⁴⁷ S. Barrett, *Environment and Statecraft: The Strategy of Environmental Treaty-Making*, page 141.

⁴⁸ S. Barrett, *Environment and Statecraft: The Strategy of Environmental Treaty-Making*, page 141.

⁴⁹ S. Barrett, *Environment and Statecraft: The Strategy of Environmental Treaty-Making*, page 142.

⁵⁰ S. Barrett, *Environment and Statecraft: The Strategy of Environmental Treaty-Making*, page 148.

National ratification processes differ significantly across political systems, shaping both negotiation strategies and treaty outcomes. In Switzerland, international treaty ratification requires the approval of the Federal Parliament and it can be subject to mandatory or optional referendum by the population, especially for treaties containing legal provisions.⁵¹ In contrast, in the United States, treaty ratification demands a two-thirds majority in the Senate, making approval politically challenging when partisan divisions exist. Such institutional variations compel negotiators to anticipate domestic political constraints during international bargaining. Legislatures can pre-emptively influence executive negotiators by setting conditions for ratification. International law expects that treaties and their membership remain publicly accessible, in order to prevent the instability associated with secret agreements. Public disclosure enhances transparency and allows all states to assess their strategic environment, while reducing the risks of misinformation that historically accompanied clandestine diplomacy.⁵² Once a treaty enters into force, states assume legal obligations to implement its provisions. However, enforcement mechanisms in international law remain weak due to the principle of state sovereignty. Implementation requires translating international commitments into domestic law through legislation, administrative measures or regulatory instruments. States possess broad discretion in determining how to fulfill treaty obligations. Most IEAs impose reporting duties on member states to facilitate monitoring and transparency. Verification processes typically rely on national self-reporting, creating opportunities for data manipulation. Historical evidence illustrates how inaccurate data can distort policy and scientific assessment.⁵³ Efforts to improve verification were constrained by limited participation, financial costs and potential collusion among monitored states. Changing circumstances, such as new scientific evidence, technological developments or shifts in national priorities often necessitate treaty revision or renegotiation. Unforeseen changes in prices, environmental conditions or technology can also prompt revision, particularly when treaty obligations or environmental impacts prove irreversible. Forward-looking negotiators therefore tend to favor precautionary or conservative provisions that safeguard against future uncertainty and irreversible damage. Membership rules play a crucial role in determining the legitimacy of a treaty and its effectiveness. For global environmental issues, participation is generally open to all states. The right to withdraw from a treaty constitutes a central manifestation of state sovereignty, deeply influencing the stability, credibility and long-term effectiveness of international environmental agreements. Most multilateral treaties permit withdrawal through formal written notification to the designated depository. These agreements commonly include minimum membership durations, usually three years, and require advance

⁵¹ Schweizerische Eidgenossenschaft, *Practice Guide to International Treaties*, 2023, page 22.

⁵² S. Barrett, *Environment and Statecraft: The Strategy of Environmental Treaty-Making*, page 150.

⁵³ S. Barrett, *Environment and Statecraft: The Strategy of Environmental Treaty-Making*, page 151.

notice before the withdrawal becomes effective. Such procedural safeguards promote stability and discouraging impulsive exits, signaling the seriousness of membership commitment and allowing remaining parties time to address the concerns of dissatisfied states. Withdrawal, or the threat of it, can serve as strategic bargaining tool in international diplomacy. When issued by key participants, such threats may compel renegotiation or policy adjustments. Switzerland, in this regard, has rejected a biodiversity initiative, but still remains a member of the Energy Charter Treaty (ECT). While not withdrawing it, voters rejected the biodiversity initiative in September 2024, which aimed at strengthening conservation efforts. Separately, the Confederation decided in early 2023 not to leave the ECT, despite the European Union's proposed mass exit, raising concerns that companies could use Switzerland as a base for "treaty shopping" to challenge climate policies.⁵⁴ The capacity to join and leave treaties underscores the self-enforcing nature of international cooperation. Fluctuations in membership reflect the balance between national autonomy and collective obligation. Although withdrawals are uncommon, their possibility shapes treaty formation and design by constraining the extent of behavioral commitments negotiators can credibly impose. Anticipating future dissatisfaction, states may refrain from joining rather than withdraw later, by making withdrawal rights a background factor in both accession and negotiation strategy.⁵⁵ Barrett's *Environment and Statecraft* explores the institutional and procedural aspects of treaty-making by analyzing factors as transaction costs, monitoring capacity, internal political coordination and leadership that influence the outcomes of environmental negotiations. Finally, Barrett also outlines how treaties can be designed to be self-enforcing, transforming the strategic environment from a prisoner's dilemma into a chicken game, where mutual cooperation becomes a rational strategy for all the parties involved.

2.1.2 The evolution from Sustainability to Global Change

In 1983, the United Nations commissioned a report, whose main objective was to address growing concern about the accelerating deterioration of the human environment and natural resources.⁵⁶ Chaired by Gro Harlem Brundtland, former Prime Minister of Norway, the World Commission on Environment and Development (WCED) published in 1987 the Brundtland

⁵⁴ The Guardian, *Swiss voters reject biodiversity proposal in blow to conservation campaigners*, 2024, Accessible at: <https://www.theguardian.com/world/2024/sep/22/switzerland-swiss-voters-reject-biodiversity-initiative-proposal-conservation#:~:text=1%20year%20old-,Swiss%20voters%20reject%20biodiversity%20proposal%20in%20blow%20to%20conservation%20campaigners,by%20the%20national%20broadcaster%20SRF>. (Accessed 10 October).

⁵⁵ S. Barrett, *Environment and Statecraft: The Strategy of Environmental Treaty-Making*, page 151.

⁵⁶ United Nations, "Report of the World Commission on Environment and Development", 1987, page 6.

Report. Formally titled *Our Common Future*, the report represents a pivotal moment in the global recognition of the interdependence between environmental protection and economic development. It introduces the definition of sustainable development, as “the needs of the present without compromising the ability of future generations to meet their own needs”.⁵⁷ By positioning sustainable development as the guiding principle for global policy, it provided a shared language to integrate ecological concerns with economic and social development. This framework emerged at a historical juncture defined by postwar optimism and faith in institutional reforms, efficiency gains and technological innovations. Contemporary global change science has challenged these assumptions, revealing that environmental degradation is not merely a set of local or sectoral problems, but a transformation that places fundamental limits on growth. The chapters, particularly the ones dealing with energy, industry, urbanization, global commons and security, demonstrate the conceptual shift from sustainability as management to global change as systemic transformation. Chapter 7 acknowledges the biophysical constraints posed by limited energy resources and environmental degradation, while simultaneously reaffirming a commitment to continuous economic expansion. The energy demand projections illustrated in the report anticipate a rapid growth, portraying even the most conservative scenario as a substantial increase over existing consumption levels. Implicit in this framing is the belief that energy growth is both inevitable and necessary for development. Where the report sees technological innovations and efficiency gains as the pathway to reconcile environmental and economic goals, the contemporary research highlights the inadequacy of this strategy. Concepts such as the rebound effect and planetary boundaries demonstrate that inefficiency alone does not reduce total resource use, rather it often enables further expansion. The report’s discussion on nuclear energy illustrate a deliberate political ambiguity. By neither endorsing nor rejecting nuclear expansion, the Commission deferred a core question that remains contentious today – whether decarbonization can be achieved without nuclear power. In contrast, its treatment of renewable energy significantly underestimated technological potential, seeing it as a distant complement rather than a transformative substitute. The same chapter sets energy efficiency as the cornerstone of sustainable development, which is overtaken by a planetary perspective that situates energy systems within Earth system limits. Efficiency remains necessary but insufficient, as reductions in fossil fuel use and systemic energy transitions are now recognized as non-negotiable.⁵⁸ Chapter 8 reflects a belief in ecological modernization, the notion that industrial systems can be reformed through technological improvement and regulatory refinement without altering their fundamental structure. It highlights relative decoupling between economic growth and material intensity, by interpreting declining resource use per unit of GDP as a sign of

⁵⁷ United Nations, “Report of the World Commission on Environment and Development”, page 15.

⁵⁸ Q. Hassan (et. All), “The renewable energy role in the global energy Transformations”, ScienceDirect, volume 48, 2024.

progress. However, later global change research reveals that total material throughput, the total amount of used raw materials, continued to rise, which was driven by the scale of economic expansion and the displacement of resource-intensive production to the Global South.⁵⁹ This managerial optimism also underpins the treatment of pollution. While noting significant improvements in air and water quality in some industrialized countries, it overlooks how local pollution control often externalized problems to other regions or global scales. Issues such as climate change, ocean acidification, persistent organic pollutants and microplastics were not yet recognized as integral to the industrial system. Likewise, industrialization in developing countries is framed as both necessary and achievable through technological transfer, without addressing the structural inequalities embedded in global economic systems that shape environmental outcomes. The promise of information technology, biotechnology and new materials is articulated as a means of improving resource efficiency, with only minimal attention to the potential for unintended consequences, lock-in effects or rebound dynamics. Global change perspectives have reframed these technological narratives, emphasizing socio-technical transitions, power relations and the structural that shape how innovations are deployed. Furthermore, Brundtland's industrial strategy focuses on improving the environmental performance of the existing industrial model, whereas global change perspectives fundamentally challenge whether that model itself can endure within planetary limits. The report also emphasizes the need for better planning, investment and industrial capacity to accommodate swelling urban populations in the Global South. It does not recognize that is urbanization itself that drives resource flows, land use change and greenhouse gas emissions far beyond city boundaries.⁶⁰ Later scholarship in global change science repositions cities as key agents in Earth system transformation.⁶¹ Urban areas are not just population centers but nodes that reorganize global resource networks, create long-term infrastructural path dependencies and contribute directly to planetary change. Moreover, Brundtland's treatment of the global commons represents an early step toward thinking beyond national boundaries. Oceans, outer space and Antarctica are recognized as shared spaces requiring international cooperation, and the report reflects optimism about the capacity of treaties and institutions to manage these domains. However, the conceptual framework remains rooted in resource to be governed sustainably, without anticipating ocean acidification, deoxygenation or marine ecosystem tipping points. Outer space is treated as a common heritage requiring coordination, but the scale of satellite-based Earth monitoring and commercial exploitation was not foreseen. Antarctica is recognized as a special zone of scientific

⁵⁹ E. G. Hertwich, "Increased carbon footprint of materials production driven by rise in investments", *Nature Geoscience*, volume 14, 2021.

⁶⁰ P. Yu (et. All), "Urbanization and the urban critical zone", *ScienceDirect*, Volume 1, 2024.

⁶¹ United Nations Human Settlements Programme, "International Conference on Climate Change and Cities", Conference IPCC, 2018.

cooperation, though the implications of climate-induced ice sheet destabilization were not yet understood. Global change science has since shifted the focus from commons management to Earth system governance. In fact, it emphasizes tipping points and calls for governance structures that reflect the integrated nature of planetary systems.⁶² Polycentric governance involving states, cities, corporations and civil society is now seen as necessary to manage these global domains. Among all the Brundtland's chapters, the discussion on peace and security is arguably the most forward-looking. It explicitly links environmental degradation, poverty, conflict and militarization, framing environmental change as security issue. This perspective anticipates much of today's climate security discourse. Chapter 11 highlights resource conflicts, environmental displacement and the vulnerability of marginalized communities to ecological shocks. It also recognizes the global consequences of nuclear war, positioning environmental catastrophe as a transboundary security threat. Where the Brundtland Commission saw environmental degradation as a factor contributing to conflict, contemporary global change perspectives place planetary destabilization at the core of security concerns. Climate change is now recognized as a primary threat multiplier, which is capable of destabilizing states, intensifying migration and exacerbating existing inequalities.⁶³ Although the report identified the potential to redirect military expenditures towards environmental protection and development, global trends have moved in the opposite direction, with rising military spending and insufficient investment in sustainability. Brundtland conceptualized environmental challenges primarily as sectoral or transboundary management issues that could be addressed through institutional reform, technological innovation and improved planning. Global change science reframes these challenges as planetary-scale transformations that demand structural change.⁶⁴ This evolution is evident in several dimension. First, the scale of analysis shifted from local and national management to planetary systems. Second, governance models moved from state-centric international cooperation to polycentric, multi-level governance. Third, the temporal framing changed: what once appeared as long-term challenges, now are presented as urgent crisis. Lastly, solutions expanded from efficiency and regulation to transformative restructuring of energy, economy and urban system. Brundtland assumed that economic growth could be made compatible with environmental protection through efficiency. Global change research challenges this assumption, by emphasizing biophysical limits and the need to reconsider development

⁶² Earth System Governance, "Science and Implementation Plan of the Earth System Governance Project", 2018.

⁶³ United Nations, "Causes and Effects of Climate Change". Accessible at: <https://www.un.org/en/climatechange/science/causes-effects-climate-change#:~:text=Climate%20change%20is%20a%20major,grow%20or%20find%20sufficient%20food> (Accessed on 15 October).

⁶⁴ P. Burger (et. All), "Energy futures as societal futures: co-evolutionary scenarios linking futures of society and decarbonized energy systems in Switzerland 2050", ScienceDirect, Volume 140, 2022.

pathways fundamentally. Global changes research questions whether the industrial model, around which sustainable development was built, can persist in the Anthropocene. The Brundtland Report remains a foundational text because it opened the political and intellectual space for integrating environmental and development concerns. Its emphasis on efficiency, technology, governance and equity remains relevant, but its managerial optimism and growth assumption no longer match with the scale and urgency of planetary change. Global change science has reframed sustainability from a problem of management to one of transformation, shifting the central question from “How can development be sustained?” to “What forms of human systems can the Earth sustain?”. The 1992 Rio Earth Summit formally known as the United Nations Conference on Environment and Development (UNCED) represent a pivotal moment in the institutionalization of this shift. The summit marked the transition from environmental protection as a discrete policy field to sustainable development as a comprehensive framework of planetary transformation.⁶⁵ Through the Rio Declaration and its accompanying instruments, global environmental governance moved beyond fragmented initiatives towards a systemic and integrated approach to human-environmental relations. UNCED rearticulated the relationship between human development and ecological preservation. Principle 1 situates human well-being at the core of sustainable development, while Principle 4 embeds environmental protection within the broader development process. This conceptual reorientation represents a progression from the environment-centered agenda of the United Nations Conference on the Human Environment of 1972. The shift from fragmented national actions to shared international responsibilities is visibly at Principle 7, which articulated the notion of “common but differentiated responsibilities”, by positioning developed states as bearing heightened obligations in the collective pursuit of sustainable development. This reflects a movement from state sovereignty toward cooperative global governance, and the interconnectedness of ecosystems, whose transboundary character of environmental problems needs collective administration of the global commons. Several principles within the declaration highlight the need to reform economic structures. Principle 8 calls for reducing unsustainable production and consumption, while Principle 16 foregrounds the “polluter pays” principle through the internationalization of environmental costs. Additionally, Principle 25 conceptualizes peace, development and environmental protection as interdependent and indivisible, that integrates vision calls for coordinated policymaking across traditionally separate domains. Switzerland assumed a prominent diplomatic role during the Rio process. Under the leadership of Federal Councilor Flavio Cotti, the Swiss delegation operated at the highest political level. Swiss engagement was preceded by preparatory initiatives, including a landmark speech by President Arnold Koller at the Second World Climate Conference in Geneva in 1990, where

⁶⁵ Schweizerische Eidgenossenschaft, 1992: *UN Conference on Environment and Development, Rio De Janeiro*, 2006.

Switzerland pledged to stabilize CO₂ emissions at 1990 levels by 2000 through a carbon levy.⁶⁶ The country has also played a decisive role in advancing negotiations toward the United Nations Framework Convention on Climate Change (UNFCCC). A joint diplomatic initiative between Cotti and the Brazilian Minister José Goldemberg helped break negotiation deadlocks, paving the way for the Convention's adoption and signature in June 1992. Switzerland sought to position Geneva as a central node for global environmental governance. It hosted the UNCED preparatory secretariat, convened multiple negotiation rounds, and mounted a campaign to attract the Secretariat of the United Nations Commission on Sustainable Development, although it went to New York ultimately. In his plenary speech on June 13, Cotti noted that the summit's outcomes were largely declarative, and emphasized the need for further operationalization. Nevertheless, Switzerland regarded Rio as a historic step toward sustainable development. Its role exemplified middle-power diplomacy through bridge-building, early climate commitments and support for institutional development.⁶⁷ The Rio Declaration articulated mechanisms to operationalize global transformation, including the development of national and international legal frameworks (Principle 13), technology transfer and capacity building (Principle 9) and the negotiation of binding international agreements.⁶⁸ Its institutional legacy includes the UNFCCC, the Convention on Biological Diversity, Agenda 21, the Commission on Sustainable Development and the Forest Principles. One of the most notable strengths of the 1992 Rio Earth Summit is the fact that the frameworks integrates environmental, economic, social and governance dimensions, promoting a systemic understanding of sustainable development rather than treating these domains in isolation. This integrative character is reinforced by its scalability, as the principles articulated in the Rio Declaration can be applied across multiple levels of governance, from local initiatives to national and global policies. Another key strength is its inclusivity, which acknowledges the role of diverse actors – such as states, civil society, indigenous communities, women and youths. It embeds also intergenerational equity as a guiding principle, ensuring that sustainability is not merely conceived as a present-day objective but as a long-term global commitment. One last strength is its flexibility, as it balances the articulation of universal principles with space for context-specific implementation, thus accommodating the heterogeneity of national capacities and priorities. Despite these strengths, the declaration also exhibits several limitations, as its non-binding character. This significantly constrains its capacity to drive enforceable action at the international level. Many of its principles function as normative guidelines rather than legally binding commitments, as it leaves considerable discretion to

⁶⁶ D. Matter, "Switzerland's high hopes at the 1992 Earth Summit", Swiss National Museum, 2023.

⁶⁷ D. Matter, "Switzerland's high hopes at the 1992 Earth Summit".

⁶⁸ United Nations General Assembly, "Report of the United Nations Conference on Environment and Development", A/CONF.151/26 (Vol.1), 1992.

individual states. The framework also relies on a conventional economic growth paradigm, which does not interrogate the structural economic drivers of environmental degradation. Ongoing sovereignty tensions reflect the difficulty of reconciling national interests with collective global responsibilities, underscoring the complex political terrain in which sustainability governance operates. Taken together, these strengths and limitations reveal a framework that is conceptually ambitious but structurally constrained in its ability to effectuate systemic global transformation. Agenda 21 constitutes the most ambitious and comprehensive action plan for sustainable development ever adopted at the international level. This document, endorsed by 178 governments during the 1992 Rio Earth Summit, translates broad sustainability concepts into operational mechanisms for global change. While the Rio Declaration on Environment and Development provided a set of overarching principles, Agenda 21 moves a step further by delineating concrete programmatic areas, strategies for implementation and financial considerations. In doing so, it transforms aspirational visions of sustainability into structured pathways. The document is divided into 40 chapters, which are distributed across four key sections. Section I addresses social and economic dimension and encompasses issues like international cooperation, poverty alleviation, consumption patterns, demographic trends etc.⁶⁹ Section II focuses on the conservation and management of resources, covering atmosphere, land, forests, oceans, freshwater, agriculture and waste management, including hazardous and radioactive wastes.⁷⁰ Section III turns to major societal groups, such as women, youth, indigenous peoples, NGOs, local authorities and workers, recognizing their role in driving transformation.⁷¹ Section IV identifies means of implementation, including financing, technology transfer, capacity building, institutional arrangements and information systems.⁷² From the outset, defining humanity at a turning point, the document frames itself not simply as an environmental plan, but as a comprehensive strategy for addressing interconnected global crises. It explicitly emphasizes collective responsibility, where sustainable development is treated as an organizing principle for the entire international system, thus linking with economic restructuring. Rather than advocating incremental reform, it calls for a fundamental reorientation of economic systems around sustainability principles. The document identifies consumption itself as a structural driver of environmental degradation and it expands the notion of agency in global transformation, as governments are acknowledged as central actors and not solely drivers of change. Although Agenda 21 primarily operates as a universal action plan rather than a country-specific document, Switzerland had a significant diplomatic and institutional role during its

⁶⁹ United Nations Sustainable Development, *Agenda 21*, Section 1, 1992, pp. 4-75.

⁷⁰ United Nations Sustainable Development, *Agenda 21*, pp. 76-269.

⁷¹ United Nations Sustainable Development, *Agenda 21*, pp. 270-299.

⁷² United Nations Sustainable Development, *Agenda 21*, pp. 300-351.

formulation and early implementation. The Confederation hosted preparatory meetings in Geneva, advanced climate diplomacy through the Cotti-Goldemberg initiative and made early pledges on CO₂ stabilization. The Swiss influence is visible in several aspects of the document. Chapter 33 reflects its advocacy for predictable financial flows and transparency, while Chapter 38 mirrors debates influenced by its campaign to host sustainable development institutions in Geneva. Moreover, Chapter 13 on mountain ecosystems aligns with Swiss environmental priorities, by reflecting Switzerland's longstanding leadership on mountain sustainability issues. Swiss foreign policy emphasized bridge-building between North and South, institutional development and multi-stakeholder approaches. However, the document remains a soft law instrument with no binding enforcement. An implementation gap emerged early on, as ambitiousness exceeded delivery. Its reliance on a sustainable growth paradigm was criticized for insufficiently questioning the economic models that drives environmental harm.⁷³ The financial targets, as the \$125 billion annual international financing goal, were never fully realized.⁷⁴ Despite some critiques on economic models and financial target, Agenda 21 laid the foundation for subsequent global frameworks, including the Millenium Development Goals, United Nations Conference on Sustainable Development (Rio +20), the Sustainable Development Goals and the Paris Agreement. It also inspired thousands of "Local Agenda 21" initiatives worldwide, institutionalizing integrated approaches to sustainability at the local level. Switzerland remained a consistent advocate of this agenda, supporting the 2030 Agenda, hosting key UN agencies and advancing integrated and multi-stakeholder approaches to sustainable development. The journey from Agenda 21 to the 2030 Agenda reflects a continuing evolution toward systemic global change, as unresolved challenges remain. The UNFCCC constitutes the first legally binding multilateral treaty designed to confront climate change as a shared planetary challenge, requiring collective international action.⁷⁵ While UNCED and Agenda 21 provided a broad blueprint for sustainable development, the UNFCCC focused on the single most critical planetary boundary, the climate stability, and laid the legal and institutional foundations for transforming energy systems, economic structures and development pathways at the global level. The preamble of the convention recognizes climate change as a matter of "common concern of humankind", redefining climate stability as a shared planetary heritage and asserting that no state holds

⁷³ F. Langeweg, "The implementation of Agenda 21 "our common failure?", ScienceDirect, Volume 218, 1998.

⁷⁴ United Nations Department of Economic and Social Affairs Division for Sustainable Development, "Review of implementation of Agenda 21 and the Rio Principles", 2012.

⁷⁵ United Nations Climate Change, United Nations Framework Convention on Climate Change. Accessible at: <https://unfccc.int/process-and-meetings/united-nations-framework-convention-on-climate-change> (Accessed 16 October).

exclusive sovereignty over the climate system.⁷⁶ By affirming that climate change is a transboundary issue that exceeds the limits of territorial jurisdiction, the treaty establishes collective stewardship as a core principle. The document also sets a scientific consensus within international law by affirming that human activities have significantly increased greenhouse gas concentrations in the atmosphere. As a consequence, natural greenhouse effect is amplified and the climate systems are destabilized. This explicit recognition situates anthropogenic emissions at the core of the crisis. It also emphasizes the historical responsibility of developed countries, which contributed the largest share of cumulative emissions, By acknowledging that many developing countries maintain low per capita emissions and still face pressing development needs, the principle of common but differentiated responsibilities is underpinned. Developed countries, in fact, are expected to take the lead in reducing emissions, due to their greater historical contribution and their superior capacity to act. At the same time developing countries, those facing heightened exposure to climate impacts, should receive priority attention. The Convention positions uncertainty as an impetus to act early and decisively in order to prevent irreversible damage. Article 2 articulates the treaty's central goal - the stabilization of greenhouse gas concentrations at levels that prevent dangerous anthropogenic interference with the climate system. This stabilization must be achieved within a timeframe that allows ecosystems to adapt naturally, that ensures food security and enables sustainable economic development.⁷⁷ Intergenerational justice and equity are established as normative foundations. Article 4 delineates universal commitments for all parties. Each signatory is required to regularly prepare national greenhouse gas inventories, formulate and update mitigation and/or adaptation programs, promote technology development and transfer, manage carbon sinks sustainably, and mainstream climate considerations into social, economic and environmental policies.⁷⁸ In this regard, the Conference of the Parties (COP) serves as the supreme decision-making body, responsible for reviewing implementation, developing methodologies, mobilizing financial resources and setting future agendas. In order to support this structure, there are two subsidiary bodies – the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI). These two bodies ensure a rigorous review of national actions. Switzerland is listed under both Annex I and Annex II of the UNFCCC. This dual designation commits it to both leading domestic emissions reductions and contributing financial and technological resources to support developing countries. The Swiss interest in climate action comes from its specific geographic vulnerabilities. Being a predominantly mountainous country, Switzerland faces disproportionate impact from climate change, particularly regarding glacial

⁷⁶ United Nations, *United Nations Framework Convention on Climate Change*, 1992, page 2.

⁷⁷ United Nations, *United Nations Framework Convention on Climate Change*, page 9.

⁷⁸ United Nations, *United Nations Framework Convention on Climate Change*, page 10.

retreat, water resources and tourism-dependent economies.⁷⁹ Moving forward with the UNFCCC represents a significant evolution from the aspirational framework of the early 1990s to a structured, legally grounded global response to climate change. It transformed climate protection from a voluntary environmental concern into an international legal obligation. Unlike its predecessors, the Convention created permanent institutions, iterative governance processes and positioned climate governance as an ongoing collective process rather than a one-time accord. Its achievement are evident. Being the first global climate treaty, it secures almost a universal ratification and establishes a durable institutional infrastructure for climate diplomacy. Nonetheless, its limitations are also significant. Since the original emissions targets were not legally binding, financial commitments from developed countries fell short of promises and mechanisms for technology transfer were inadequate. Global emissions continued to rise, revealing a persistent implementation gap between ambition and action. The UNFCCC remains anyway the cornerstone of the international climate regime, by its codification of the principles of common but differentiated responsibilities, intergenerational justice and precaution. Switzerland's dual role as both a mitigation leader and a financial contributor illustrates how states can exercise differentiated yet meaningful leadership. More than three decades after its adoption, the Convention's opening determination to "protect the climate system for present and future generations" remains a central, although unmet, aspiration of global governance.⁸⁰ The first international legal instrument devoted to biodiversity in its full ecological, genetic and species dimensions is the Convention on Biological Diversity (CBD), which was adopted alongside the UNFCCC and Agenda 21 at the 1992 Rio Earth Summit. CBD addresses the living fabric of the Earth not merely as a something to be exploited, but as a global heritage that requires collective stewardship, equal benefit-sharing and sustainable use. While articulating biodiversity as a "common concern of humankind", it simultaneously reaffirms state sovereignty over biological resource.⁸¹ This balance between global responsibility and national prerogatives remains one of its defining features. The Convention attributes biodiversity loss to human activities and urges parties to address its root causes. Its preamble embeds the precautionary principle, indicating that scientific uncertainty should not delay preventive action in the face of potential irreversible loss. Equally significant is the recognition of indigenous peoples and local communities as holders of traditional knowledge relevant to conservation and sustainable use, with an emphasis on equitable benefit-sharing from the use of such knowledge. Intergenerational

⁷⁹ Schweizerische Eidgenossenschaft, *Switzerland's information necessary for clarity, transparency and understanding in accordance with decision 1/CP.21 of its updated and enhanced first nationally determined contribution (NDC) under the Paris Agreement (2021-2030)*, 2024.

⁸⁰ United Nations, *United Nations Framework Convention on Climate Change*, page 6.

⁸¹ Secretariat of the Convention on Biological Diversity Montreal, "Convention on Biological Diversity", 2011, page 6.

justice is affirmed as a guiding principle, aligning the CBD with the ethical foundations of the UNFCCC and the Rio Declaration on Environment and Development. As a matter of fact, sustainable use is presented as a mean of ensuring intergenerational maintenance of biodiversity. Benefit-sharing introduces distributive justice into international environmental law, requiring access and benefit agreements, technology transfer and financial support to ensure that biodiversity-rich countries benefit from its commercial use. The Convention defines biological diversity as variability among living organism from all sources – terrestrial, marine and aquatic – encompassing diversity within and between species, and of ecosystems. Sustainable use is defined as utilization at a rate that does not result in long-term decline, hence ensuring that future generations can meet their needs.⁸² The Convention places biodiversity within the context of development, food security and human well-being. CBD requires states to integrate biodiversity considerations across sectors such as agriculture, forestry, fisheries, tourism, infrastructure and trade. As mentioned before, the body that monitors implementation, adopts protocols and ensures that scientific advice informs policy is the Conference of the Parties to the Convention on Biological Diversity. This structure allows the regime to evolve through mechanisms such as the Cartagena Protocol on Biosafety and the Nagoya Protocol, enabling dynamic responses to emerging challenges. Being a binding obligations, parties must develop national strategies, monitor biodiversity components, establish protected areas and report on implementation. Developed countries are obliged to provide a new and additional financial resources to cover the incremental costs of implementation. These binding instruments closed the 1990s with the hope of improving the future conditions of the planet. However, climate change represents one of the most pressing and complex challenges of today. The average global temperature raised by approximately 1.1°C compared to pre-industrial levels, a change that triggered an increase in both the frequency and intensity of extreme weather events.⁸³ These climatic disruptions exacerbate risks to food security, elevate the likelihood of flooding and destabilize ecological systems on a planetary scale. Now encompassing 197 parties, the UNFCCC established the foundational framework for international cooperation, but it was in 1997, with the Kyoto Protocol, that for the first time were set legally binding emission reduction targets for developed countries. The terminology used throughout the Kyoto Protocol is consistent with that of the UNFCCC, as it serves as a supplementary instrument. Within this framework, the term “climate change” appears in connection with the objective of the Convention, as it address sustainable agricultural practices intended to mitigate environmental impacts and in calls to minimize the adverse effects of a changing climate. As a binding treaty implementing the UNFCCC, the Kyoto Protocol limits its commitments to the control and reduction of specific greenhouse gasses and to

⁸² Secretariat of the Convention on Biological Diversity Montreal, “Convention on Biological Diversity”, 2011, page 9.

⁸³ Schweizerische Eidgenossenschaft, *What we currently know about global climate change*, 2021.

their direct influence on the climate system. This terminological discipline prevents the unintended expansion of the treaty's scope beyond its defined legal mandate. The document also draws an explicit distinction between the Kyoto Protocol and the Montreal Protocol on Substances that Deplete the Ozone Layer by referring to gases "not controlled by the Montreal Protocol".⁸⁴ By doing so, it delineates its own focus on climate-forcing emissions, while acknowledging that ozone depletion, though part of the broader phenomenon of global environmental change, is governed by a separate legal regime. The exclusion of the term "global change" thus avoids combining these distinct environmental processes and regulatory systems. The Protocol's reference to the Intergovernmental Panel on Climate Change further stress its exclusive focus on the climate dimension of environmental policy. The Kyoto Protocol remains firmly within the conceptual and institutional boundaries of the UNFCCC, by employing the term "climate change" as a matter of legal and scientific precision. This focus reinforces its coherence as an instrument directed specifically at the mitigation of greenhouse gas emissions and distinguishes it from wider discourses addressing the multifaceted phenomena of global environmental change. The Paris Agreement in 2015 marked a further turning point, committing 194 parties to pursue efforts to limit global warming to below 2 °C and ideally to 1.5 °C above pre-industrial level.⁸⁵ As warming intensifies, opportunities for effective adaptation diminish, and the risks of irreversible impacts escalate. Achieving deep and rapid emissions reductions is not only a technical and economic challenge but also a moral and political imperative that would shape the conditions of life for generations to come.⁸⁶ The decade between 2011 and 2020 marked an alarming acceleration in the pace of climate change, being the warmest ten-year period since the beginning of instrumental records. According to a World Meteorological Organization (WMO)'s assessment, the rapid increase in atmospheric greenhouse gas concentrations during this period intensified global temperature rise, amplified the rate of ice melt in polar and mountainous regions, and contributed to unprecedented sea-level rise. The report, *The Global Climate 2011-2020: A Decade of Acceleration*, emphasizes that the cumulative effects of these trends are not only reshaping physical Earth systems but also threatening human security, sustainable development and global stability. The polar regions experienced severe transformations, with glaciers worldwide thinned by approximately one meter per year on average during the decade, for example. The intensification of all these trends are correlated with anthropogenic emissions from fossil fuel combustion, land-use change and

⁸⁴ United Nations, "Kyoto Protocol to the United Nations Framework Convention on Climate Change", 1997, page 2.

⁸⁵ United Nations Climate Change, "The Paris Agreement". Accessible at: <https://unfccc.int/process-and-meetings/the-paris-agreement> (Accessed on 16 October).

⁸⁶ M. Fischer (et. All), "Sustainable Business, Managing the Challenges of the 21st Century", Springer, 2023.

deforestation.⁸⁷ The socio-economic consequences of the climatic acceleration are profound. More frequent and intense extreme events, including droughts, flood, heatwaves, tropical cyclones, and wildfires had measurable impacts on infrastructure, food production and water security, often resulting in large-scale population displacement. Attribution studies consistently show a significant increase in the likelihood of extreme heat events due to anthropogenic climate change.⁸⁸ Heatwaves were associated with the highest number of casualties, while tropical cyclones accounted for the greatest economic damages. Weather and climate related hazards accounted for approximately 94% of all disaster-related displacements in the decade, exacerbating humanitarian crises and undermining national development trajectories. This underscores that climate change is not merely an environmental issue but a fundamental challenge to social and economic systems.⁸⁹ While climate finance from public and private sources nearly doubled between 2011 and 2020, the WMO report highlights that still remains far below the required levels for meeting global temperature goals. It is estimated that climate finance must increase at least sevenfold by 2030 in order to align with the 1.5 °C target established under the Paris Agreement. The findings, released at 2023 United Nations Climate Change Conference (COP28), emphasize that the choices made in the coming years will determine whether we can avoid the worst outcomes for uncontrolled warming. Despite criticism that the multilateral negotiation process under the UNFCCC is often slow and complex, it remains indispensable, as climate change constitutes a global collective action problem that necessitates a coordinated international response.⁹⁰ For smaller nations like Switzerland, the UN climate framework provides a vital platform for representing national interests and contributing to the development of innovative, low-carbon technologies.

2.2 Swiss Mediation in Environmental Diplomacy

Although Swiss environmental legislation does not directly refer to “mediation” as a formal legal process, its policy framework incorporates several mechanisms that perform similar functions. These mechanisms facilitate participation, negotiation and dispute resolution among public authorities, industry and civil society. The Swiss model reflects a culture of dialogue and consensus that aligns closely with the principles of mediation, even though it is embedded within

⁸⁷ M. Fischer (et. All), “Sustainable Business, Managing the Challenges of the 21st Century”.

⁸⁸ J. Zhou (et. All), “A global attribution analysis of increasing risk of successive runoff-heat extreme events driven by anthropogenic forcing”, ScienceDirect, Volume 641, 2024.

⁸⁹ World Meteorological Organization, “The Global Climate 2011-2020: A decade of acceleration”, N. 1338, 2023.

⁹⁰ Schweizerische Eidgenossenschaft, *Paradigm Change in Global Climate Policy*, 2011.

administrative and legal procedures rather than established as a distinct institutional practice.⁹¹ A central feature of this system is the active participation of environmental non-governmental organizations (NGOs) in shaping and enforcing environmental policy. NGOs in Switzerland hold a prominent position in the policy process by acting as a counterbalance to governmental and industrial interests. The most important NGOs to cite are Pro Natura, WWF Switzerland, Save Our Seas Foundation, UN Environment Programme Switzerland, World Meteorological Organization, Intergovernmental Panel on Climate Change and the International Federation of Red Cross and Red Crescent Societies based in the Swiss territory. They engage in legislative debates, influence public opinion and contribute to the development of environmental norms. More importantly, approximately thirty recognized environmental organizations possess statutory rights to appeal administrative decisions at both the federal and cantonal levels under major environmental laws such as the Federal Environmental Protection Act (EPA), the Federal Act on the Protection of Nature and Cultural Heritage (NCHA) and the Federal Act on Non-Human Gene Technology (GTA).⁹² This legal standing enables them to challenge environmental rulings, compelling authorities and developers to engage with them at an early stage. Consequently, dialogue and negotiation are often used to avoid lengthy legal disputes, functioning as an indirect form of mediation. Within the Environmental Impact Assessment (EIA) procedure, NGOs may also submit objections and participate as parties in authorization processes, ensuring that their perspectives are considered throughout project planning. The Swiss enforcement system further encourages cooperative forms of conflict resolution. Environmental regulation in Switzerland is applied rigorously at both the federal and cantonal levels, which fosters early compliance and proactive engagement between regulators and operators. The possibility of administrative injunctions and legal appeals provide a structured avenue for resolving disputes while maintaining space for negotiated settlements prior to judicial proceedings. The implementation of the “polluter pays” principle also introduces an element of negotiation, as responsible parties are required to assume financial liability for environmental harm, often leading to discussions on remediation strategies and cost distribution. A distinctive characteristic of the Swiss regulatory environmental governance is its reliance on the principle of co-ordination in permitting and planning. Because Switzerland does not operate with an integrated permitting system, companies seeking project authorization must obtain several permits covering different environmental aspects. To prevent inconsistencies and duplication, authorities are required to coordinate these procedures both substantively and procedurally. This process demands negotiation and harmonization between various regulatory agencies and the applicant, thereby creating an institutionalized mechanism for dialogue. In practice, this coordination operates as an internal

⁹¹ Schweizerische Eidgenossenschaft, *Swiss Environmental Law. A brief guide*, 2022.

⁹² I. Romy (et. All), “Environmental law and practice in Switzerland: overview”, 2020, page 2.

form of policy mediation by balancing diverse regulatory requirements and stakeholder interests. Transparency and public access to information constitute another cornerstone of Switzerland's participatory environmental governance. The Federal Act on Freedom of Information in the Administration (FoIA) ensures that individuals can access official documents and request environmental data, thus promoting openness and accountability. Switzerland's ratification of the Aarhus Convention further strengthens the rights of citizens and organizations to obtain environmental information and to participate in decision-making processes. Public registers, like the databases on contaminated sites, the Pollutant Release and Transfer Register (PRTR), make key environmental data widely accessible. These registers allow the public to monitor environmental performance and contribute to informed dialogue.⁹³ Transparency, in this regard, serves as a precondition for effective participation and constructive negotiation between citizens, government and private actors. While Swiss environmental law does not formally institutionalize mediation as a separate legal procedure, it exhibits several mediation-like features. Through the statutory participation of NGOs, the coordination of permitting procedures, the participatory environmental assessments and the transparency obligations, the Swiss framework integrates mechanism that promote negotiation, consensus-building and conflict prevention. These processes collectively ensure that environmental governance in Switzerland is characterized by dialogue, inclusivity and accountability. It also allows to achieve the core objectives of mediation. Additionally, Swiss environmental governance prioritizes early engagement and collaboration in order to reconcile conflicting interests, promote sustainable and practicable outcomes.⁹⁴ At the foundation of this system lies the Cooperation Principle, which provides the normative and procedural basis for non-adversarial environmental governance. This principle ensures that environmental legislation in Switzerland is not unilaterally imposed but instead developed and implemented through inclusive, broad-based decision-making processes. By prioritizing collaboration and voluntary compliance, the Cooperation Principle encourages the early adoption of environmental measures, reducing the likelihood of conflict and the need for coercive enforcement. This preventive, consensus-oriented approach embodies the central ethos of mediation – resolving potential disputes through dialogue and shared understanding before they escalate into formal contention. With this principle, Swiss environmental law employs various instruments of cooperation that institutionalize negotiation and agreement as means of achieving policy objectives. Rather than imposing rigid, top-down mandates, authorities often work with specific industrial sectors to establish tailored environmental goals and commitments. Such sectoral agreements allow measures to be adapted to the technical and economic realities of each industry while ensuring that progress aligns with national environmental standards. Swiss

⁹³ I. Romy (et. All), "Environmental law and practice in Switzerland: overview".

⁹⁴ Schweizerische Eidgenossenschaft, *Swiss Environmental Law, a brief guide*, 2022.

environmental policy also demonstrates a holistic and preventive orientation that aligns closely with mediation's commitment to balance and fairness.⁹⁵ The environmental legal framework requires that all regulatory measures should be evaluated in an integrated manner, ensuring that the protection of one environmental domain does not come at the disproportionate expense of another. This insistence on proportionality and mutual adjustment mirrors the deliberative and integrative logic of mediation, where competing interests are balanced through careful consideration of the broader context. Furthermore, the legal system provides formal recourse to the parties that are dissatisfied with administrative decisions. However, the existence of this judicial avenue often serves as a deterrent, motivating parties to engage in dialogue and negotiation to avoid lengthy and costly litigation. This dynamic reinforces the role of early communication and compromise as the essential elements of environmental governance in Switzerland.⁹⁶ Swiss environmental policy integrates mediation-like dynamic at multiple levels of decision-making. Through the Cooperation Principle, the use of negotiated agreements, participatory dialogue and holistic regulatory coordination, the system embodies a form of institutionalized mediation without directly mentioning the term. These mechanisms collectively foster consensus, prevent conflict and facilitate adaptive, jointly crafted solutions to complex environmental challenges. As a result, the Swiss approach not only exemplifies effective environmental governance but also demonstrates how mediation principles can be seamlessly embedded within legal and administrative structures to achieve durable and socially legitimate environmental outcomes.

2.2.1 Basel Convention

In the previous paragraphs, an analysis of the major environmental agreements and declarations was offered. However, for the purpose of the present dissertation, it is important to fully analyse the most relevant conventions for which Switzerland had a significant role in their negotiation. Not only for its geographical location, but also for the objectives that have been discussed during the negotiation, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal represent a landmark in the development of international environmental law. Adopted on 22 March 1989 in Basel, Switzerland, by the Conference of Plenipotentiaries, the Convention emerged in response to mounting global concern during the 1980s over the export of toxic waste to developing countries. Public outrage intensified following the discovery of hazardous waste dumping sites in parts of Africa and other regions of

⁹⁵ Schweizerische Eidgenossenschaft, *Swiss Environmental Law, a brief guide*.

⁹⁶ Schweizerische Eidgenossenschaft, *Swiss Environmental Law, a brief guide*.

the Global South, where environmental regulations were weak or non-existent.⁹⁷ During the 1970s and 1980s, industrialized countries experienced a significant rise in environmental consciousness, which led to stricter national regulations on waste management. These measures, together with growing public resistance to local waste disposal – often framed through the Not in My Back Yard discourse (NIMBY) – drove up the cost of domestic disposal. As a result, some operators sought cheaper, less regulated disposal options abroad, particularly in Eastern Europe and developing regions. The Convention was based in Basel, as a key event occurred in Italy in 1983. Forty-two steel drums containing highly toxic dioxin waste, which originated from the 1976 Seveso disaster, were discovered in the backyard of a butcher in northern France and were later destroyed through high-temperature incineration in Basel.⁹⁸ In June 1987, following a joint initiative by Switzerland and Hungary, the Governing Council of the United Nations Environment Programme authorized the Executive Director to establish a working group, which was aimed at developing a global treaty for the regulation of transboundary movement of hazardous wastes. The Convention entered into force in 1992, and set as primary purpose the safeguard of human health and the environment, from the harmful impacts of hazardous waste and other material requiring special management.⁹⁹ It covers wastes identified as hazardous based on their origin, composition or characteristics as well as specific categories of “other wastes”, including household refuse, incinerator residues, selected plastic waste and certain types of electronic and electrical waste. It prohibits exports of hazardous waste to Antarctica, to countries not party to the Convention or to states that explicitly banned such imports. States, however, might conclude bilateral or multilateral agreements on waste management with other parties or non-parties, provided that these agreements meet or exceed the Convention’s environmental standards (Article 11). A central mechanism of the Convention is the prior informed consent procedure (PIC). Under Articles 6 and 7, the state of export must notify the competent authorities of importing and transit states of any planned shipment, providing detailed information. This procedure embodies its commitment to transparency, accountability and state sovereignty in transboundary waste movements. In sum, the Basel Convention represents a critical step in the evolution of international environmental governance. It responds to the global nature of hazardous waste flows through a combination of legally binding controls, cooperative mechanisms and capacity-building initiatives. Although originally focused on curbing toxic

⁹⁷ Swiss Agency for the Environment, Forests and Landscape SAEFL, *What is the Basel Convention?*, 2024.

⁹⁸ ETI Umwelttechnik AG, “Basel Convention”, Accessible at: <https://www.eti-swiss.com/en/international-activities/chemical-conventions/basel-convention/#:~:text=A%20key%20incident%20was%20the,terms%20of%20quantity%20and%20hazardousness> (Accessed on 20 October).

⁹⁹ UNEP, *Basel Convention*, 2023 Revision, page 9.

waste trade, its regulatory principles continue to inform contemporary debates on transboundary environmental harm, equity and environmental justice.

2.2.2 Stockholm and Rotterdam Conventions

The Basel Convention is part of the BRS Conventions, namely Basel, Rotterdam and Stockholm Conventions. Globally, an estimated 350.000 chemical substances are in active use and only a small fraction is governed by international regulations. Involving 187 countries, the BRS Conventions serve as the principal international framework for managing these hazardous substances. Convened in Geneva, the BRS Conventions aim to regulate the global trade, utilization and disposal of chemical that pose significant risks to human health and the environment.¹⁰⁰ Like the Basel Convention, the Secretariat of the Stockholm Convention is located in Geneva, Switzerland. The Secretariat of the Rotterdam Convention, however, is based in Rome and Geneva, being a joint venture between the UNEP in Switzerland and the Agriculture Organization of the United Nations (FAO) in Italy.¹⁰¹ The Stockholm Convention on Persistent Organic Pollutants was formally adopted on 22nd May 2001 during the Conference on Plenipotentiaries held in Stockholm, Sweden. This international legal instrument entered into force on the 17th May 2004. This date marked a significant milestone in global environmental governance, as it aimed at protecting human health and the environment from harmful persistent organic pollutants (POPs). The same year, on the 24th February 2004, the Rotterdam Convention entered into force. Formally adopted on the 10th of September 1998 by a Conference of Plenipotentiaries, the Rotterdam Convention aims at promoting shared responsibility and cooperation on trade of certain hazardous chemicals and encourage the environmentally sound management of hazardous chemicals. Both of the Conventions, as well as the Basel Convention, establish legally binding obligations for implementing the PIC procedure. Recently, as per its effect on the 1st of January 2026, all the parties to the Stockholm Convention, including Switzerland, must prohibit the production and use of long-chain perfluoro carboxylic acids (PFCAs), which are the compounds commonly found in firefighting foams, textiles, cosmetics

¹⁰⁰ SwissInfo, “PFAS regulation: ‘forever chemical’ banned under global treaty”, 2025. Accessible at: <https://www.swissinfo.ch/eng/international-geneva/geneva-breakthrough-forever-chemical-banned-under-global-treaty/89279639#:~:text=Important%20progress%2C%20but%20is%20it,transitional%20period%20of%20five%20years> (Accessed on 22 October).

¹⁰¹ BRS MEAs, “The Basel, Rotterdam and Stockholm Conventions”. Accessible at: <https://www.brsmeas.org/Secretariat/Overview/tabid/3609/language/en-US/Default.aspx> (Accessed on 22 October).

and food packaging.¹⁰² Additionally, the most recent negotiations addressed a range of pressing issues, including the dismantling of ships, the management of electronic waste and the persistent regulatory gaps concerning toxic chemicals. In addition to the inclusion of PFCAs, two further pollutants, namely chlorpyrifos and chlorinated paraffins have been added to the Stockholm Convention's list of prohibited substances.

2.3 Involvement at UN Initiatives

The referendum of 16 May 1920 marked a decisive turning point for Switzerland. On that day, the electorate and the cantons approved the federal decree on joining the League of Nations. The accession was endorsed by the majority of 56.3 percent of voters.¹⁰³ After centuries of relative isolation, rooted in the defeat at Marignano in 1515 and reinforced by the gradual consolidation of perpetual neutrality, Switzerland sought to articulate a broader and more outward-looking understanding of neutrality, international cooperation and solidarity. Switzerland's entry into the League, as well as its later relationship with the United Nations from 1945 onward, may be viewed against this backdrop, even though developments in the international environment and in domestic attitudes toward neutrality did not unfold in parallel. The Confederation ultimately became a member of the United Nations only on 10 September 2002, as its 190th member. At the end of 1946, the Federal Council opted against seeking membership in the United Nations, while simultaneously committing to participate as extensively as possible in the organization's activities. This strategy rested on three central priorities: establishing permanent observer missions within the UN system, facilitating and supporting the relocation of UN organs and subsidiary bodies to Geneva and cooperating with UN institutions. Through the creation of observer missions in New York, beginning of 1948, and Geneva, in 1965, Switzerland acquired a status closely resembling that of a member state. Although it was required to contribute financially to the UN's regular budget without possessing any voting rights, its contributions remained far lower than they would have been under full membership. Between 1946 and 1993, Switzerland joined all UN specialized agencies and acceded to the Statute of the International Court of Justice. By doing so, it committed itself to furthering international cooperation across a wide spectrum of policy fields, including trade, nuclear energy, agricultural production, education and development assistance. Several Swiss nationals held prominent positions within

¹⁰² Swiss Agency for the Environment, Forests and Landscape SAEFL, *What is the Basel Convention?*, 2024.

¹⁰³ SwissInfo, "From the League to the UN: ending Swiss isolationism", 2019. Accessible at: https://www.swissinfo.ch/eng/politics/100-years-of-multilateralism_from-the-league-to-the-un-ending-swiss-isolationism/45106026 (Accessed on 22 October).

these organisations. During this period, Switzerland not only secured Geneva as the European headquarters of the United Nations, but also succeeded in attracting an increasing number of permanent missions as well as international governmental and non-governmental organisations to the city. The waves of decolonization and the following admission of many newly independent states to the UN, in the early 1960s, intensified the tension between Switzerland's dedication to international solidarity and its longstanding neutrality policy. Between 1969 and 1977, the Federal Council published three reports for the Federal Assembly on the question of possible UN accession; it ultimately came out in favour of membership in 1981. However, public opinion diverged sharply from the government's stance. After the Federal Assembly approved a membership proposal in 1984, despite strong internal opposition, the electorate and all cantons rejected the federal decree in March 1986, with a result of 76 percent of rejections.¹⁰⁴ Although surveys had predicted defeat, the scale of rejection was unexpected. Key factors included high mobilization against the proposal, internal divisions within the FDP and CVP, reservations expressed by professional associations and an effective campaign led by nationalist groups, particularly the Swiss People's Party. A large majority of opponents, 92 percent, believed that Switzerland could continue to pursue an active foreign policy without becoming a UN member. The clear rejection at the polls imposed a temporary stop on the Federal Council's efforts, but it did not fundamentally resolve the underlying issue. The government maintained that Switzerland would have to pursue a more active multilateral role if it wished to avoid international isolation. In addition to renewed engagement in technical fields, it tried to signal a more visible commitment to peacekeeping by proposing the creation of a 600-person volunteer contingent that could be deployed in support of the United Nations and the Conference on Security and Cooperation in Europe. On June 1994, 57.2 percent of voters and all cantons except Geneva, Vaud, Neuchâtel and Jura rejected the proposal. A landmark was made possible by the members of the Socialist Party, who launched the popular initiative "For the Accession of Switzerland to the United Nations" submitted in 2000 with more than 120.000 valid signatures. The initiative secured a double majority of voters and cantons, thereby authorising the country's entry into the UN. On 10 September 2002, the UN General Assembly admitted Switzerland by acclamation. Drawing on its extensive experience as an observer state, Switzerland rapidly assumed an active role within the organization's core domains: peace and security, international law and humanitarian rights and development cooperation. Nevertheless, the coexistence of a global environment, structured by power politics, and the persistence of nationalist currents in Swiss domestic debates continued to complicate the reconciliation of neutrality with international solidarity. By shifting the focus on environmental frameworks, it is worth mentioning the federal

¹⁰⁴ SwissInfo, "From the League to the UN: ending Swiss isolationism", 2019. Accessible at: https://www.swissinfo.ch/eng/politics/100-years-of-multilateralism_from-the-league-to-the-un-ending-swiss-isolationism/45106026 (Accessed on 22 October).

government's centre of environmental expertise. The Federal Office for the Environment (FOEN) articulates Switzerland's strategic priorities and objectives within the framework of the United Nations Environment Programme. These priorities encompass the strengthening of UNEP's role as a cornerstone of global environmental governance, by the enhancement management of chemicals and waste, implementation improvement and enforcement of multilateral environmental agreements, closure of existing gaps international regulatory systems, monitoring and realization of environmental dimension of the Sustainable Development Goals (SDGs).¹⁰⁵ Established in 1972 by the United Nations General Assembly following the Stockholm Conference on the Human Environment, UNEP serves as the central institution responsible for addressing global environmental issues. Headquartered in Nairobi, Kenya, its mandate includes the collection and evaluation of environmental data at global, regional and national levels, the formulation of policy instruments to safeguard the environment and the coordination of international efforts to promote coherent and effective environmental governance. To enable UNEP to fulfill its role as the leading global environmental authority, sustained political commitment from members states and stable, predictable financial resources are essential. Since 2014, the United Nations Environmental Assembly (UNEA) convenes biennially as UNEP's highest decision-making body. Comprising all member states, the Assembly addresses policy, programmatic and administrative matters, including the adoption of the organization's work programme and budget. UNEA provides a global forum for assessing environmental conditions, formulating policy responses for sustainable resource use and guiding collective environmental action. Switzerland plays an active role in ensuring that UNEA resolutions are effectively implemented, hence enabling UNEP to strengthen its coordinating function in shaping environmental policies and strategic frameworks across the UN system. A major focus of Switzerland's engagement with UNEP lies in the management of chemicals and waste. The Swiss government advocates for UNEP to maintain its leadership in this domain and to address areas insufficiently covered by existing international environmental regimes. In addition, Switzerland continues to support UNEP's core activities, including environmental monitoring and assessment, the coordination and intensification of policy instruments and the implementation of international environmental conventions. Its support also extends to key thematic areas such as freshwater management, ecosystem and biodiversity conservation, resource efficiency, promotion of a green economy, sustainable production and consumption patterns, mitigation of plastic pollution, governance of raw materials and the advancement of sustainable infrastructure development.¹⁰⁶

¹⁰⁵ Schweizerische Eidgenossenschaft, *Federal Office for the Environment FOEN*.

¹⁰⁶ Schweizerische Eidgenossenschaft, *Federal Office for the Environment FOEN*.

2.3.1 UNFCCC

As already specified, Switzerland plays an active and influential part in promoting a comprehensive global climate regime that ensures significant reductions in greenhouse gas emissions and supports developing countries in their efforts to adapt to the impacts of climate change. Within the UNFCCC, the Confederation regularly submits official contributions to the negotiation process, by presenting its positions, analyses and policy proposals. The document *Switzerland's Second Nationally Determined Contribution under the Paris Agreement 2031-2035* represents Switzerland's set of climate commitments under the UNFCCC. The second Nationally Determined Contribution (NDC) outlines a framework for emission reduction and long-term climate governance, consistent with the objectives of the Paris Agreement to limit global warming to 1.5 °C above pre-industrial levels.¹⁰⁷ This ambitious target applies to the entire economy. The country has committed to reducing its greenhouse gas emissions by at least 65 percent by the year 2035, compared with 1990 levels. The scale of ambition placed in these targets reflects Switzerland's determination to align its domestic mitigation pathway with global climate goals and to position itself among the most proactive countries in addressing climate change. Its overarching objective is to achieve net-zero greenhouse gas emissions by 2050, a target that is legally enshrined in the Federal Act on Climate Protection Targets, Innovation and Strengthening Energy Security, commonly referred to as the Climate and Innovation Act.¹⁰⁸ As we will further analyse in the next chapters, the NDC positions Switzerland as a committed actor in the global climate regime, contributing both through domestic decarbonization efforts and through sustained international cooperation and climate finance.¹⁰⁹

2.4 Swiss Role in Climate Agreements

Beginning with the Rio Earth Summit and continuing through subsequent milestones, such as the Kyoto, Marrakesh, Cancún and Paris conferences, the evolution of the international climate regime reflects growing global recognition of the urgent need for coordinated climate action. At the present time, the UNFCCC achieved near-universal participation, having been ratified by 195 states and the European Union. In order to fully grasp the Swiss participation in climate agreement, a comprehensive examination of the Kyoto Protocol, the Paris Agreement and the Swiss COP Participation in 2025 is provided.

¹⁰⁷ Schweizerische Eidgenossenschaft, *2030 Sustainable Development Strategy*.

¹⁰⁸ Schweizerische Eidgenossenschaft, *Climate and Innovation Act*, 2023.

¹⁰⁹ Schweizerische Eidgenossenschaft, *2030 Sustainable Development Strategy*.

2.4.1 Kyoto Protocol

Formally adopted on the 11th December 1997, the Kyoto Protocol is a supplementary instrument of the UNFCCC. Adopted at the third Conference of the Parties (COP3), the Protocol establishes the first legally binding quantitative commitments for industrialized nations to reduce greenhouse gas emissions.¹¹⁰ Following a complex and lengthy ratification process, it entered into force in 2005 after the ratification by 55 countries, eventually representing at least 55 percent of industrialized nations' 1990 carbon dioxide emissions. The Swiss Federal Assembly approved its ratification in spring 2003. In the first commitment period, between 2008 and 2013, countries were required to collectively reduce emissions by an average of 5.2 percent below 1990 levels. National targets varied, with Switzerland and the European Union each committing to an 8 percent reduction. During this initial period, Switzerland successfully met its emission reduction commitments. While the UNFCCC requires parties to develop mitigation policies and report on their implementation, the Kyoto Protocol advances this framework by translating those general obligations into quantifiable emission reduction targets. This approach is grounded in the principle of “common but differentiated responsibilities and respective capabilities”, which recognizes that developed countries bear the greater historical responsibility for the accumulation of greenhouse gas emission in the atmosphere and therefore must lead mitigation efforts.¹¹¹ At the Doha Climate Change Conference in 2012, parties adopted the Doha Amendment, which establishes a second commitment period under the Kyoto Protocol. Under this amendment, industrialized nations agreed to reduce emissions by an average of 18 percent relative to 1990 levels. At the Doha Conference, several parties including Australia, European Union, Croatia, Iceland, Liechtenstein, Monaco, Norway and Switzerland, formally committed to the second Kyoto commitment period. Switzerland and the European Union both pledged reductions of 20 percent by 2020. Nevertheless, participation in the second commitment period was significantly lower, with a coverage of only 14 percent of global emissions. This is due to the withdrawal of the major emitters, such as United States, Canada, Japan, Russia and New Zealand, that declined to adopt the new targets. Those countries did not take on new binding commitments under the Protocol, but they declared voluntary and politically binding reduction targets for 2020, under the broader Convention framework. In contrast, emissions from developing countries continue to rise.¹¹² No third commitment period under the Kyoto framework is planned. The Durban Conference in 2011 subsequently established the climate regime for the 2013-2020 period and

¹¹⁰ Schweizerische Eidgenossenschaft, *Climate: International Affairs*.

¹¹¹ Schweizerische Eidgenossenschaft, *The Kyoto Protocol*.

¹¹² H. Rooper, “Emissions Growth in the Developing World”, Climate Leadership Council, 2024.

laid the groundwork for a universal agreement applicable to all states. This process ultimately led to the adoption of the Paris Agreement in 2015. A major shift in the international climate governance landscape occurred with its adoption.

2.4.2 Paris Agreement

The Paris Agreement was adopted on the 12th December 2015 during the COP21 in Paris, France, and entered into force on the 4th November 2016. It constitutes the first binding global treaty that unites both developed and developing nations in a collective effort to address climate change. Its central objective is to limit the rise in global average temperature to “well below 2 °C” above pre-industrial levels and to pursue efforts to cap warming at 1.5 °C.¹¹³ Subsequent scientific assessments by the Intergovernmental Panel on Climate Change (IPCC) underscored the critical importance of the 1.5 °C threshold, warning that exceeding it would lead to significantly more severe and frequent climate impacts, such as droughts, extreme heat events and intensified rainfall.¹¹⁴ The Agreement introduced a new paradigm in multilateral climate governance by coupling legal commitments with NDCs. Countries are required to submit and periodically update their NDCs on a five-year cycle. Each iteration reflects a higher ambition in both mitigation and adaptation efforts. In light of the growing urgency, the cover decision of the COP27 called on parties to strengthen their 2030 NDC targets to align more closely with the temperature goals. Beyond short term targets, the Paris framework encourages parties to articulate long-term low greenhouse gas emissions development strategies. These strategies, while not mandatory, provide a strategic vision for aligning near-term actions with long-term climate and development objectives. The Paris Agreement also recognizes differentiated capabilities among nations, emphasizing financial, technical and capacity-building support for developing countries. Developed countries are expected to lead in providing climate finance, whilst other parties are encouraged to contribute voluntarily.¹¹⁵ Climate finance is crucial for mitigation, by enabling large-scale investments in emission reductions, and adaptation, by supporting resilience-building measures to address climate impacts. Starting in 2024, all parties are required to report regularly on their mitigation and adaptation actions, as well as on support

¹¹³ United Nations Climate Change, “The Paris Agreement”. Accessible at: <https://unfccc.int/process-and-meetings/the-paris-agreement> (Accessed on 26 October)

¹¹⁴ J. Rogelj (et. All), “Mitigation Pathways Compatible with 1.5 °C in the Context of Sustainable Development”, IPCC, page 148.

¹¹⁵ United Nations, *The Paris Agreement*, 2015, page 6.

provided or received.¹¹⁶ These reports further undergo an international review process to ensure accuracy, comparability and trust among the parties. Switzerland last submitted its NDC in 2017, outlining its 2030 climate target in accordance with the Agreement's obligations. On 29th January 2025, the Swiss Federal Council approved the country's new greenhouse gas reduction target under the Paris Agreement for the subsequent implementation period of 2031-2035.¹¹⁷ This new target aligns with the emissions reduction trajectory established under the Climate and Innovation Act (CIA), which serves as the primary legislative framework for Switzerland's climate policy. Under this scheme, Switzerland commits to reducing its greenhouse gas emissions by at least 65 percent by 2025 relative to 1990 levels, with an average reduction of 59 percent over the 2031-2035 period. The Federal Council emphasized that these objectives are to be achieved primarily through domestic mitigation measures. They must ensure that national actions remain the foundation of Switzerland's contribution to global climate efforts. Consequently, the Federal Council also endorsed an addition to Switzerland's long-term climate strategy, further elaborating the policies and pathways that will guide the country toward its net-zero emissions objective by mid-century.¹¹⁸ This integrated approach stresses its commitment to a scientifically grounded and policy-coherent transition on the way to a low-carbon economy, which is in alignment with both national legislation and the goals of the Paris Agreement.

2.4.3 COP Participation 2025

As previously discussed, Switzerland's role in the BRS Conventions was particularly significant, as it was reflecting its long-standing commitment to multilateral environmental governance and its leadership in hosting and supporting the meetings. From the 28th April to the 09th May 2025, Switzerland served as the host nation of the Basel Convention COP17, of the Stockholm Convention COP12 and of the Rotterdam Convention COP12. All the three meetings convened jointly in Geneva, underscoring the city's continued importance as a hub for international environmental diplomacy and governance. As the host country, Switzerland provided not only the logistical and institutional setting for the conferences but also reaffirmed its broader political and financial commitment to the BRS Conventions and to the principles of environmentally sound management of chemicals and waste. This support demonstrates Switzerland's ongoing investment in transparency, information dissemination and the facilitation of informed multilateral negotiation processes. Swiss delegates were elected to several prominent positions

¹¹⁶ UNFCCC, "The Paris Agreement", Accessible at: <https://unfccc.int/process-and-meetings/the-paris-agreement> (Accessed on 27 October).

¹¹⁷ Schweizerische Eidgenossenschaft, *Climate: International Affairs*.

¹¹⁸ Schweizerische Eidgenossenschaft, *Climate: International Affairs*.

within key bodies of the BRS system, thus reflecting the Confederation recognized expertise and credibility in environmental governance. Under the Basel Convention, the Head of Global Affairs Section of Switzerland's Federal Office for the Environment Michel Tschirren was elected to the Bureau for COP18. This leadership role is going to shape the agenda and implementation of the convention in the upcoming years. The Senior Policy Advisor of the FOEN Océane Dayer was elected to the Bureau of the Open-ended Working Group of the Basel Convention, additionally consolidating the Swiss presence in technical and policy discussions. Within the Stockholm Convention framework, the FOEN lawyer Mark Govoni was elected to the Compliance Committee, which plays a crucial part in ensuring that the parties adhere to their obligations.¹¹⁹ These appointments signal Switzerland's sustained influence in shaping multilateral environmental policy and practice. Overall, Switzerland's role at the 2025 BRS COPs exemplified its multifaceted contribution to international environmental governance. As host country, financial supporter and active participant in governance and technical committees, the Confederation reinforced its reputation as a committed action in the field of chemicals and waste management.¹²⁰ Another key note to add in this paragraph is related to the 30th UN Climate Change Conference, also known as COP30, which took place between the 10th and the 21st of November 2025. Switzerland, for the occasion, approached COP30 urging all the states, particularly the major emitters, to present substantially enhanced commitments to reducing greenhouse gas emissions. Speaking to a news agency before the conference, the Swiss Ambassador for the Environment Felix Wertli emphasized that Switzerland's objective was, and still is, to encourage the submission of more ambitious national reduction targets by the nearly 200 participating states negotiating the further implementation of the Paris Agreement.¹²¹ Despite the current geopolitical climate, Wertli observed that the continued willingness of cooperation by many countries constitutes an achievement itself. With the updated national climate contributions, he stressed that the purpose is evaluating collective progress and identifying the additional efforts required to narrow the gap to the 1.5°C limit. Switzerland submitted its revised contribution in January, pledging to reduce emissions by at least 65% by 2035 relative to 1990 levels, primarily through domestic action. The Swiss delegation is also advocating for increased international investment in climate mitigation, enhanced participation by the private sector and the establishment of globally comparable indicators for climate adaptation. Wertli acknowledged that climate change receded from the political agenda in several countries, though he noted that

¹¹⁹ IISD Earth Negotiations Bulletin, "Summery report, 28 April – 9 May 2025", Accessible at: <https://enb.iisd.org/basel-rotterdam-stockholm-conventions-brs-cops-2025-summary> (Accessed on 27 October)

¹²⁰ IISDO, *Earth Negotiations Bulletin, BRS COPs FINAL*, vol.15 No. 324

¹²¹ SwissInfo, "COP30: Switzerland calls for ambitious climate targets", 2025. Accessible at: <https://www.swissinfo.ch/eng/climate-solutions/switzerland-calls-for-ambitious-climate-targets-at-cop30/90300591> (Accessed on 27 October).

no state has emulated the US' withdrawal from the Paris Agreement, following the beginning of Trump's second presidential term. While stating that current global efforts remain insufficient to achieve the objective, Wertli pointed out to the significant progress since 2015, with projected warming reduced from approximately 4°C to a range between 2.3°C and 2.8°C. The Federal Councillor Albert Roesti represented Switzerland on the 20th and 21st of November at the COP30, by acting accordingly to the Federal Council mandate of the 12th of September. Through the mandate, the Swiss delegation promoted the recommendations adopted at the 28th Climate Change Conference, which included tripling the use of renewable energy sources, doubling energy efficiency by 2030 and pushing out fossil fuels by 2050. Switzerland also aimed at establishing an alliance with other participating states at COP30 to strengthen international CO₂ market mechanisms. Councillor Roesti, during those two days, participated in the ministerial-level negotiations, alongside environment ministers from different countries. He also chaired the Environmental Integrity Group, comprising of Georgia, Liechtenstein, Mexico, Monaco and South Korea, and concluded additional bilateral agreements on emission-reduction projects with further partner states.

2.5 WTO

The World Trade Organization (WTO) serves as the central international institution responsible for regulating and monitoring global trade relations among its member states and for mediating disputes.¹²² Established in 1995 following seven years of negotiations, known as the Uruguay Round, the WTO is headquartered in Geneva, Switzerland. It provides the institutional scheme for the General Agreement on Tariffs and Trade (GATT), which dates back to 1948 and laid the foundation for modern multilateral trade governance. Over time, the WTO expanded beyond GATT to incorporate a range of additional agreements covering various sectors, including the Agreement on Agriculture. Today, the WTO encompasses 166 member states that collectively account for approximately 98% of world trade, making it nearly a universal framework for international economic relations. The Agreement on Agriculture rests on three central pillars: domestic support, market access and export competition. Each member country's commitments under these pillars are detailed in schedules of commitments, which set binding limits such as maximum tariff levels for specific agricultural products. These commitments are subject to continuous oversight by the Committee on Agriculture, that ensures all member compliance with their obligations through a system of notifications and peer review.¹²³ Switzerland, like all

¹²² World Trade Organization, "What is the WTO?". Accessible at: https://www.wto.org/english/thewto_e/whatis_e/whatis_e.htm (Accessed on 29 October)

¹²³ Schweizerische Eidgenossenschaft, *World Trade Organization*.

members, must regularly report on the extent and structure of its domestic support measures. The Confederation's priorities include strengthening disciplines on export competition and preventing the use of export restrictions that could undermine global food security. Within the WTO's negotiation structure, Switzerland plays a leadership role as the coordinator of the G-10 group of net food-importing countries, which also includes Iceland, Israel, Japan, Liechtenstein, Mauritius, Norway, South Korea and Taiwan.¹²⁴ The G-10 advocates for the inclusion of non-trade concerns such as environmental sustainability, food security and rural development in agricultural negotiations. Transparency is a central tenet of the WTO's functioning, and this is ensured through both regular notifications and the Trade Policy Review mechanism. Each review is based on detailed reports prepared by the WTO Secretariat and the member under review, followed by a formal hearing in which other members may submit questions and comments. Switzerland actively participates in these review processes, using them as an opportunity to obtain information on developments in other members' trade policies and to promote transparency and accountability in the global trading system. Switzerland itself undergoes regular trade policy reviews, which are conducted jointly with Liechtenstein. The 2022 review concluded that Switzerland is perceived as a reliable and constructive participant in the multilateral trading system, consistently supporting the WTO's objectives of transparency, predictability and fair trade.¹²⁵ Through its active engagement in the WTO's various bodies, negotiations and review mechanisms, Switzerland continues to play an influential part in advancing balanced and sustainable global trade governance.

¹²⁴ Schweizerische Eidgenossenschaft, *WTO and Switzerland*.

¹²⁵ World Trade Organization, "Trade Policy Review. Reports by Switzerland and Liechtenstein", Trade Policies Review Body, 2022.

CHAPTER 3

Domestic environmental policy

Following the analytical path established in the previous two chapters, the following paragraphs deepen the analysis of Swiss environmental role by focusing on the mechanisms through which international commitments are translated into domestic policy action. While Swiss neutrality and diplomatic engagement provide the normative and institutional foundations for international influence, the effectiveness and credibility of this role ultimately depends on national implementation. As discussed, Switzerland's neutrality is complemented by a long-standing tradition of active international cooperation. As the host of several international organizations, permanent diplomatic missions, non-governmental organizations and academic institutions, the country established itself as a central hub for global policy coordination. This institutional environment not only reinforces Switzerland's role as a convening power, but also provides it with unique opportunities of contributing significantly to the development of international environmental norms and governance frameworks. Beyond its hosting function, Switzerland adopts a proactive stance in addressing transboundary environmental challenges, by recognizing climate change, biodiversity loss and resource depletion as issues that require collective action and robust multilateral responses. The following chapter analyzes Swiss engagement in international environmental agreements. Domestic policy instruments through which these commitments are implemented at the national level are also taken into account. The paragraphs place Switzerland's international environmental role within its constitutional order, federal governance structure and tradition of direct democracy. It also examines the interaction between global and regional commitments, in particular under the UN climate regime and in coordination with the European Union. By tracing the linkages between international agreements, institutional frameworks and sector-specific policy measures, the chapter provides an integrated assessment of how Switzerland seeks to align international environmental responsibilities with domestic implementation, economic interests and democratic legitimacy in the context of an intensifying climate and ecological crisis. Particular attention is paid to the opportunities and constraints created by the Swiss federal system and the instruments of direct democracy.

3.1 Environmental Legislation and Institutional Framework

As a non-EU member, Switzerland often aligns its policies, standards and monitoring practice for environmental matters within the EU frameworks. In fact, the bilateral approach between the Confederation and EU is widely regarded as a success.¹²⁶ By analyzing the IEA agreements' archive, the first negotiation between the EU member states and Switzerland may be traced back in 1871, when the Preliminary Convention Between Austria and Switzerland for the Rectification Of the Course of the Rhine was signed. Since then, the two Parties signed several agreements on

¹²⁶ T. Bernauer (et. All), "A Swiss Foreign Policy for the 21st Century", NZZ Libro, 2022, Ch. 7

ecosystems, such as water quality and contamination control, fishery management, forest protection, transboundary air pollution and pollution emergency response.¹²⁷ These ecosystems do not follow political borders and therefore are shared within the European continent. The vast majority of the environmental agreements in the IEA Database Project are between Switzerland and its immediate neighbors France, Germany, Italy, Austria and Liechtenstein specifically. This data indicates that Swiss environmental diplomacy is geographically driven, as it manages shared rivers, lakes and forest along national borders. The first agreements, in the second part of the 1800s, show long-term and continuous environmental cooperation for fishing rights, pollution controls, monitoring stations, infrastructure on rivers and environmental protection around shared water bodies. The most recent agreements, however, are related to the implementation of the Paris Agreement, the arrangements with Peru for climate adaptation and bilateral administrative arrangements under the UNFCCC, the Secretariat of the UN Convention of Climate Change. These agreements highlight the role of Switzerland as a bilateral climate partner and a participant in implementation mechanisms as well. The bilateral approach between Switzerland and EU combines sectoral agreements with adaptation of Swiss law to EU legislation through a policy of autonomous alignment. This approach finds political support from the Swiss cantons and mitigates many of the disadvantages that Switzerland has in not joining the European Economic Area (EEA). As a matter of fact, Swiss companies continue to access the European markets, while the Confederation benefits from agreements that facilitate integration into aspects of the European legal framework, including justice, home affairs, visa and asylum policies, participation in EU agencies and programs, such as those related to aviation and research. According to the Federal Council, these bilateral agreements constitute a “tailor-made legal framework” that reflects Switzerland’s close economic and political ties with the EU and its central geographical position in Europe, ultimately serving the Swiss interests.¹²⁸ Beyond tangible economic advantages, the extensive network of agreements symbolizes Switzerland’s identification with Europe and its willingness to engage in collaborative problem-solving with the aims of enhancing continental well-being. Nevertheless, in 2006 the Federal Council decided to no longer prioritize EU accession as the central objective of Swiss European policy. Instead, it decided to treat it as a third country, thereby transforming pragmatic bilateralism from a transitional solution into a long-term arrangement. Consequently, the EU’s willingness to offer bespoke solutions diminished, creating challenges for the continued maintenance and expansion of the bilateral framework. Moreover, following the EU’s eastward enlargement of 2004, 2007 and 2013, that doubled the number of member states, Switzerland nowadays interacts with Central and Eastern European countries with which it historically had fewer connections. A third

¹²⁷ Université Laval, International Environmental Agreements (IEA) Database Project. Accessible at: <https://www.iea.ulaval.ca/en/agreements> (Accessed on 20 November)

¹²⁸ Schweizerische Eidgenossenschaft, *Overview bilateral path*, 2025.

development concerns the EU's stance since 2008, when it insisted on the Swiss acceptance of an institutional framework governing all existing and future market-access agreements grounded in EU law. From the EU standpoint, an overarching institutional arrangement is viewed as the necessary price for Switzerland to continue enjoying sectoral integration into the Single Market, hence having similar benefits to those of member states without full membership obligations.¹²⁹ The United Kingdom experience confirmed that the EU maintains a consistent policy regarding third countries as the participation in the Single Market on terms comparable to member states, which requires respect for the indivisibility of the four fundamental freedoms and adherence to the principle of "form follows function". Thus, the selective adoption of rules is not permitted. In May 2021 the Swiss government terminated negotiations on the proposed Institutional Framework Agreement. This decision meant abandoning efforts to place the existing body of bilateral agreements on a stable institutional footing in order to contribute to its legal consolidation and to prepare for further steps toward integration. The EU signaled that, without that, it would not update existing agreements nor would it extend cooperation in other fields such as stock market equivalence, Horizon Europe, culture or health. It also ruled out concluding new agreements that would grant expanded access to the Single Market, such as the one on electricity.¹³⁰ The bilateral approach continues to exhibit structural fragilities. One fundamental weakness is the lack of systematic organization within the bilateral *acquis*. The approach presents a dual character, as in some areas Switzerland is integrated into the Single Market in a manner similar to a member states and the EU law is extended accordingly - while in some other areas, Switzerland remains treated as an ordinary third country under the standard templates of international law. This hybrid system is complex and the ongoing incorporation of EU law carries problematic implication, from a democratic perspective. In several domains, Switzerland effectively delegated regulatory authority to the EU, as adopting EU rules on external border control, visa policy and police cooperation in the Schengen area for example. The tension between the systematic legal transposition and the Swiss system of direct democracy became more pronounced, as democratic rights lose substantive influence when their scope is increasingly constrained by externally defined rules. Studies estimated that a great percentage of federal legislation now reflects EU law directly or indirectly.¹³¹ In addition, the Swiss participation in EU agencies, such as involvement in Frontex Operations at external EU borders, and the attempt to expand the bilateral *acquis* into new sectors become more difficult. In the long term, Switzerland may be compelled to reassess its overall approach to the European Union. As

¹²⁹ SwissInfo, *The Swiss-EU bilateral treaty updates, explained*, 2024.

¹³⁰ T. Bernauer (et. All), "A Swiss Foreign Policy for the 21st Century", NZZ Libro, 2022, Ch. 7

¹³¹ European Parliament, "Internal Market Beyond the UE: EEA and Switzerland, Directorate-General for Internal Policies", 2010, page 11.

Professor Bernauer stated in the book *A Swiss Foreign Policy for the 21st Century* (2022), the bilateral framework, which was conceived after the 1992 rejection of EEA accession as a provisional arrangement, remains structurally fragile. Its legal architecture is the product of specific needs and opportunities. Greater coherence in the European foreign policy is growingly vital amid the erosion of the Pax Americana and recurrent crises in regions bordering Europe, including North Africa, Ukraine and the Middle East. At the same time, digitalization and its far-reaching societal and economic implications require European states to formulate joint, sustainable and competitive strategies to defend their values. Being situated geographically at the center of Europe, these ongoing transformations also confront Switzerland with significant strategic choices, including whether closer association with its European partners would place it on firmer footing. According to Bernauer, these developments require a reassessment of the strategic options which are available beyond the current form of the bilateral approach. One of the mentioned possibility would be to dismantle the existing network of agreements and replace it with a modernized free trade agreement that is grounded in conventional public international law. Such arrangement would scarcely meet the market-access needs of the Swiss economy, as the repercussions of Brexit in the United Kingdom. Another proposal regards occasionally the renewed attempt to join the EEA, but the institutional features that proved contentious during the 1992 referendum remain essentially unchanged. Nevertheless, Switzerland's economic, political, social, cultural and scientific outlook is inherently intertwined with that of its neighbors and the wider European area. Besides, it is in its strategic interest to contribute actively to shaping Europe's future. By understanding the institutional framework between Europe and Switzerland, we may fully grasp the context within EU and Swiss coordination and commitment on reducing greenhouse gas emissions. The *Swiss Climate Scenarios* (2025), published by the Federal Council and developed by MeteoSwiss in collaboration with ETH Zurich, presents an alarming escalation in the expected pace and intensity of climate change impacts on Switzerland. These projections reinforce the country's position as a climate hotspot within Europe and underscore the dual necessity of intensified global mitigation and robust domestic adaptation. The scenarios confirm that Switzerland is experiencing warming at a rate significantly above the global mean. By 2024, national average temperature rose 2.9°C relative to pre-industrial levels, which represents more than double the global increase of 1.3°C.¹³² The consequences of this amplification are multifaceted and regionally differentiated. Heatwaves are expected to intensify across all altitudes, with lowland and urban areas facing the sharpest increases. Zurich, for instance, could experience up to five times more tropical nights per year, while the hottest days are projected to be roughly 4.4°C warmer than the late-twentieth-century baseline. In parallel, Switzerland experiences pronounced hydrological shifts. Summers are forecast to become significantly drier as higher temperatures accelerate evaporation and reduce precipitation

¹³² Schweizerische Eidgenossenschaft, *Rising Temperatures*, 2024.

frequency. Typical summer droughts are projected to be approximately 44 percent more intense than historical averages, sharply elevating wildfire risks.¹³³ At the same time, heavy precipitation events are expected to grow more frequent and more extreme in all seasons, particularly through short, intense convective storms. Winters, too, are about to change markedly as the zero-degree line rises by roughly 550 meters to 1.450 meters, reducing snow reliability and altering alpine ecosystems and tourism patterns. The Federal Council designated these findings as the scientific foundation for Switzerland's forthcoming strategy on climate change adaptation. The policy framework envisions expanded measures in order to protect public health during heatwaves, secure water resources in the face of drought and strengthen infrastructure resilience against intense rainfall and flooding. The scenarios also reaffirm that adaptation alone is insufficient. Therefore, the Federal Council reiterates its commitment to achieving net-zero greenhouse gas emissions by 2050, by emphasizing that such action could prevent most of the long-term warming and its associated damages.¹³⁴ Placed in the broader context of Switzerland's environmental governance, these findings reinforce the urgency and legitimacy of the *Environmental Responsibility Initiative (2025)*, which demands a time-bound transformation of national consumption and emissions. The climate scenarios also sharpen the contrast between scientific evidence and existing policy. The Climate Action Tracker (CAT) rated Switzerland's overall climate performance as "Insufficient", arguing that its heavy reliance on Internationally Transferred Mitigation Outcomes and its weak domestic reduction commitments are inconsistent with the 1.5°C pathway.¹³⁵ The new projections amplify this critique: a country warming almost twice as fast as the global average cannot afford to outsource its mitigation responsibilities. Furthermore, the new climate data resonate strongly with the structural consumption imbalance identified by the Federal Statistical Office (FSO) and the OECD. The projected intensification of extreme heat, drought and precipitation is physically linked to global greenhouse gas concentrations, to which Switzerland contributes disproportionately through its consumption-driven emissions. As the FSO showed, roughly two-thirds of Switzerland's ecological footprint stems from fossil fuel consumption. The climatic consequences thus represent the feedback effects of a carbon-intensive lifestyle that extends beyond Switzerland's borders. The new evidence demands an integrated, consumption-focused mitigation strategy that aligns national prosperity with planetary limits, thereby reconciling Switzerland's environmental policy with the realities of an accelerating climate crisis.¹³⁶ In pursuit of limiting the rise in average global

¹³³ ETH, *Climate change particularly pronounced in Switzerland*, 2025.

¹³⁴ Schweizerische Eidgenossenschaft, *Climate change particularly pronounced in Switzerland*, 2025.

¹³⁵ Climate Action Tracker, "Glasgow's 2030 credibility gap: net zero's lip service to climate action", *Warming Projections Global Update*, 2021, page 7.

¹³⁶ Schweizerische Eidgenossenschaft, *Climate change particularly pronounced in Switzerland*, 2025.

temperature, Switzerland is actively working to reduce its greenhouse gas emissions in coordination with the EU and the broader international community. Given the large-scale removal of atmospheric carbon dioxide and other greenhouse gases is not yet technologically or economically viable, the principal emphasis remains on emission reduction. In parallel, Switzerland is implementing adaptive measures to address the impact of climate change. These policy measures are articulated in the Climate and Innovation Act (CIA) and the CO₂ Act, which provide the legal and institutional framework for national climate action. As mentioned above, the central objective of Swiss climate policy is the achievement of net-zero greenhouse gas emissions by 2050. This target is grounded in scientific evidence, which is enshrined in domestic legislation and consistent with international agreements. The country's Long-Term Climate Strategy delineates the trajectory toward this goal, including the interim target for the decade 2021-2030 of reducing greenhouse gas emissions by 50% relative to 1990 levels. By meeting this target, Switzerland fulfills its obligations under the Paris Agreement and demonstrates its contribution to the global mitigation effort. Recognizing that certain climatic changes are inevitable even with substantial emission reduction, Switzerland adopted an *Adaptation Strategy* under the guidance of the Federal Council. This framework promotes a coordinate, cross-sectoral approach to managing the social, economic and environmental risks associated with climate change. Furthermore, acknowledging that complete elimination of emissions is not feasible, the Federal Council developed a roadmap for carbon capture, utilization and storage technologies to manage residual emissions. The statutory underpinnings of Swiss climate policy are provided primarily by the Climate and Innovation Act and the CO₂ Act, supplemented by corresponding ordinances such as the Climate Protection Ordinance and the CO₂ Ordinance. The CIA outlines the medium- and long-term vision for emission reduction, including sector-specific targets and time-bound mechanisms to stimulate emission mitigation in industry and the building sector. The CO₂ Act operationalizes these goals by defining concrete instruments for reducing greenhouse gas emissions and mandating federal coordination of adaptation initiatives. The Federal Council retains the authority to propose revisions to these legislative frameworks and to justify such amendments through official explanatory reports.¹³⁷ As discussed in Chapter 2, Switzerland's participation in international climate governance dates back to 1993, when it ratified the UNFCCC, committing to the stabilization of atmospheric greenhouse gas concentrations at levels that prevent dangerous anthropogenic interference with the climate system. Since then, the Swiss environmental policy achieved measurable progress across several key areas, notably in improving air quality, enhancing forest biodiversity and promoting more sustainable management of natural resources. Between 2000 and 2022, the country succeeded in reducing its

¹³⁷ Schweizerische Eidgenossenschaft, *Topic Climate*.

per capita environmental footprint by approximately 33%.¹³⁸ Despite these gains, Switzerland's overall ecological burden continues to exceed the limits compatible with the Earth's planetary boundaries. An estimated two-thirds of Switzerland's total environmental impact is generated beyond its national borders, primarily through imported goods and services linked to domestic consumption. Beyond legislative initiatives, Switzerland is promoting systemic change in key sectors of production and consumption, such as food, housing and mobility. Programs, including the Action Plan against Food Waste and national guidelines for resource-efficient and healthy diets, exemplify efforts to promote sustainable lifestyles and responsible consumption. Complementary to state action, civil-society initiatives and innovative projects play a crucial role in fostering behavioral and structural transformation. The main priorities of Swiss environmental policy include climate protection, biodiversity conservation and the promotion of a circular economy. Achieving these goals needs fundamental changes in patterns of production and consumption, particularly in the domains of mobility, housing and nutrition. These three sectors collectively account for nearly two-thirds of Switzerland's total environmental impact.¹³⁹ Transitioning to sustainable models in these areas is therefore indispensable for reducing the national ecological footprint and ensuring long-term environmental resilience. Moreover, according to the *Sustainable Governance Indicators* report (2024), Switzerland ranks among the top-performing economies worldwide in terms of economic sustainability - placing fourth. This strong performance reflects the country's robust fiscal management, adaptive labor market and sustained investment in innovation. Nonetheless, the analysis also underscores key structural challenges, particularly the limited integration between Switzerland's economic model and its environmental and climate objectives. Switzerland's high ranking is largely attributed to several enduring strengths. Fiscal policy is characterized by a high degree of sustainability. Since 2008, federal budget deficits are rare, with the notable exception of the COVID-19 period, and the public debt remains low, at approximately 28% of GDP as of 2022.¹⁴⁰ This fiscal prudence is underpinned by a long-standing political commitment to maintaining a lean public sector and low tax burden, as well as the constitutional "debt brake", which constrains deficit spending. Switzerland's financial systems strengthened its international credibility following reforms to banking secrecy laws and the adoption of automatic information exchange mechanisms by 2017. Furthermore, the country's high expenditure on research and development continues to drive innovation and economic competitiveness. All these strengths are due to a robust legal framework that combines federal legislative authority with decentralized implementation at the

¹³⁸ European Environment Agency, *Europe's environment 2025: Switzerland*, 2025.

¹³⁹ European Environment Agency, *Europe's environment 2025: Switzerland*, 2025.

¹⁴⁰ Sustainable Governance Indicators, Economic Sustainability. Accessible at: https://www.sgi-network.org/2024/Switzerland/Economic_Sustainability (Accessed on 25 November)

cantonal level. This system is built upon the principle of prevention and anchored in Article 74 and following of the Federal Constitution, which mandate the Confederation to legislate on environmental protection and to ensure that such legislation is enforced through coordinated action among the federal, cantonal and municipal authorities. The Federal Environmental Protection Act, the Water Protection Act, the Act on the Protection of Nature and Cultural Heritage and the CO₂ Act establish the foundational principles of Swiss environmental law - the prevention of environmental harm, the abatement and remediation of existing damage and the broad application of the polluter pays principle. Under the latter doctrine, the person or entity responsible for pollution or waste generation bears the financial and operational burden of cleanup, ensuring that environmental costs are internalized rather than externalized to society. Despite the absence of a single and integrated environmental permit, regulatory coherence is maintained through procedural coordination among the competent authorities. Multiple permits are often required for a given activity, but administrative law mandates both procedural harmonization and substantive consistency across domains. Enforcement is stringent, and violations can trigger administrative, civil and criminal sanctions, including fines or imprisonment for deliberate or negligent breaches of environmental law. The regulatory landscape is further delineated by several specialized regimes. In the area of water pollution, the Water Protection Act and its implementing ordinances prohibit the discharge of substances likely to contaminate water bodies. Any activity involving wastewater disposal or water abstraction beyond ordinary use requires a permit. Liability under this regime is strict and guided by the polluter pays principle, which allows authorities to impose preventive or remedial obligations directly upon operators or property owners.¹⁴¹ The polluter pays principle proved effective in the context of municipal waste, as most municipalities successfully implemented waste disposal fees that incentivize reduction at the source. Although this framework is among the most sophisticated in Europe, the synthesis of these legal structures with recent environmental performance data reveals a striking gap between regulatory rigor and environmental outcomes. Switzerland's system demonstrates exemplary precision in addressing local, tangible forms of pollution, yet it remains insufficient to counter the broader ecological pressures arising from high consumption, greenhouse gas emissions and biodiversity loss.

3.2 Sustainability Strategies

The Federal Department of Foreign Affairs frames Switzerland's sustainability policy within the context of the UN 2030 Agenda and the Sustainable Development Goals, as articulated in the

¹⁴¹ I. Romy (et. All), "Environmental law and practice in Switzerland: overview", Thomson Reuters, 2020.

Sustainable Development Strategy (2021). The government positions the SDGs as the central guiding framework for its environmental and sustainability policy, emphasizing integrated and cooperative approaches to implementation. Switzerland's delegation at the UN High-Level Political Forum on Sustainable Development highlights the importance of multi-stakeholder engagement, including governments, regional actors, businesses, academia and civil society. The delegation particularly focuses on work and economic growth, by seeking to balance economic development with social and environmental responsibilities. Multilateralism is central to this approach, reflecting the principle that global environmental challenges can only be effectively addressed through international cooperation. By synthesizing the FDFA position with FOEN and other government documents, a coherent governmental philosophy is found - sustainability is addressed indirectly through market-friendly, multilateral and cooperative strategies. The government's approach combines three key pillars. First, the UN-guided sustainability strategy prioritizes multilateralism and integrated goals, thereby aiming to leverage the 2030 Agenda. Second, FOEN's environmental strategy emphasizes voluntary cooperation, promoting initiatives such as the Batumi Initiative on Green Economy, the International Resource Panel and the 10-Year Framework of Programs on Sustainable Consumption and Production to transform consumption patterns internationally. Third, the FDFA's European policy relies on bilateral agreements, prioritizing market access while selectively aligning Swiss law with EU environmental standards. The government explicitly recognizes that two-thirds of Switzerland's environmental impact is generated abroad through imports, confirming the 60% outsourcing problem. Its policy response aims to address this deficit indirectly, by leveraging Swiss expertise and economic influence to encourage global sustainability while maintaining political sovereignty and market access.¹⁴² This philosophy, however, has been challenged by the Swiss Environmental Responsibility Initiative, which positions itself as corrective to the limitations of Switzerland's multilateral Green Economy approach. The initiative asserts that the government's reliance on voluntary, international mechanisms failed to resolve the outsourcing problem, allowing Switzerland to maintain a consumption footprint requiring "more than two planets Earth".¹⁴³ Whereas the government focuses on sustainable economic growth and externalized impact mitigation, the initiative calls for immediate domestic action. It proposes a constitutional amendment that imposes a hard, enforceable limit on the environmental impact of Swiss consumption, binding the state to achieve compliance within ten years. By demanding unilateral, and absolute ecological limits, the initiative seeks to internalize the environmental costs of consumption and to address the urgency of the climate, biodiversity and planetary crises that multilateral strategies have so far failed to mitigate. Switzerland regards environmental

¹⁴² Schweizerische Eidgenossenschaft, *UN Sustainable Development Goals: Switzerland calls on all stakeholders to step up cooperation*, 2025.

¹⁴³ Schweizerische Eidgenossenschaft, *Environmental Responsibility Initiative*, 2025.

challenges, including climate change, biodiversity loss and land degradation, as inherently transboundary phenomena that directly affect human security. In this view, such problems require collaborative action at international level. A number of key principles shape Switzerland's environmental engagement abroad - the commitment to multilateral cooperation, protection of national interests and the insurance of policy coherence. Switzerland actively contributes in the development and implementation of international agreements that are intended to strengthen cooperation at the bilateral, regional and global levels. Its foreign policy seeks to secure long-term access to vital natural resources and to uphold the constitutional mandate to preserve the natural foundations of life for present and future generations.¹⁴⁴ The FDFA works to ensure that Switzerland's external actions are consistent with this environmental objectives. This coherence strengthens Switzerland's credibility as an international partner, while supporting its strategic interests. Coordination mechanisms include interdepartmental committees focused on climate, water and forest policy, as well as structured exchanges with scientific institutions, the private sector and civil society. The Swiss international cooperation follows key principles drawn from the 2030 Agenda, notably the commitment to "leave no-one behind", the promotion of multi-stakeholder and inter-sectoral collaboration, the pursuit of policy coherence through a whole-of-government approach and the need to mobilize diverse financial resources. To mainstream the SDGs across all levels of action, the concept provides guidance for national work, programmatic planning and engagement with multilateral and non-governmental partners. At the national level, Switzerland aligns its cooperation strategies with partner countries' own development priorities and SDG targets; supports evidence-based policymaking; strengthens statistical systems and promotes inclusive consultation processes involving governmental and non-governmental stakeholders.¹⁴⁵ At program and project levels, Swiss actors emphasize intersectoral approaches; assess deliberately SDG interactions and trade-offs and leverage cross-cutting goals, such as gender equality, health, employment or education, for their transformative potential. They also reflect on how to engage the private sector and apply innovative financing tools, ensuring long-term sustainability and broader impact. Switzerland provides core funding, participates actively in governance structures and supports reforms aimed at strengthening coordination within the UN system. Complementary instruments such as multi-bi partnerships allow Switzerland to catalyze progress on priority SDGs by earmarking resources and facilitating coordination among donors and local authorities. Collaboration with non-governmental actors, including NGOs, civil society, academia and the private sector, is also highlighted as essential due to their specialized knowledge, networks and operational capacity. The concept places significant weight on accountability and institutional alignment. Switzerland supports partner

¹⁴⁴ Schweizerische Eidgenossenschaft, *Environment and Climate*, 2024.

¹⁴⁵ Schweizerische Eidgenossenschaft, *Mainstreaming the 2030 Agenda in Swiss International Cooperation. Implementation Concept*, 2023.

countries in conducting Voluntary National Reviews and participating in global follow-up mechanisms such as the High-Level Political Forum. It is also adapting its own monitoring system, including Aggregated Reference Indicators, to bring them into closer alignment with the SDGs. At European level, Switzerland maintains close environmental ties with the European Union, driven by both the need for market compatibility and shared ecological objectives, but it generally engages through bilateral agreements rather than a fully adoption of EU law. Institutional links have a crucial role in facilitating this relationship.¹⁴⁶ Since 2006, Switzerland is a full member of the EEA and the associated European Environment Information and Observation Network, providing access to the EU's knowledge base, data and technical expertise, while enabling Swiss environmental statistics to remain comparable with those of the other nations. Membership in these networks does not require Switzerland to adopt EU environmental regulations in their entirety. Beyond the EEA, Switzerland also participates in the Network of the Heads of European Environment Protection Agencies and the European Nature Conservation Agencies, ensuring regular collaboration and expertise exchange with EU counterparts. Swiss legislation is shaped both by the principle of equivalence and selective harmonization with EU standards. Bilateral agreements often necessitate adaptations to Swiss law to ensure equivalence, for example in sectors such as air transport. Simultaneously, Switzerland independently implements elements of EU law, where necessary, in order to maintain trade compatibility.

3.2.2 Energy Strategy 2050

Switzerland's climate protection strategy is built around the sectors that generate the bulk of its greenhouse gas emissions – transport, industry, buildings, agriculture, energy and the financial markets – and outlines a comprehensive set of measures designed to guide the country toward its long-term climate goals. In the transport sector, which accounts for roughly a third of national emissions, Switzerland imposes CO₂ regulations on newly registered vehicles; requires companies selling fossil motor fuels to offset their emissions by financing domestic and international projects; and obliges airlines and aircraft operators to participate in the Emissions Trading System. Aviation is further targeted through blending requirements for sustainable aviation fuels and mandatory transparency on expected flight emissions. Buildings, which are responsible for about a quarter of emissions, are addressed through the CO₂ levy that incentivizes households and service companies to reduce their reliance on fossil fuels, with most

¹⁴⁶ Schweizerische Eidgenossenschaft, *Relations between Switzerland and the EU in the area of environment*, 2025.

of the revenue redistributed to the population and businesses.¹⁴⁷ Renovation and renewable energy investments are supported through the Impulse Program and the Buildings Program, while cantonal building regulations reinforce energy standards and allow cantons to adopt traditional reduction measures. Industry, which produces around 22 percent of Swiss emissions, is incentivized to decarbonize through both the CO₂ levy and participation in the Emissions Trading System for large greenhouse gas-intensive facilities.¹⁴⁸ Companies can be exempted from the levy by committing to binding reduction obligations. Besides, several sector-specific agreements establish mandatory emission reductions. Innovation is supported through the Technology Fund, which promotes technologies that reduce emissions, increase efficiency, or expand renewable energy, while federal programs assist industry in developing key decarbonization solutions such as carbon capture and storage. In agriculture, which emits mainly methane and nitrous oxide and accounts for roughly 16 percent of the national total, mitigation measures are embedded directly in agricultural legislation. Swiss energy policy focuses on improving efficiency and expanding renewable energy production, guided by the Energy Strategy 2050 and the Federal Act on a Secure Electricity Supply from Renewable Energy Sources. The presentation delivered by Laura Antonini at the Swiss Federal Office of Energy on 21 November 2023 provides an overview of Switzerland's Energy Strategy 2050. It described the current state of the energy system, the strategic objectives guiding national energy policy and the measures proposed to achieve them. Switzerland's Energy Strategy 2050 establishes a long-term framework for transforming the national energy system with the aim of securing a sustainable, low-carbon and resilient energy supply. The strategy is structured around three extensive aims - improving energy efficiency, expanding the contribution of renewable energy and withdrawing from nuclear power through a gradual and safety-driven process. First, the strategy seeks to significantly enhance energy efficiency across all major sectors of the economy. Second, it aims to accelerate the growth of renewable energy sources, by expanding both electricity generation and renewable heat production. Third, it provides for a progressive withdrawal from nuclear energy. By outlining the configuration of the energy system in 2022, Antonini depicted that transport accounted for 36.2% of final energy use, making it the largest consuming sector, followed by households at 27.6%, industry at 19.0% and services at 16.0%.¹⁴⁹ Agriculture and statistical differences represented the remaining 1.2%. This distribution reflects Switzerland's high transport-related energy demand, its comparatively modest industrial share and its limited

¹⁴⁷ Schweizerische Eidgenossenschaft, *Reduction Measures*, 2024.

¹⁴⁸ Schweizerische Eidgenossenschaft, *Reduction Measures*

¹⁴⁹ Schweizerische Eidgenossenschaft, *Energy Strategy 2050: promotion of energy efficiency and renewable energy*, Laura Antonini, 2023.

reliance on natural gas. The country remains more than 70% dependent on imported energy.¹⁵⁰ Hydropower, which comprise both storage and run-of-river facilities, supplied in 2022 between 55% and 60% of total production, while nuclear power contributed 36.4%.¹⁵¹ Hydropower remained the backbone of supply, with storage hydropower providing 25.4% and run-of-river facilities 24.4%.¹⁵² Other renewables, primarily solar and wind, accounted for 7.7%. Thermal production was negligible, comprising 1.7% from non-renewables sources and 1.2% from renewable fuels. In other words, smaller shares were provided by solar, wind and renewable and non-renewable thermal production, which together amounted to less than 3%. Although nuclear withdrawal is a formal objective of the Energy Strategy 2050, no specific timeline for the complete phase-out has been set. This nuclear phase-out is pursued without issuing new general licenses and follows a stepwise process guided exclusively by safety considerations rather than by a predetermined end date. Energy efficiency measures target buildings, appliances, industry and mobility. Buildings constitute nearly half of Switzerland's total energy demand, driven largely by heating requirements. Responsibility for regulation and policy implementation in this area lies with the cantons. The cantonal building program is financed through a portion of revenue from CO₂ tax. One third of the tax proceeds is allocated to the cantons for subsidies, while the remaining two thirds are redistributed to households and businesses.¹⁵³ In industry and appliance-related efficiency measures, financial incentives support electricity-saving investments that would not otherwise be undertaken. Subsidies are awarded through competitive auctions that prioritize the lowest subsidy per unite of energy saved. The strategy also defines a substantial expansion of renewable electricity production. The target for new renewable energy, excluding hydropower, is approximately 35 TWh by 2035, a goal that may ultimately be put to a popular vote. Antonini provided a comprehensive account of Switzerland's planned transition toward a more efficient, renewable and climate-neutral energy system. Both the structural changes required and the policy instruments designed to support them were underscored. Renewable energy production is encouraged through a combination of one-time investment grants, covering 20% to 60% of capital costs, feed-in premiums and competitive auctions for large-scale photovoltaic installations. Eligible technologies include rooftop, ground-mounted and alpine solar PV, biogas and waste-based biomass systems, wind power, small and large hydropower plants and geothermal projects supported through exploration funding. The renewable energy

¹⁵⁰ Schweizerische Eidgenossenschaft, *International energy policy*, 2025.

¹⁵¹ Schweizerische Eidgenossenschaft, *Swiss Potential for Hydropower Generation and Storage*, ETH Zurich, 2021

¹⁵² Schweizerische Eidgenossenschaft, *Energy Strategy 2050. Monitoring 2024*, 2023.

¹⁵³ Schweizerische Eidgenossenschaft. *Energy Strategy 2050: promotion of energy efficiency and renewable energy*.

promotion system is funded through a surcharge on electricity network costs. The annual budget allocated to these measures is approximately CHF 1.3 billion, financed by a surcharge of 2.3 cents per kilowatt hour.¹⁵⁴ The surcharge covers several components, including investment support for photovoltaics, feed-in premiums, market premiums for existing hydropower, contributions to watercourse quality improvements and funding for energy-efficiency tenders. The Energy Strategy 2050 envisions a far-reaching transformation of Switzerland's energy system to attain climate neutrality by mid-century. Key developments include the broad electrification of mobility and heating, with projections of around 3.6 million battery-electric vehicle and approximately 1.5 million heat pumps. Emerging technologies such as wind power, geothermal energy, hydrogen production and biomass for industrial process heat are expected to complement this shift. Negative emissions technologies, including carbon capture and storage in the waste, cement and chemicals sectors are anticipated to remove and securely store around 6.5 million tonnes of CO₂ per year within Switzerland. Energy Strategy 2050 is designed in alignment with international commitments on climate change, particularly with the ones aimed at reducing greenhouse gas emissions, promoting renewable energy and improving energy efficiency. Specifically, the Strategy provides the long-term framework for Switzerland's decarbonization pathway needed to meet its NDCs under the Paris Agreement. By reporting emission reductions, adaptation measures and energy-transition progress, Switzerland comply with the mitigation duties under the UNFCCC. Furthermore, the decarbonization momentum calls back to the Kyoto Protocol. Switzerland, however, is not the only one basing its national energy and climate strategy on international environmental agreements. Many other countries apply similar energy strategies at national level, as the Energiewende in Germany, the National Low-Carbon Strategy in France, the Japan's Strategic Energy Plan and the Pan-Canadian Framework on Clean Growth and Climate Change in Canada, among others. Part of the Energy Strategy 2050 is analysed internationally by the International Energy Agency policy reviews and OECD environmental performance reviews. Countries such as Germany, Austria and the Netherlands often refer to the success of Minergie, a Swiss building-efficiency label, when discussing higher building performance standards.¹⁵⁵ Countries undergoing energy liberalization, as Japan and other EU states for example, examined Swiss grid-management practices through IEA report.¹⁵⁶ Switzerland's use of direct democracy in energy transition is sometimes studied for insights into public consent mechanisms, especially in Denmark and Germany. The Confederation is taken as a case study for its hydropower and efficiency programs by the IEA, its

¹⁵⁴ Schweizerische Eidgenossenschaft, *Energy Strategy 2050. Monitoring 2024*, 2023.

¹⁵⁵ ScienceDirect, "Measuring the thermal energy performance gap of labelled residential buildings in Switzerland", *Energy Policy*, Volume 137, 2020.

¹⁵⁶ IEA, "Japan 2021", *Japan Policy Review*, p. 135.

policy instruments by the OECD and its grid management and water-energy infrastructure by the World Bank. Nevertheless, two recent commentaries offer contrasting evaluations of Switzerland's Energy Strategy 2050, particularly concerning the long-term security of the electricity supply and the consequences of phasing out nuclear power. While an opinion piece from the Energy Science Center at ETH Zurich argues that the energy transition is both feasible and strategically sound, a separate article based on a working paper by researchers Didier Sornette and Euan Mearns presents a far more pessimistic assessment, warning of severe import dependence and systematic risks. Together, these perspectives illustrate the ongoing debate surrounding Switzerland's path toward a decarbonized and reliable energy system. The Energy Science Centre, represented by Professor Gabriela Hug, strongly challenges the methodology and conclusions of the Sornette-Mearns analysis. Their critique focuses on three methodology shortcomings that, in their view, undermine the credibility of the working paper. Firstly, the Energy Science Center argues that the paper relies on an overly simplified analytical approach. The researchers merely scale electricity production and consumption from a single historical year, 2017, by 37% to project conditions in 2050.¹⁵⁷ This approach ignores well-documented structural changes in future electricity demand, shifts in generation profiles, and a wide range of empirical data published in recent years. According to the Energy Science Center, such simplification renders the results analytically unreliable. Secondly, the working paper significantly underestimates the flexibility and seasonal potential of Swiss hydropower. Instead of modelling how hydropower operators could adapt their production strategies to shifting seasonal needs, it assumes that current production patterns will remain unchanged through 2050. In addition, the analysis appears to omit the contribution of pumped-storage plants, which play an essential role in feeding electricity back into the grid during winter peak periods. Thirdly, the Energy Science Center criticizes the working paper for adopting an excessively narrow technological focus. The projection assumes that nearly all additional generation capacity in Switzerland between 2022 and 2025 will take the form of photovoltaic installations that are not optimized for winter conditions. In conclusion, this assumption excludes a number of key elements of the Energy Strategy 2050, including the role of seasonal storage technologies, the potential for importing synthetic fuels and the broader benefits of a diversified and balanced technology mix. In contrast to the working paper's conclusions, the Energy Science Center emphasises that a large body of scientific research demonstrates the technical and economic feasibility of Switzerland's planned energy transition. It also argues that a secure, reliable and cost-effective energy system can be realised without constructing new nuclear power plants. This would involve a coordinated combination of renewable energy sources, flexible resources such as various forms of storage and reserve generation, geothermal energy and continued, but

¹⁵⁷ C. Eisenring, "The Swiss federal government's energy strategy is wishful thinking, says ETH researcher", NZZ, 2022.

managed, electricity exchange with neighbouring countries. According to the Energy Science Center, such a system can meet Switzerland's long-term energy needs while remaining environmentally and economically sustainable. These opposing academic perspectives highlight the challenge that policymakers face when assessing the credibility and resilience of strategic energy pathways. Even expert analyses can reach fundamentally different conclusions when based on divergent assumptions and modeling structures.

3.2.3 Swiss CO₂ Act

The Federal Act of 23 December 2011 on the Reduction of CO₂ Emissions, also called *CO₂ Act*, serves as the cornerstone of Switzerland's climate policy framework. The Swiss CO₂ Act is the primary federal legislation guiding Switzerland's climate policy. It aims to reduce greenhouse gas emissions 50% by 2030 relative to 1990 levels and to support long-term objective of achieving net-zero emissions by 2050, as established in the supplementary Climate Protection Act. The CO₂ Act incorporates multiple amendments, with several of the most recent changes being effective from 1 January 2025. Its general provisions and reduction targets are aligned with the objectives set out in the Federal Act on Climate Protection Goals, Innovation and Strengthening Energy Security. Relative to 1990 levels, the Act requires that greenhouse gas emissions to be reduced at least by 50% by 2030 and by average of 35% over the period 2021-2030.¹⁵⁸ Implementation of these reductions is to be achieved primarily through domestic measures, although the Confederation is permitted to use international attestations, such as carbon credits, if necessary. The Act specifies measures for key sectors. In the building sector, cantons have the task of issuing and enforcing standards for both new and existing buildings, with the goal of lowering CO₂ emissions from fossil fuel-based heating systems. In the transport sector, Switzerland establishes target CO₂ emission values for new passenger cars, vans, light articulated and heavy-duty vehicles. These targets progressively become more stringent. For instance, new passenger cars must meet an average of 49.5g CO₂/km by 2030.¹⁵⁹ Manufacturers and importers are required to comply with fleet-specific targets and may form cooperative emission pools to fulfill obligations. The aviation sector is also addressed, as suppliers of aviation fuels, including hydrogen, must ensure a minimum proportion of renewable fuels is available, and aircraft operators must report the expected emissions for each flight. The Act introduces a CO₂ levy as a financial instrument to incentivize emission reductions. This levy applies to the production, extraction and import of fossil thermal fuels used primarily for heating.

¹⁵⁸ Schweizerische Eidgenossenschaft, *Federal Act on the Reduction of CO₂ Emissions*, 2011.

¹⁵⁹ Schweizerische Eidgenossenschaft, *CO₂ regulations for new vehicles*, 2025.

Operators of relevant installations can receive refunds if they commit to a specified reduction in greenhouse gas emissions by 2040. Revenue from the levy is partly allocated to programs such as the Buildings Program, which supports measures to reduce building-related emissions. The rest is generally redistributed to households and the economy on a per capita basis. The Act establishes an Emissions Trading System aimed at facilitating cost-effective emission reductions. The Emission Trading System applies to designated large industrial and thermal installations and it is designed to link it with other jurisdictions, such as the European Union. This allows the recognition and trading of emissions allowances internationally. The Act provides the legal and regulatory foundation for Switzerland's ongoing efforts for achieving substantial reductions in greenhouse gas emissions and for guiding the transition to a low-carbon economy. Like the Energy Strategy 2050, also the CO₂ Act is connected to international environmental agreements. By allowing Switzerland to use international cooperation and market mechanisms to meet its target, the Act works according to Article 6.8 of the Paris Agreement. Reporting and transparency also reflects the UNFCCC framework. At national level, a revision of the Act was rejected in a 2021 referendum. Subsequently, the Parliament approved a revised version, known as the CO₂ Succession Act, which emphasizes incentives and financial support. This version came into force on the 1st of January, 2025. The revised Swiss CO₂ Act sets a reduction target of halving Swiss greenhouse gas emissions by 2030 compared to 1990 levels. Parliament opted not to specify a domestic reduction quota in law, instead it delegated this authority to the Federal Council, which Environment Minister Albert Rösti claimed would have proposed a 66% domestic quota.¹⁶⁰ The CO₂ tax remains set, with up to one-third of revenue from the buildings program allocated to promote renewable energy and greenhouse gas reduction technologies. Vehicle emissions targets were maintained. In aviation, the parliament requires renewable fuels to be blended with paraffin fuels, which are refuelled in Switzerland, and mandates CO₂ emissions to be indicated on flight tickets. Levies on business or private jets were rejected. Lastly, the Swiss Financial Market Supervisory Authority and the Swiss National Bank are required to regularly report on the assessment of climate-related financial risks. This set of parliamentary resolutions defines the regulatory, fiscal and sectoral measures guiding Switzerland's greenhouse gas reduction strategy in the coming decade.

¹⁶⁰ SwissInfo, *Parliamentary resolutions on the revised CO₂ Act: an overview*, 2024. Accessible at: <https://www.swissinfo.ch/eng/swiss-politics/parliamentary-resolutions-on-the-revised-co2-act-an-overview/73763465> (Accessed on 28 November 2025).

3.3 Innovation and Green Technologies

The Pilot and Demonstration Programme of the Swiss Federal Office of Energy serves as a key interface between energy research and market deployment in Switzerland. Its primary aim is to accelerate the development, to test and to commercialize innovative energy technologies, solutions and concepts, thereby supporting the objectives of the Energy Strategy 2050. The program provides financial support for projects that focus on the economic and ecological use of energy, its transmission and storage and the deployment of renewable energy sources. By funding pilot and demonstration facilities, the Swiss Federal Office of Energy helps raise the Technology Readiness Level of energy innovations, hence facilitating their successful market entry. Pilot and Demonstration projects are categorized according to their stage of development. Pilot projects typically represent early-stage initiatives with high technological and financial risk.¹⁶¹ They are designated to test technical feasibility and gather data on principal applications, often involving sub-systems or scaled-down facilities in order to address scientific or technological questions. Demonstration projects, in contrast, involve full-scale implementation to assess economic, social and regulatory aspects, as well as system integration, marketability and economic viability. Eligibility for financial support under the program requires projects to meet specific criteria. The technology must have substantial application potential, contributing meaningfully to Switzerland's energy system and aligning with Energy Strategy 2050. Projects are evaluated primarily on their innovative content, thus emphasizing differentiation from existing technologies and the creation of broader value, rather than immediate commercial viability. Additionally, applicants must demonstrate a clear pathway to future market implementation, specifying how the technology is going to be brought to market according to project completion. As of December 2025, the program is suspended for new applications due to federal austerity measures. The Federal Council proposed the discontinuation of support from 2027, or possibly as early as 2026. Consequently, no new financial contribution is being awarded and no pending applications is going to be considered until further notice. This project, however, was merely for innovative energy technology. Regarding financial technologies, the "Innovation" section of the Swiss State Secretariat for International Finance website describes the federal government's strategy approach as aimed at keeping Switzerland a competitive and forward-looking financial centre, amid rapid digitalization and technological change.¹⁶² The strategy follows a principle-based and market-oriented philosophy, that encourages private sector leadership while ensuring an effective regulatory framework. The Swiss State Secretariat for International Finance acts as a mediator and facilitator in the field of innovation. Its aim is to create conditions that support FinTech development and digital

¹⁶¹ Schweizerische Eidgenossenschaft, *Pilot and Demonstration programme*, 2024.

¹⁶² Schweizerische Eidgenossenschaft, *Switzerland as a fintech nation: stability meets progress*, 2025.

transformation. Regulation is intended to remain technology-neutral and competition-neutral so that equivalent business models and risks are treated consistently, regardless of the technology used. The government relies primarily on private initiatives and self-regulation, choosing legislative intervention only when market-driven progress is inadequate. The Swiss Financial Innovation Desk, initially launched as a pilot project, serves as a central hub to guide, connect and strengthen actors within the financial innovation ecosystem. The Swiss Secretariat for International Finance outlines a digital finance strategy focused on innovation, competition and stability. Key priorities include Open Finance, which promotes voluntary, industry-led data sharing with the objective of enhancing consumer choice and fostering innovation and integration of distributed ledger technology and asset tokenization through an adaptive regulatory framework. Regulatory reforms have the objective of accommodating crypto assets while safeguarding financial stability and investor protection. The strategy also addresses emerging challenges and opportunities related to artificial intelligence and sustainable finance. It supports Switzerland's ambition to remain a leading, technologically advanced and resilient financial centre through public-private collaboration. Internationally, several platforms have been developed in order to support the achievement and implementation of the international environmental agreements. For example, the Mission Innovation platform serves to strengthen cooperation on clean energy research, development and demonstration. Mission Innovation was launched in 2015 alongside the Paris Agreement with the objective of accelerating the development and deployment of clean energy technologies. At the present time, more than 23 countries, and the European Commission, take part in Mission Innovation. All the members jointly accounts for over 90% of global public investment in clean energy innovation.¹⁶³ Its main goal is to make clean energy affordable, attractive and accessible worldwide. During its first phase, its members committed to doubling public investments in clean energy over five years. In 2021, the platform entered in its second phase, known as MI 2.0. The second version brings together governments, industry and research institutions with the aim to achieve ambitious and measurable technological progress by 2030. These institutions concentrate on hard-to-decarbonize sectors and high-impact technologies. Key areas of work include development of a global clean hydrogen value chain; the advancement of power systems capable of integrating up to 100% variable renewable energy; the expansion of carbon dioxide removal technologies to reach net reductions of 100 million tonnes of CO₂ per year. These areas hence have the goal of accelerating the shift to net-zero cities and making the decarbonization of energy-intensive industries possible - such as steel, cement and chemicals through cost-competitive solutions. Switzerland participates in Mission Innovation through the State Secretariat for Education, Research and Innovation, which is the federal body responsible for national and international

¹⁶³ D. Notter, J. Tudeau, "Mission Innovation: promoting clean energy technologies", the news portal of the State Secretariat for Education, Research and Innovation, 2025.

education, research and innovation policy. Swiss engagement in this platform forms part of a broader strategy aimed at strengthening its position as a global hub of innovation, including in climate and clean energy technologies. Swiss participation also aligns closely with European research programmes. For example, Mission Innovation's Urban Transitions builds on the EU's Mission for Climate-Neutral and Smart Cities. Switzerland as associated country to Horizon Europe contributes actively to, and benefits from, European research and development's initiatives. Through these international partnerships, Switzerland connects its research institutions, universities and cleantech companies to global expertise and collaborative projects. This not only supports the development and deployment of Swiss clean energy technologies but also ensures that Switzerland contributes meaningfully to worldwide efforts to address climate change.

3.4 Swiss Agency for Development and Cooperation

The Swiss Agency for Development and Cooperation (SDC), that operates under the Federal Department of Foreign Affairs, serves as Switzerland's primary agency for international cooperation. In coordination with other relevant federal offices, the SDC oversees the management of development initiatives, the Swiss engagement in Eastern Europe and the delivery of humanitarian aid on behalf of the Swiss Confederation. The primary objective of Swiss development cooperation is to reduce poverty. At the same time, it aims at promoting economic self-sufficiency and strengthening the autonomy of partner states.¹⁶⁴ It seeks to improve production conditions, to address environmental challenges and to expand access to education and essential healthcare services; thereby contributing to sustainable and equitable development. In this regard, the Swiss International Cooperation Strategy 2025-2028 establishes the priorities and strategic orientations for Swiss engagement in development cooperation, humanitarian assistance and the promotion of peace and human rights on a global scale. As a central instrument of Swiss foreign policy, the strategy is primarily implemented by the Swiss Agency for Development and Cooperation, the State Secretariat for Economic Affairs and the Peace and Human Rights Division. Its main objective is to combat poverty and foster sustainable development across economic, environmental and social dimensions. In order to implement these objectives, it contributes directly to the UN 2030 Agenda for Sustainable Development. The strategy is structured around four interrelated pillars that guide Swiss international cooperation. The first pillar, human development, focuses on saving lives, alleviating human suffering and ensuring access to high-quality basic services for the most disadvantaged populations. This encompasses humanitarian aid, public health systems and the management of migration and

¹⁶⁴ Schweizerische Eidgenossenschaft, *Swiss Agency for Development and Cooperation*, 2023.

forced displacement. The second pillar, sustainable economic development, seeks to create decent employment opportunities by establishing conducive framework conditions and stimulating vibrant local economies. Key areas of focus include supporting the local private sector, vocational training, education and access to financial services. The third pillar, climate and environment, emphasizes environmentally sustainable development that is resilient to climate change and natural hazards. Efforts under this pillar include promoting adaptation and mitigation measures, sustainable management of natural resources, particularly water, and reducing disaster-related risks. The fourth pillar, peace and governance, aims at resolving conflicts, advancing democracy, strengthening the rule of law and upholding human rights. This involves supporting conflict transformation, democratic processes, civil society, gender equality and good governance. The strategy outlines a total guarantee credit of 11.27 billion CHF over the four-year period, with a strong emphasis on flexibility and agility to respond to geopolitical and financial uncertainties, as the war in Ukraine for example. Switzerland allocated approximately 1.5 billion CHF, around 13 percent of the total budget, specifically to support cooperation in Ukraine and the surrounding region.¹⁶⁵ The strategy continues to prioritize engagement in four geographic regions: Sub-Saharan Africa, North Africa and the Middle East, Asia and Eastern Europe. The partner selection is guided by considerations of need, Swiss long-term interests and the added value of Swiss expertise. A notable operational shift within the strategy is a stronger emphasis on “Locally Led Cooperation”, which is designed to enhance the capacities of local actors, ensure interventions that are context-specific and sustainable, and increase direct funding in support to local partners across humanitarian, development and peacebuilding initiatives. This approach reflects Switzerland’s commitment to fostering ownership, resilience and effectiveness in its international cooperation efforts.

¹⁶⁵ Schweizerische Eidgenossenschaft, *Switzerland’s international cooperation strategy 2025-2028*, 2025.

CHAPTER 4

Domestic and Global Policies

Over the last decades, economic and demographic expansion in Switzerland has been closely connected to the rising demand for natural resources. This trend is particularly visible in food consumption, housing and mobility. Taken together, the three domains account for roughly two-thirds of the environmental footprint generated by domestic consumption. At the same time, the production of goods meant for both the Swiss market and the export places significant pressure on ecosystems and resource availabilities. The greatest burdens arise from food production, industrial processes, energy generation and construction activities.¹⁶⁶ Despite these pressures, environmental conditions in certain areas improved over the last half-century. This progress is the result of a combination of state regulation, voluntary initiatives - undertaken by the private sector - and shifts in consumer behavior. Significant advances include measurable enhancements in air quality and water purity.¹⁶⁷ This chapter examines Swiss environmental performance through the lenses of sustainability governance, international engagement and the structural limitations of the Swiss economic model. Rather than assessing environmental outcomes in isolation, it places Switzerland within broader debates on global public goods, ecological responsibility and consumption-based sustainability. By integrating policy analysis, empirical environmental data and institutional evaluation, an explanation of how Swiss strengths in governance and innovation coexist with persistent ecological pressures and unresolved political tensions is provided. Particular attention is paid to the divergence between Switzerland's high international rankings on domestic environmental conditions and its comparatively weak performance when global resource use and externalized environmental impacts are taken into account. This chapter is structured around three analytical dimensions. First, it investigates how domestic environmental policies and scientific capacity inform Swiss international stance and credibility in addressing global environmental challenges. Second, it assesses the extent to which international cooperation and knowledge production function as global public goods, by highlighting both their contributions and their constraints. Third, it evaluates the strengths and limitations of the Swiss model by examining persistent environmental pressures, political trade offs and societal attitudes towards environmental costs. These three dimensions have the objection of clarifying Swiss ambivalent position as both an environmental governance leader and a high consumption economy, whose ecological footprint exceeds sustainable limits.

¹⁶⁶ Environment and Climate, A comprehensive measure for the track record, section 7.

¹⁶⁷ European Environment Agency, Switzerland, 2025. Accessible at: <https://www.eea.europa.eu/en/europe-environment-2025/countries/switzerland> (Accessed on 02 December 2025).

4.1 How domestic policy informs international stance

Swiss international engagement on climate change, environmental governance and global security is best understood as an extension of its domestic political economy, institutional design and long-standing commitment to policymaking. Its engagement is based on science. Rather than treating environmental action as a peripheral or purely moral concern, Swiss foreign policy increasingly frames climate change as a structural risk with direct implications for national stability, economic prosperity and international credibility. This orientation reflects a domestic context characterized by high levels of scientific capacity, strong public support for environmental research and an institutional culture that privileges evidence, consensus-building and multilateral cooperation. As a result, Switzerland's international stance does not emerge in isolation but is deeply informed by domestic strengths that are projected outward through diplomacy, development cooperation and global governance platforms. An early articulation of this connection can be found in the study *Climate Change and Security in Swiss Foreign and Security Policy* (2016), commissioned by the Federal Department of Foreign Affairs. It represents an early and influential attempt to systematically integrate climate change into the conceptual framework of national and international security policy. The report does not conceptualize climate change as an environmental issue, but as a "risk multiplier" that intensifies existing social, economic and political vulnerabilities.¹⁶⁸ By embedding climate change within a broader security structure, the study mirrors Switzerland's domestic governance logic, which tends to prioritize prevention, risk management and systemic analysis over reactive crisis response. This approach reflects a domestic policy environment in which scientific expertise is routinely integrated into decision-making processes and where risk mitigation is valued as a core component of national resilience. The authors, the Adelphi advisors Lukas Rüttinger und Benjamin Pohl, argued that climate related phenomena interact with preexisting social, economic and political vulnerabilities, such as poverty inequality, weak governance, demographic pressure and rapid urbanization. In fragile contexts, it is highlighted that these interactions can amplify tensions, erode state legitimacy and increase the likelihood odds of social unrest or violent conflict. Consequently, climate change functions less as a direct cause of insecurity than as a force which intensifies underlying stressors already present within societies.¹⁶⁹ The emphasis of the report on indirect pathways, such as resource scarcity, migration pressures, market volatility and institutional stress, resonates with the Confederation's highly globalized economic model. In its model, in fact, external disruptions are rapidly transmitted into the domestic sphere. Although Switzerland is less exposed to the most immediate physical impacts of climate change, its deep

¹⁶⁸ L. Rüttinger, B. Pohl, *Climate Change and Security in Swiss Foreign and Security Policy*, Adelphi, 2016.

¹⁶⁹ L. Rüttinger, B. Pohl, *Climate Change and Security in Swiss Foreign and Security Policy*, 2016.

integration into global trade, finance and governance creates significant indirect vulnerability. This interdependence reinforces the strategic rationale for international engagement, as global climate instability threatens supply chains, financial assets and peace building efforts in regions where Switzerland has economic and diplomatic interests. An example is provided by environmental degradation and changing climatic conditions that increase competition over scarce resources such as land and water, particularly in regions that are dependent on agriculture or pastoralism. Domestic awareness of these exposure channels translated into an international posture that prioritizes multilateral solutions, early warning mechanisms and science-driven cooperation. Although Switzerland is geographically isolated from many of the most severe manifestations of climate related insecurity, it is nonetheless deeply affected through global interdependence. Economically, the exports of goods and services account for more than 70 percent of the Swiss GDP.¹⁷⁰ Export dependence makes its economy acutely sensitive to disruptions in global supply chains, whether if caused by conflict, environmental degradation or climate induced instability. Financially, its status as a global hustler is reinforced by the stability of the Swiss franc, which attracts foreign capital and positions the country as a major international creditor. As a result, Swiss domestic prosperity is closely interlinked with the stability of global markets and the economic health of other regions. Social globalization further amplifies this interconnectedness, as high levels of mobility contribute to a rapid circulation of people, ideas and cultural practices. From a foreign policy perspective, rising fragility undermines Swiss long standing engagement in peace building, development cooperation and humanitarian assistance. Climate insecurity is a strategic concern rather than a distant external problem. Climate security, on the other hand, becomes not only a contribution to global environmental protection but also a preventive strategy aligned with its domestic interest in stability and predictability. This logic is reflected in the investment in International Geneva as a hub for science-policy interaction. Institutions like the Geneva Science-Policy Interface and the Geneva Environment Network highlight a domestic commitment to evidence-based governance at the international level. The role of these institutions extends beyond information sharing. They actively bridge cultural and institutional gaps between scientific communities and policymakers, while translating complex research into actionable policy insights. By doing so, these institutions reinforce Switzerland's international influence through procedural legitimacy rather than coercive power. In fact, the Geneva Environment Network functions as a networking platform connecting the United Nations agencies, NGOs, diplomats and governments. The Geneva Science-Policy Interface provides the analytical bridge that integrates academic research into policy debates. Both are considered as key institutional pillars of evidence based environmental

¹⁷⁰ SwissInfo, "Switzerland climbs global climate ranking but progress is slow, SwissInfo, 2025. Accessible at: <https://www.swissinfo.ch/eng/climate-adaptation/switzerland-climbs-global-climate-ranking-but-progress-still-lags/90349491> (Accessed on 03 December 2025).

governance in International Geneva.¹⁷¹ Most importantly, these platforms address asymmetries in diplomatic capacity. They enable smaller or less-resourced states to engage meaningfully in environmental negotiations. These aims align Swiss foreign policy with principles of inclusiveness and fairness, which are rooted in its domestic political culture. As the ambassador of Barbados to the United Nations H. E. Matthew Wilson emphasized, the platforms help small delegations to navigate the “white noise” of Geneva’s multilateral ecosystem.¹⁷² The connection between domestic scientific capacity and international influence is most clearly rooted in CERN, the European Organization for Nuclear Research. Established in 1964 and hosted in the canton of Geneva, CERN represents a flagship example of how Switzerland converts national assets into global public goods. Beyond its scientific achievements, CERN institutionalizes values that are deeply entrenched in Swiss governance - openness, peaceful cooperation and the depoliticization of knowledge production. As stressed by Micheal Möller, deeper partnership between the worlds of science and diplomacy is needed in order to solve the world’s most pressing problems. On November 2, 2015, the then Director-General of the United Nations Office at Geneva Möller delivered a speech arguing that, in order to achieve the 2030 Agenda for Sustainable Development, the international community had to treat health, education and climate stability as “Global Public Goods” and use scientific cooperation as a blueprint for political success.¹⁷³ During his speech, Möller used the World Wide Web, which was invented at CERN in 1989 as the ultimate example of public good. The World Wide Web, in fact, was created with the objective to share scientific data, but later became a fundamental tool for global development, business and human connection. It is in this view that CERN was seen with the ability to unite scientists from politically divergent countries. By having scientists coming from rival countries working together, it created a common language of science as a model for how science and diplomacy can overcome political stalemates. Its commitment to open access to all the countries ensures that the generated knowledge is non-excludable and non-rival, thus aligning closely with the economic definition of global public goods. In this respect, CERN exemplifies what Scott Barrett describes as a “single best effort global public good” - the concentrated effort of a

¹⁷¹ A. Cedillo, *The Geneva Science-Policy Interface and the Geneva Environment Network: a shared commitment to science-informed environmental policy*, Geneva Science-Policy Interface, 2025. Accessible at: <https://www.gspi.ch/news/the-geneva-science-policy-interface-and-the-geneva-environment-network-a-shared-commitment-to-science-informed-environmental-policy> (Accessed on 10 December 2025).

¹⁷² A. Cedillo, *The Geneva Science-Policy Interface and the Geneva Environment Network: a shared commitment to science-informed environmental policy*, 2025.

¹⁷³ M. Möller, *The CERN Model, United Nations and Global Public Good: Addressing global challenges*, United Nations Office at Geneva, 2015. Accessible at: <https://www.ungeneva.org/en/about/director-general/michael-moller/activities/2015/11/cern-model-united-nations-and-global> (Accessed on 10 December 2025).

capable actor in producing benefits that far extend beyond national borders. Barrett's framework is particularly instructive for understanding the country's role in global scientific cooperation. Single best effort public goods emerge when a limited number of actors possess both the capacity and the incentive to supply a good whose benefits are universally shared. While CERN is formally a multilateral organization, its location, institutional stability and sustained political support are inherent to Swiss domestic commitment for research excellence and international openness. By hosting and supporting CERN, Switzerland effectively lowers the coordination costs, hence enabling scientific collaboration across geopolitical divisions. The spillover effects, which range from technological innovation to diplomatic trust-building, reinforce Switzerland's reputation as a neutral facilitator of collective problem-solving. Nevertheless, critics argue that Swiss responsibility for climate change does not stop at its borders. Developed by the Swiss Climate Strike movement, the tenth edition of the Climate Action Plan provided an activist critique of Swiss international responsibilities. A major pillar of the document is the demand of cancelling the unconditional debt of the Global South countries and the possibility to invest in their own green transitions. According to the Plan, the financing should be raised through taxes on large emitters and the financial sectors, based on the polluter-pay principle.¹⁷⁴ While the Möller saw CERN as a model for peaceful cooperation, the Swiss Climate Strike movement argues that scientific cooperation is insufficient. It states that the underlying economic structures prevent the Global South to access green technologies for free. This model of science-based international engagement also reflects Switzerland's approach to climate governance and development cooperation. As a matter of fact, the Swiss Agency for Development and Cooperation's Global Program on Climate Change and Environment translates domestic policy priorities into international actions. These priorities include precaution, risk reduction and institutional robustness. By combining climate finance, governance support and technological cooperation, the country positions itself as a pragmatic actor capable of linking mitigation, adaptation and resilience-building. The emphasis on data, monitoring and evaluation reflects the same foundations that underpin domestic environmental policy. These foundations are coherent with internal governance and external engagement. At the same time, scientific assessments of Swiss environmental footprint reveal important tensions within this model. Studies, that demonstrate the externalization of environmental impacts through global supply chains, highlight the limits of territorially bounded climate policies. Yet these findings also reinforce the strategic logic of Swiss international stance. Rather than undermining domestic achievements, they underscore the necessity for an international cooperation that addresses upstream and downstream effects of decarbonization. As stated by the Swiss Agency for Development and Cooperation, promoting a circular economy would mean to shift away from linear production

¹⁷⁴ Climate Action Tracker, Switzerland, 2024. Accessible at: <https://climateactiontracker.org/countries/switzerland/> (Accessed on 10 December).

and consumption models towards regenerative systems. These systems are designed to operate within planetary boundaries.¹⁷⁵ Digitalization and the use of frontier technologies, including artificial intelligence and big data, are framed as tools to improve the efficiency, reach and precision of climate interventions, particularly in contexts where traditional approaches struggle to reach marginalized populations. The framework also underscores the importance of engaging the private sector. It recognizes that public funding alone is insufficient for reaching the scale of the global climate financing needs. This engagement needs to be applied in the broad picture of a country necessitating coordinated global solutions - as a significant share of Swiss environmental footprint is generated abroad. Furthermore, being affected by an higher warming rate makes the effective global mitigation a matter of domestic relevance, particularly in the light of its vulnerability to climate impacts in alpine regions. In this regards, science diplomacy does not become a merely normative aspiration but a functional requirement for aligning domestic sustainability goals with global responsibility. Overall, Swiss international environmental and climate posture can be understood as the outward projection of domestic institutional strengths. High scientific capacity, political stability and a governance culture oriented towards evidence and consensus enable Switzerland to exercise an influence that is disproportionate to its size. By supporting global scientific collaboration, investing in platforms that connect knowledge to policy and hosting institutions such as CERN, Switzerland translates domestic advantages into international authority. This strategy allows the country to navigate a highly interdependent world by shaping the rules, norms and knowledge structures through which collective responses to global challenges are formulated. By doing so, Switzerland demonstrates how domestic policy coherence can serve as the foundation for sustained and credible international influence. On the other hand, however, its high degree of globalization is not merely a strategic preference but a structural necessity. As a small and resource poor country, Switzerland depends on external markets for raw materials, energy and economic growth. Consequently, its disengagement from global systems is neither feasible nor desirable. All the above mentioned documents present an interdependence paradox - the factors that underpin Swiss prosperity also function as channels through which global risks are transmitted into the domestic sphere. *Climate Change and Security in Swiss Foreign and Security Policy* conceptualizes climate change as a risk multiplier, which intensify existing social, economic and political vulnerabilities. The SwissInfo article demonstrates how the country's deep integration into global trade, finance and governance transforms distant climate related crises into direct national concern. Climate induced conflicts in regions that are trading partners, for example, not only threaten humanitarian stability abroad but also economic interests at home, given its reliance on continuous trade flows. *The Geneva Science-Policy Interface and the Geneva Environment Network* document sheds light on the

¹⁷⁵ Schweizerische Eidgenossenschaft, *The Programme Framework 2021-24 for the Global Program Climate Change and Environment*, Swiss Agency for Development and Cooperation, 2020, page 12.

strategic importance of initiatives and platform that allow the Confederation to convert its political globalization into a form of risk management by hosting science-policy dialogues. Acting as a neutral coordinator, it maintains its diplomatic relevance while contributing to the governance of transboundary climate and security challenges at the same time. Additionally, while its wealth and price stability provide a degree of short-term insulation from shocks such as food price volatility, the document implicitly supports the Swiss Agency for Development and Cooperations's warning that such protection is limited. Switzerland's dependence on multinational corporations and global markets thus represents a latent vulnerability rather than a guarantee of resilience. All of these assumptions bring to the conclusion that Swiss global integration is structural and unavoidable. This condition creates a loop where global climate and security risks continuously intersect with national economic and social stability. From this perspective, Swiss investment in global governance platforms function as preventive strategies aimed at safeguarding the foundational pillars of Swiss prosperity.

4.2 Exporting Sustainability: Technology, Expertise and Funding

Switzerland's international sustainability strategy is increasingly structured around the export of technological capacity, scientific expertise and financial standards rather than solely around territorial emissions reductions. This approach reflects the recognition that in a highly globalized and resource-dependent economy, domestic sustainability objective can only be achieved through active participation in transnational innovation systems and global investment flows. As a consequence, Swiss policy places sustained emphasis on education, research and development and international research cooperation as instruments of both competitiveness and environmental governance. A central pillar of this strategy is the alignment of financial markets with global climate objectives. The Swiss Climate Score Update exemplifies how Switzerland seeks to translate technical expertise into internationally relevant governance tools. Designed as a best-practice transparency framework, the Climate Scores provide investors with standardized indicators that assess the climate compatibility of investment portfolios in relation to the Paris Agreement objectives. While their application remains voluntary, the Federal Council's recommendation for broad adoption reflects an effort to position Switzerland as a norm setter in sustainable finance rather than a regulator relying on coercive instruments. By emphasizing transparency, comparability and methodological rigor, the framework allows Swiss financial actors to identify transition risks and opportunities while indirectly shaping global capital allocation towards low-carbon technologies. In this sense, financial expertise becomes an exportable form of sustainability governance, thus extending Swiss influence beyond its borders through market-based coordination rather than formal regulation. This financial dimension is

rooted in a broader national commitment to research and innovation as the foundation of long-term sustainability leadership. Switzerland consistently ranks among the world's most R&D intensive economies, being a significant actor in science driven technological innovation.¹⁷⁶ As a matter of fact, it invests approximately 3.4% of GDP in research and development, around 25 billion francs annually, of which around 60% of national venture capital investment in deep tech.¹⁷⁷ The country continues to demonstrate a disproportionately strong innovation performance relative to its economic size. Globally, the 500 largest corporate R&D investors increased their research expenditures by roughly 6% in 2024, exceeding the average revenue growth of 3%.¹⁷⁸ Taking into consideration per capita measures, Switzerland ranks third globally in deep tech investment, after the United States and Israel. Regional trends reveal notable variation. In North America, growth in R&D spending decelerated significantly compared to the previous year, though it remained positive. In Europe, companies expanded their R&D budgets despite experiencing an overall contraction in revenues. Asian firms continued to increase their spending at a comparatively faster pace, reinforcing the region's growing role in global technology development. The United States, as already mentioned, remains the dominant contributor to global R&D investment. Seven of the ten largest corporate R&D spenders worldwide are US based, like major technology firms such as Amazon, Alphabet and Meta leading in absolute expenditure. There are fourteen Swiss companies that are represented among the world's top 500 R&D investors. Pharmaceutical companies dominate this group, with Roche and Novartis ranking among the top twenty globally. Other Swiss multinationals across sectors such as food, industrial technology and engineering further contribute to the country's strong innovation footprint. This sustained Swiss investment reflects a strategic orientation towards knowledge-driven growth, supported by a clear functional division between fundamental research institutions and applied research actors. Federal institutes such as ETH Zurich and EPFL Lausanne anchor the system's scientific excellence, while universities of applied science and private firms translate research outputs into technologies ready for the market. Universities are complemented by major research organizations, including CERN, the Paul Scherrer Institute and CSEM, which collectively form a dense and interconnected knowledge ecosystem. Geographically, this activity is concentrated within a transnational innovation corridor connecting Zurich, Lausanne, Basel and Geneva with neighboring hubs in Southern Germany

¹⁷⁶ E. Albisser, *Small Country, Bid Deep Tech Nation: Switzerland as Europe's Technology Hub*, Technic und Wissen, 2025. Accessible at: <https://deeptechnation.ch/dtn-news/small-country-big-deep-tech-nation-switzerland-as-europes-technology-hub/> (Accessed on 12 December 2025).

¹⁷⁷ E. Albisser, *Small Country, Bid Deep Tech Nation: Switzerland as Europe's Technology Hub*, 2025.

¹⁷⁸ EY, Companies worldwide increase their spending on Research and Development - Switzerland ranks sixth globally, 2025. Accessible at: https://www.ey.com/en_ch/newsroom/2025/06/companies-worldwide-increase-their-spending-on-research-and-development-switzerland-ranks-sixth-globally (Accessed on 12 December 2025).

and Northern Italy. This “Alpine” cluster is identified as one of Europe’s most productive deep tech regions. The private sector’s dominant role - accounting for roughly two-thirds of total R&D expenditure - underscores the integration of sustainability-oriented innovation within industrial strategy rather than treating it as a purely public responsibility. Recent analyses further indicate that Switzerland’s innovation ecosystem is evolving in ways that reinforce its capacity to export sustainable technologies and expertise. Deep technology emerged as a defining feature of the Swiss innovation profile, with an exceptionally high share of venture capital allocated to science-based fields such as advanced materials, engineering, climate technologies and artificial intelligence. Artificial intelligence and machine learning account for a significant share of newly established deep tech firms. Recent growth in the sector include robotics, climate technologies, technology-driven life sciences, quantum and semiconductor research. This shift reflects a deliberate move away from short-cycle digital applications towards capital intensive technologies that are capable of addressing systemic challenges, including decarbonization, resource efficiency and health. The resilience of Swiss deep tech investment during periods of global market contraction suggests that academic excellence and technological reliability function as stabilizing assets. Across these domains, Swiss startups are characterized by a development strategy that emphasizes technical reliability and product accuracy, hence reflecting a broader national orientation toward precision and quality. This reinforces the country’s attractiveness as a long-term innovation partner. At the same time, Swiss role as a global sustainability exporter oriented at innovation is reinforced through its dense integration into international research platforms. Switzerland’s association with Horizon Europe under the EU Programmes Agreement restores full access to to Europe’s primary research and innovation framework, including strategic areas such as climate technologies, artificial intelligence and quantum research. This reintegration is not solely a matter of funding eligibility but also of scientific positioning. By regaining beneficiary status and the ability to coordinate international consortia, Swiss institutions can shape research agenda, influence standard-setting processes and embed Swiss sustainability priorities within large-scale transnational projects. Participation in complementary programs such as Erasmus+, Digital Europe and EU4Health further strengthens human capital mobility and the diffusion of expertise. The Swiss participation reinforces the Swiss role as a knowledge hub within European and global innovation systems. The export of sustainability is also evident in its approach towards emerging technologies, like artificial intelligence for example. Rather than adopting a comprehensive regulatory framework, Swiss policymakers pursued a technology-neutral and sector-specific governance model that prioritizes legal certainty, intellectual property protection and human oversight. This regulatory stance supports the development of high-value and industrial AI applications in sectors such as healthcare, life sciences and advanced manufacturing. By allowing flexible integration of AI-assisted innovation, Switzerland positions itself as a trusted jurisdiction for responsible

technology development. Initiatives related to technology - as open and transparent language models and the promotion of enterprise-oriented AI solutions - illustrate how regulatory credibility itself becomes an exportable asset, thereby attracting international partners and investment. However, the capacity of exporting sustainability through innovation has structural constraints. Multiple analyses highlight a persistent gap between Switzerland's research excellence and its ability to scale innovations domestically. Venture financing remains heavily depending on foreign capital, particularly from the United States. This increases the likelihood, and the concerns, that ownership and strategic control over Swiss-developed technologies may migrate abroad. This dynamic raises questions about the long-term distribution of economic value generated by sustainability oriented research. Switzerland still continues to benefit from a highly regarded education system and a strong scientific research base, but investment growth between North America and Europe could pose challenges to its long-term competitiveness if not addressed. In absolute terms, the United States remains the largest global investor in corporate R&D, followed by China (including Hong Kong), Japan, Germany, South Korea and Switzerland. Although in total expenditure it ranks last among these countries, its high concentration of R&D investment relative to economic output reinforces its status as one of the world's most innovation and intensive economies. While Switzerland succeeds as a generator of knowledge and of early-stage innovation, sustaining global influence requires mechanisms that retain a greater share of technological and financial returns within the national ecosystem. Recent evidence nevertheless suggests gradual diversification within the Swiss research landscape. The increasingly participation of medium and small size enterprises and service companies in R&D activities points towards a broader innovation system. This system is supported in part by targeted tax incentives and in the other by patent regimes. The diffusion of research capacity enhances economic resilience and creates additional channels. Through the channels, technologies related to sustainable practices can be developed and exported. Firms engaged in R&D demonstrated greater adaptability to external shocks, thus reinforcing the connection between innovation, competitiveness and long-term sustainability. Taken together, these developments illustrate how Switzerland exports sustainability not primarily through material resource, rather through systems of knowledge, finance and governance. Investment in education and R&D underpins technological leadership. Participation in international research platforms embeds Swiss expertise within global problem-solving efforts and the promotion of transparent financial and regulatory frameworks shapes incentives beyond national borders. This model allows Switzerland to remain competitive and influential globally, despite its small size and limited natural resources. By aligning academic excellence, innovation capacity and funding mechanisms with environmental objectives, the Confederation converts structural interdependence into strategic leverage, positioning sustainability as both a normative commitment and a source of international influence. On the opposite view, despite the already

mentioned strong economic performance, emerging structural fragilities within its industrial innovation system have been reported in the study *Strategies for an Innovative Switzerland* (2024). The study emphasizes that Swiss long term innovative strengths cannot be taken for granted and require targeted and systemic intervention across the domains of industry and research. Besides, it identifies several interrelated trends that are currently weakening the diffusion and sustainability of industrial innovation. Firstly, particularly among small and medium sized enterprises, since 2012 employment in manufacturing declined by roughly 5 percent, while the service sector continued to expand.¹⁷⁹ The shift involves the risk of the industrial base's erosion, which underpins applied innovation and technological development. Secondly, R&D activities are more and more concentrated within a reduced number of companies. This reduction decreases spillovers and limits the broad distribution of innovative capabilities across the economy. Thirdly, the study observes a trend in diminishing returns on R&D investment. The connection between research expenditure and revenues generated from new products weakened. This is due to the fact that high technology firms are allocating fewer resources to research and that the market performance of innovative products is declining in several segments. Finally, the proportion of companies engaged in R&D declined both domestically and internationally. Overall, the report reinforces the argument that the Swiss innovative performance depends on addressing structural weaknesses within manufacturing and R&D participation. By strengthening collaboration, improving technology transfer and ensuring broader engagement in innovation, Switzerland sustains its role as a credible contributor to international scientific and to technological public goods. Its role is also essential for domestic economic resilience.

4.3 Strengths and limitation of the Swiss Model

The Swiss climate governance model is characterized by a persistent duality - strong domestic performance on specific indicators and high international recognition coexist with structural limitation that constrain its overall environmental effectiveness. Switzerland consistently ranks highly in comparative climate and environmental indices that focus on national conditions, policy design and territorial emissions. At the same time, a growing body of empirical evidence highlights substantial shortcomings related to consumption-based impacts, ecological overshoot and the political feasibility of transformative climate action. The tension between measured performance and actual global environmental impact lies at the core of the strengths and

¹⁷⁹ SATW, Innovation strength analysis 2024: Strategies for an Innovative Switzerland, 2024. Accessible at: <https://www.satw.ch/en/publications/innovation-strength-analysis-2024-strategies-for-an-innovative-switzerland> (Accessed on 18 December).

limitations of the Swiss model. International assessments illustrate this ambivalence particularly clearly. Switzerland has repeatedly been ranked among the top performers in the Climate Change Performance Index (CCPI), hence reflecting favorable evaluations of its climate policy framework. For example, in 2019 Switzerland placed ninth in the index; a position that signaled international confidence in its climate ambitions.¹⁸⁰ This assessment was grounded in several structural advantages. To begin with, Switzerland articulated ambitious policy objectives, like the commitment to reduce greenhouse gas emissions by 50 percent by 2030. The country also benefits from advanced infrastructure systems, most notably its extensive and efficient public transport network. These systems operate as collective public goods by reducing emissions through shared efficiency rather than relying exclusively on individual behavioral change. Furthermore, as seen in chapter 2 and 3, Switzerland places strong emphasis on international climate cooperation, including the financing of projects for emission reductions abroad. This strategy aligns closely with the concept of climate stability as a global public good, where the location of emissions reductions is secondary to their aggregate global effect. Despite this favorable international positioning, domestic and independent evaluations consistently challenged the adequacy of Swiss climate policy. As mentioned in the previous chapter, an estimated two-thirds of Switzerland's total environmental impact is generated outside its national borders - primarily through imported goods and services linked to domestic consumption. This consumption-based footprint alters fundamentally the assessment of the Swiss environmental performance. While territorial emissions remain relatively low, the country's material lifestyle and economic model rely heavily on global resource extraction, production and transport. As a consequence, pressures are effectively externalized to other regions. This discrepancy exposes a key limitation for the evaluations that are based on indexes prioritizing national emissions and policy framework, and neglecting transboundary impacts simultaneously. The contrast between international praise and domestic criticism was already evident in the article *Swiss climate policy: praised abroad, attacked at home* (2019). CCPI ranks the climate performance of the countries based on greenhouse gas emissions, renewable energy, energy use and climate policy. This approach considers production-based emissions, rather than consumption-based emissions. Therefore, emissions from imported goods are not included in this methodology. While the CCPI ranked Switzerland in the top ten, domestic actors - including climate advocacy movements and research institutions - argued that these rankings obscure structural weaknesses. A central reference point for this critique is the Climate Action Tracker, which assessed that the current Swiss policy trajectory would be compatible with a global temperature increase of approximately 3°C if replicated worldwide. From this perspective, Swiss climate strategy appears misaligned with scientific benchmarks, particularly the 1.5°C target endorsed by the Paris Agreement. A major source of contention concerns the country's reliance on international carbon offset

¹⁸⁰ J. Burck (et. All), Climate Change Performance Index 2019, CCPI, 2019, page 7.

mechanisms. Current policy plans involve achieving roughly one-third of national emissions reductions through mitigation projects abroad. While policymakers frame this approach as a cost-effective and cooperative strategy, critics interpret it as means of deferring necessary domestic economic and societal transformation. Offsets are thus perceived less as expressions of global solidarity and more as substitutes for structural change in a high-consumption economy. These tensions were exacerbated by political inertia, most visibly illustrated by the failure to pass the revised CO₂ legislation in parliament. While the abstract goal of climate protection enjoys broad support, resistance emerges when it entails concrete regulatory changes in fiscal costs. Overall, on the international stage, the country continues to present itself as an ambitious actor, advocating for stringent targets at multilateral forums and promoting science-based initiatives in areas such as alpine and polar research. Domestically, it remains an average performer that is constrained by limited regulatory intervention in its influential financial sector and by persistent challenges in reducing high levels of consumption. The latest data suggests a shift in its climate posture, from the image of a proactive leader to that of a state focused on managing the consequences of climate change by acknowledging its inability to meet its own objectives. This transition specifies the general difficulty of reconciling global climate responsibility with domestic political and economic realities. *Swiss Revue* (2019) provides a domestic political perspective on how Swiss political parties translate pressures within the national political system. The article outlines how the major political parties diverge in their understanding of climate change as a public good and in their preferred strategies for addressing it. Parties on the left and center-left, including the Greens, Green Liberals and the Social Democratic Party frame climate protection as a priority requiring extensive domestic intervention. Their approach underlines a strong state involvement, comprehensive emissions reductions within national borders and increased regulation of the financial sector. By contrast, centrist parties as the Christian Democrats and the Bourgeois Democratic Party position themselves as pragmatic intermediaries. While formally endorsing international commitments like the Paris Agreement, they favor market-based instruments and incentive structures over regulatory prohibitions. This technocratic orientation facilitates political compromise and contributes to Switzerland's relatively favorable performance in international indices, even in the absence of transformative domestic reforms. On the opposite and conservative side, the Swiss People's Party articulates the most pronounced skepticism towards climate policy. By emphasizing national sovereignty and individual freedom, the party opposes unilateral domestic measures and insists on internationally binding frameworks as a precondition for action. Facing increasing pressure from its own electorate, of whom a substantial majority favored stronger climate action, the Liberal Party later recalibrated its position. This adjustment illustrates how even traditional pro-market and business-oriented parties are willing to reintegrate environmental considerations in their considerations, when it comes to maintain political legitimacy amid changing societal expectations. This legislative

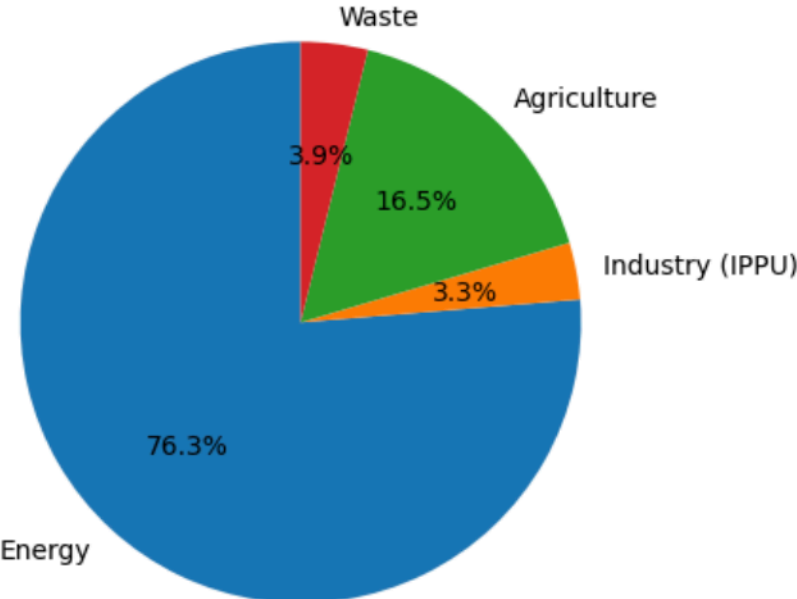
deadlock underscored the gap between Swiss international commitment and its capacity to implement environmental considerations domestically. From a theoretical perspective, this gap highlights the fragility of science-led governance models when confronted with domestic political constraints. Möller’s advocacy of a CERN-style model of rational and consensus-based international cooperation appears difficult to sustain in a national democratic context. While Swiss climate policy enjoys high levels of technocratic legitimacy in international rankings, it faces growing democratic and moral legitimacy challenges at home. Left-leaning parties tend to prioritize scientific and long-term global considerations, which are consistent with the CERN Model of science-led governance. Conservative actors, on the other hand, emphasize voter sovereignty and short-term national interests. As the Greens gained electoral momentum, particularly in the 2019 election, center-left parties were pushed toward more ambitious positions. This created political space for demands articulated by the Climate Strike movement. In addition, the focus of the Social Democratic Party in the regulation of financial investments for fossil fuels directly parallels the critiques raised by the CCPI and the climate activities regarding the international environmental footprint of the Swiss financial sector. The federal elections of 2019 were a turning point. Frequently described as “climate election”, they marked the date when environmental issues moved from the margins of scientific and policy discourses to the center of domestic political competition. Compared to the elections of 2015, in fact, the Green Party gained 17 seats and the Liberal Green Party 9.¹⁸¹ All the other parties lost seats in the National Council. This turning point helps explain Swiss mixed performance in climate governance - strong outcome in emissions-related indicators, influenced by green and centrist parties, that coexist with weaker policy leadership, due to the veto power and electoral strength of conservative forces.¹⁸² *Ten Years of Swiss Climate Votes Since the Paris Agreement (2025)* illustrates how climate measures perform in popular votes, by explaining how theories of global public goods and science-based governance are filtered through the institutional realities of Swiss direct democracy. A defining feature of the Swiss political system is the requirement that major policy initiatives can be subjected to referendums. As a result, the provision of climate stability as a global public good must secure not only scientific and political endorsement but also majority approval from the electorate. The rejection of the revised CO₂ Act in 2021 represents an example of the implications of direct democracy. Although the legislation was central to Switzerland’s compliance within the Paris Agreement, it was narrowly defeated with 51.6 percent of voters opposing it. This outcome did not reflect a rejection of climate protection

¹⁸¹ Federal Statistical Office, Federal elections 2019: analysis of share of votes and parties’ mandates, 2019. Accessible at: <https://www.bfs.admin.ch/asset/en/10967427> (Accessed on 22 December 2025).

¹⁸² T. Peter, The green trend in the Swiss party political landscape, Swiss Community, 2019. Accessible at: <https://www.swisscommunity.org/en/news-media/swiss-revue/article/the-green-trend-in-the-swiss-party-political-landscape> (Accessed on 22 December 2025).

per se, but rather resistance to the perceived financial burden imposed on households through measures such as air travel levies and heating taxes. A significant shift in public response happened with the approval of the Climate and Innovation Law in June 2023, which passed with 59.1 percent of consensus. This law committed Switzerland to achieving net-zero emissions by 2050. The success of this referendum is attributed to a change in policy framings. Unlike the 2021 proposal, the 2023 law emphasized innovation, technological development and financial incentives - as subsidies for replacing fossil-based heating systems - rather than taxes or prohibitions. Therefore, communication strategies associated with scientific institutions can successfully present climate action as an opportunity for innovation and progress rather than as an economic sacrifice. Further evidence of voter priorities is provided by the approval of the Electricity Act in June 2024. Through their approvals, voters supported regulatory changes facilitating the expansion of renewable energy infrastructure, including hydropower, solar and wind installations. This outcome reflects a growing recognition that clean energy serves not merely for meeting environmental objectives but also for national interests, which are satisfied through the enhancement of energy security and the dependence reduction on imported fossil fuels. In 2023, energy sector accounted for more than 75 percent.¹⁸³ The graph below depicts the distribution of greenhouse gas emissions by sector. The latest data was provided by the Federal Office for the Environment in 2023. The data does not take into account international aviation, international navigation, land use, land-use change and forestry (LULUCF).

Switzerland’s greenhouse gas emissions by sector - 2023



¹⁸³ Federal Office for the Environment, Switzerland’s greenhouse gas inventory, 2025. Accessible at: <https://www.bafu.admin.ch/en/greenhouse-gas-inventory> (Accessed on 10 January 2025).

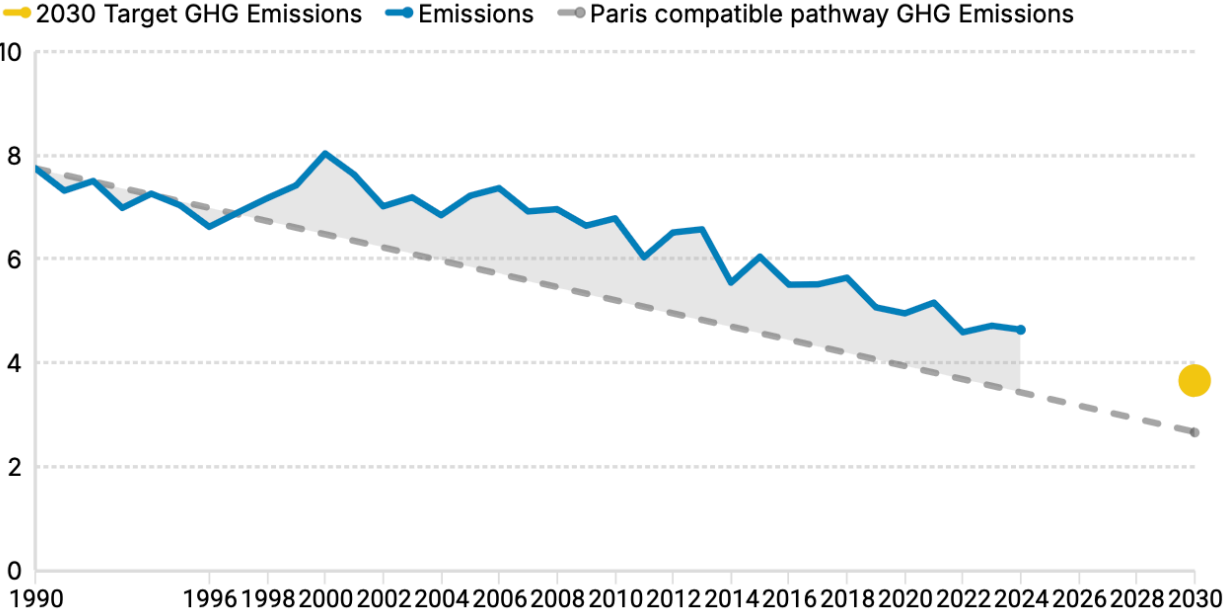
Activists movements, such as the Climate Strike, challenge the pace and scope of governmental action, by stressing concepts such as historical responsibility and climate debt. Nevertheless, electoral outcomes reveal that Swiss voters function as the decisive arbiters of climate policy. They tend to reject measures framed primarily as sacrifices, while endorsing policies that emphasize innovation, economic opportunity and energy security. At the present time, two forthcoming political debates may once again test the legitimacy of Swiss climate strategy. The first debate concerns nuclear energy. In light of net-zero objectives and energy security concerns, policymakers are reconsidering the post-2017 ban on new nuclear power plants, thus reflecting a logic in which certain technologies are presented as indispensable for achieving climate goals. The second debate regards the proposal to establish a climate fund equivalent to one percent of GDP - a key demand of climate activists. Opposition from the federal government and parliament suggests that this proposal may trigger renewed tensions between societal demands for ambitious climate action and institutional resistance to redistributive measures. Overall, Swiss climate policy is shaped by an ongoing negotiation between scientific ideals and democratic feasibility. While scientists provide technical pathways and activists press for rapid transformations, electoral approval depends on whether proposed measures align with voters' preferences for innovation, financial support mechanisms and energy security. This dynamic highlights both the strengths and the limitations of direct democracy in addressing complex global challenges such as climate change. Moreover, it reflects the argument that the governance of global public goods is particularly vulnerable to legitimacy deficits when scientific authority and international norms collide with domestic distributive conflicts. The radical posture of the Climate Strike movement can be understood as response to this perceived disconnection between international reputation and substantive domestic action. Subsequent CCPI assessments reinforce this interpretation. While Switzerland remained a top ten performer in earlier editions of the index, more recent rankings indicate a notable decline followed by modest improvement. Switzerland is now ranked 26th, placing it among "medium performers". This shift functions as a data based correction to earlier narratives of climate leadership. A sectoral breakdown of the CCPI helps explain this evolution. Switzerland performs relatively well in the category of greenhouse gas emission, largely due to structural factors such as the absence of domestic fossil fuel extraction and an electricity mix dominated by hydropower and nuclear energy. These characteristics lower territorial emissions independently of recent policy innovation. In contrast, the Confederation scores poorly in the climate policy dimension of the index. Expert evaluation classify national climate policy as "low", by arguing that the revised CO₂ Act adopted in 2024 prioritizes incremental adjustments over transformative change. Although the legislation maintains market-based incentives, it is widely regarded as insufficient to align Switzerland with the 1.5°C target. As showed in the graphic below, per capita greenhouse gas emissions, including LULUCF declined steadily since the early 1990s. This trend shifted in the late 1990s - compared

with the compatible pathway of the Paris Agreement, actual emissions consistently remained above the required level. The pace of emission reductions has hence been insufficient despite the downward trajectory. The national 2030 emission target is projected not to close this gap. Even if the target was fully achieved, per-capita emissions would remain significantly higher than the Paris compatible level. This result implies that the current ambition is insufficient to align with the agreed climate goals.



Paris compatible pathway and 2030 target compared with current development

Choose category: GHG emissions per capita (t CO2 eq., incl. LULUCF) ▾



CCPI graph on Switzerland’s GHG emissions per capita

The CCPI further substantiates criticism of Switzerland’s continued reliance on international offsets, interpreting this strategy as evidence of limited domestic ambition. In this reading, the country leverages its economic capacity by financing emissions reductions abroad while postponing politically sensitive reforms at home. Another structural weakness repeatedly identified concerns the Swiss financial sector. While Switzerland’s domestic emissions profile appears favorable, its banks, pension funds and insurance companies continue to finance fossil fuel expansion globally. The absence of binding regulatory frameworks addressing these financial flows undermines the Swiss contribution to global climate stability. This omission

exemplifies a central dilemma in the governance of global public goods - emissions generated elsewhere but financed domestically erode collective climate outcomes, even when national indicators appear strong. Recent reporting, such as the SwissInfo article *Switzerland climbs global climate ranking but progress is low* (2025), confirms both continuity and change in Switzerland's climate trajectory. Although Switzerland improved its CCPI ranking by seven places. This advancement was driven primarily by updates in policy design rather than measurable emissions reductions. The adoption of revised Nationally Determined Contributions, including a 65 percent reduction target by 2035 alongside the entry into force of the revised CO₂ Act and the Electricity Act in 2025, contributed positively to international assessments. Yet officials from the Federal Office for the Environment acknowledged that Switzerland is likely to miss its 2030 targets, particularly in high-impact sectors such as transport, aviation, agriculture and finance. Transport alone accounts for approximately 43 percent of national CO₂ emissions. Scientific assessments further reinforce this pessimistic outlook. The country is warming at roughly twice the global average, with localized temperature increases approaching 2.9°C. Most Swiss climate scientists surveyed now consider the 1.5°C target unattainable. This growing gap between scientific urgency and political response intensifies legitimacy concerns. While revised legislation and international offsets sustain its technocratic credibility, they also validate activist critiques that such strategies delay structural change. Public attitudes add another layer of complexity, as analyzed before. This pattern highlights how Swiss direct democracy ensures democratic legitimacy but constrains the scope of rapid transformation. Ecological footprint data further expose the structural limits of the Swiss model. Switzerland's Deficit Day marks the point at which domestic bio capacity is exhausted. After that day, the country relies entirely on external resources and global commons. If global consumption mirrored Swiss levels, planetary regenerative capacity would be exceeded by nearly a factor of three. Carbon emissions constitute the largest share of this footprint, with significant contributions from mobility and food systems. These patterns reveal that Switzerland's environmental challenge is not primarily one of production efficiency, but of consumption intensity. The Swiss model exhibits significant strengths - technological efficiency, strong scientific institutions, advanced infrastructure and high international credibility. It also faces persistent limitations rooted in consumption based impacts, political risk aversion and democratic resistance to costly reforms. Switzerland performs well where environmental outcomes depend on structural advantages and technical optimization, but struggles in domains requiring behavioral change, redistribution and regulation of power economic actors. This tension encapsulates the broader challenge of aligning global climate leadership narratives with meaningful domestic transformation. Moreover, the Swiss sustainability model is frequently portrayed as a benchmark of effective governance, high environmental standards and social stability. This reputation is supported by strong domestic performance across a wide range of indicators, as documented in the *Voluntary National Review*

(2022) and reinforced by international assessments. At the same time, a closer examination reveals persistent structural limitations that challenge the country's long-term sustainability trajectory. These limitations emerge most clearly when domestic achievements are evaluated against global ecological impacts, consumption based indicators and political willingness to internalize environmental costs. The Swiss model is therefore best understood as one characterized by institutional strength and technical competence, but constrained by systemic contradictions between domestic performance, global responsibility and societal preferences. The *Voluntary National Review of Switzerland* offers a comprehensive assessment of progress towards the United Nations 2030 Agenda for Sustainable Development. The report highlights Switzerland's strong foundations in education, healthcare, institutional quality and governance, which collectively support high performance across several Sustainable Development Goals. The Federal Government structures its sustainability efforts through the 2030 Sustainable Development Strategy, which identifies three priority areas requiring coordinated action: - Sustainable Consumption and Production; Climate, Energy and Biodiversity; and Equal Opportunity and Social Cohesion. These priorities reflect a recognition that environmental sustainability cannot be separated from economic prosperity and social inclusion. The first priority area, Sustainable Consumption and Production, addresses the persistent challenge of high resource use both domestically and internationally. Despite efficiency gains and technological improvements, Switzerland's consumption patterns remain resource intensive and generate substantial environmental impacts beyond national borders. The Sustainable Development Goals aims at reconciling high living standards with reduced ecological pressure through circular economy initiatives and the development of a more sustainable food system. Nevertheless, progress in this area remains limited by consumption habits and economic structures that continue to incentivize throughput rather than sufficiency. The second priority area, Climate, Energy and Biodiversity, focuses on achieving net zero greenhouse gas emissions by 2050 under Climate Strategy 2050. The country committed to expanding renewable energy production, by improving energy efficiency and reducing dependence on imported energy sources in order to safeguard long term energy security. Biodiversity protection is identified as a critical concern, as nearly one-third of native species and almost half of Swiss habitats are threatened. While policy frameworks exist, implementation struggled to keep pace with the scale of ecological degradation, particularly in the face of urban expansion, transport infrastructure development and agricultural pressures. The third priority area, Equal Opportunity and Social Cohesion, seeks to maintain Swiss inclusive social model by ensuring equitable access to education, employment and public services. Although social cohesion remains relatively high, persistent challenges include limited social mobility, integration barriers for individuals with migration backgrounds, wage inequality and gender-based violence. These social dimensions are relevant to sustainability insofar as they influence political legitimacy and public support for

transformative environmental policies. Switzerland's achievements across several Sustainable Development Goals domains are notable. The country performs strongly in Foundations and Institutions, maintaining high standards in education, healthcare and the rule of law, supported by an effective system of direct democracy (SDGs 3, 4 and 16). Social Cohesion remains robust, with most basic needs met for the majority of the population (SDGs 1, 3, 4 and 16). Internationally, Switzerland contributes actively to humanitarian aid, peace promotion and multilateral cooperation, by leveraging its diplomatic capacity and institutional credibility (SDG 17). In Climate and Energy policy, commitments to the Energy Strategy 2050 and net zero emissions demonstrates long term orientation and policy continuity (SDGs 7 and 13). Despite these strengths, Switzerland faces substantial sustainability challenges that expose the limitations of its model. Domestic consumption patterns result in high resource use and significant environmental impacts abroad, which highlight a disconnect between national performance indicators and global ecological responsibility. Biodiversity loss remains severe, driven by land use change, nutrient pollution, agricultural contamination and ecosystem fragmentation. This highlights the need for stronger circular economy initiatives and the development of a sustainable food system (SDGs 8, 9, 12, 14 and 17). Biodiversity requires intensified preservation and restoration efforts (SDG 15). Energy security is increasingly complex in the context of the nuclear phase-out, rising electricity demand and continued reliance on imported energy (SDGs 7 and 13). Social inequalities persist despite overall prosperity, indicating that economic success does not automatically translate into equitable outcomes (SDGs 5, 10 and 16). The *OECD's Environment at a Glance country note (2025)* further illuminates this duality. Switzerland benefits from favorable geographical conditions, including abundant freshwater resources and low exposure to water stress, as well as a comparatively clean energy mix dominated by nuclear and renewable. Since the late 2000s, energy use and production based CO₂ emissions have been decoupled from GDP growth and total greenhouse gas emissions have declined steadily ever since. Air quality improved markedly with emissions of sulphur oxides and other pollutants well below OECD averages, reflecting strong environmental governance and technological standards. However, these domestic successes are counterbalanced by structural weaknesses. Switzerland is a net importer of emissions embedded in goods and services consumed within its borders. High income levels and consumption habits drive substantial environmental impacts abroad, particularly through imports, energy- and resource- intensive products. Transport remains the largest domestic source of emissions, while fossil fuel subsidies, especially in aviation and commuting, continue to distort price signals. Agricultural emissions, notably ammonia, decline slowly due to the sector's economic and cultural significance. Environmental innovation also lags behind OECD averages, with relatively low public investment in environmental research and development. The ecological imbalance becomes even more pronounced when examined through consumption based indicators. While industrialized

economies consume resources at a rate equivalent to more than two planetary capacities, several regions in the Global South, including the Indian subcontinent, Southeast Asia and parts of Africa, remain well below the global sustainability threshold by consuming less than one Earth's worth of resources.¹⁸⁴ Per capita resource use is estimated at 2.5 times the globally available bio capacity, thus revealing a dependence on external ecological capacity through imports and global commons. Energy consumption alone accounts for nearly two-thirds of the footprint. This underscores the central role of fossil fuels despite domestic decarbonization efforts. More in detail, total greenhouse gas emissions have shown a consistent downward trend since 2000, which is largely attributable to reductions within the residential sector.¹⁸⁵ The country's energy mix is comparatively low in carbon intensity, with more than half of total energy supply derived from nuclear and renewable sources as of 2023. The share of coal is minimal and this places Switzerland among the OECD's cleanest energy producers in terms of carbon composition. Air quality also improved significantly over the the past two decades. Emissions of key pollutants, including sulphur oxides, declined steadily since 2000 and as a result, emissions intensities are well below the OECD averages. The combination of strong environmental governance with advanced technological standards contributed to these improvements. Challenges are posed by the footprint greenhouse gas emissions. Although domestic emissions are relatively low, Switzerland is a net importer of emissions through goods and services consumed within its borders. High income and consumption levels drive substantial environmental impacts abroad, in particular through imports of energy intensive products. The existing regulatory framework, which is centered on production-based indicators and the polluter pays principle, overlooks the consumption perspective. While Swiss law enforces strict liability for domestic environmental harms, such as water pollution or contaminated land, it does not extend equivalent accountability to emissions and resource use in imported goods. In this regard, the CO₂ Act allows up to one-third of national emission reduction to be achieved through foreign offset projects, thereby institutionalizing the same outsourcing dynamic identified by the Federal Office for the Environment. The law enables the country to maintain a high level of material consumption while displacing the associated environmental burdens beyond its borders. This externalization mechanism provides the quantitative underpinning for the Federal Statistical Office's conclusion that Swiss ecological footprint exceeds global regenerative capacity by a factor of more than two. These findings are consistent with the landmark 2011 study by the Federal office for the Environment, which identified the "60 percent outsourcing problem" - approximately 60 percent

¹⁸⁴ K. Goodwin (et. All), Beyond greenhouse gases - Comprehensive planetary boundary footprints to measure environmental impact, ScienceDirect, 2024, page 36.

¹⁸⁵ OECD, Environment at a Glance: Switzerland, 2025. Accessible at: https://www.oecd.org/en/publications/environment-at-a-glance-country-notes_59ce6fe6-en/switzerland_7ddf9c06-en.html (Accessed on 15 January 2025).

of the environmental impacts associated with Swiss final demand occur outside national borders.¹⁸⁶ This structural outsourcing of environmental pressure is enabled by an economic model centered on services and high value manufacturing, combined with imports of environmentally intensive goods. The study demonstrated that efficiency gains and relative decoupling have been insufficient, and also that only absolute reductions in environmental pressure can achieve long term sustainability within planetary boundaries. The share of technological inventions related to the environment, in total patent activity, is low. Public spending on environmental research and development constitutes only a small portion of the national R&D budget, although is increasing. Legal and political structures further reinforce this contradiction. The Swiss CO₂ Act allows up to one-third of emission reductions to be achieved through projects abroad, institutionalizing mitigation outsourcing. While this mechanism supports international cooperation, it also enables the continuation of high domestic consumption. Political resistance to stronger climate legislation, exemplified by delays to the revised CO₂ Act, contrasts sharply with the legal rigor applied to localized environmental harms. This asymmetry reveals a political culture that succeeds in precision and enforcement at the micro level, but struggles to mobilize collective action for systemic transformation. Public attitudes reflect a similar tension. Environmental awareness and support for sustainability goals are high. Yet willingness to accept higher costs, lifestyle changes or stricter regulation remains limited. This reluctance constrains political ambition and reinforces incrementalism. Corporate actors illustrate both progress and contradiction - while many Swiss companies adopt climate strategies and reduce direct emissions, global supply chains remain emission-intensive and subject to scrutiny over environmental harm and greenwashing. In sum, Switzerland occupies an ambivalent position within the global sustainability landscape. Domestically, across institutional, social and environmental indicators, performs strongly. It consistently ranks among the top performing countries when assessed on national conditions. Globally, however, its consumption-based impacts and reliance on ecological outsourcing, place it among the more resource-intensive economies. The strengths of the Swiss model lie in governance capacity, technological competence and social stability. Its limitations lie in the political and societal reluctance to confront the full implications of global responsibility. This tension between domestic excellence and global overshoot defines the central challenge of Swiss sustainability and frames the ongoing debate over whether incremental reforms is sufficient, or whether a more transformative redefinition of prosperity is required. This structural condition is visible in the international activities of Swiss multinational corporations, which attract scrutiny for environmental and social impacts generated beyond national borders. Investigations by civil society organization highlighted cases in which Swiss-based companies operate according to different environmental

¹⁸⁶ Federal Office for the Environment, *Resource consumption*, 2025.

standards abroad. Those standards are different than the ones applied domestically, especially in jurisdictions with weaker regulatory frameworks. Such findings raise questions about the effectiveness of voluntary corporate self-regulation in transitional contexts and underscore the risk that Swiss high domestic standards coexist with the externalization of environmental harm. The debate surrounding parent company liability reflects growing pressure for extending legal accountability beyond territorial boundaries. At the same time, evidence suggests that parts of the Swiss corporate sector are making measurable progress in reducing greenhouse gas emissions, among large companies with formal climate strategies in particular. Aggregate reductions in both direct emissions and value chain emissions indicate that technical mitigation measures - energy efficiency improvements and the adoption of renewable energy - can yield significant results. Nonetheless, emissions remain highly concentrated among a small number of companies and reductions at the operational level are often offset by the scale and complexity of global supply chains. Sectoral differences further illustrate that industrial and manufacturing companies can implement technological solutions more readily, whereas emissions linked to mobility, logistics and consumption patterns remain structurally difficult to address. These dynamics are reinforced by evolving regulatory and societal expectations. Increasing legal scrutiny of environmental claims and sustainability marketing reflects this broader shift, where environmental responsibility is no longer treated as a purely voluntary or reputational matter, but as an issue of legal accountability and consumer protection. The absence of clear and binding definitions for the concept of “climate neutrality” exposes gaps in Swiss regulatory structure, especially compared to the European Union. As a result, existing legal instruments are being mobilized to address misleading environmental communication, which signal a transition towards stricter oversight in corporate sustainability practices. These developments illustrate how Swiss ecological footprint is not only a matter of aggregate consumption but also of how economic activity is organized and governed globally. While strong institutions and innovative capacity enable progress in domestic decarbonization, unresolved challenges persist in addressing emissions entrenched in global value chains and in reconciling economic growth within environmental limits. The growing emphasis on legal accountability, corporate transparency and systemic responsibility thus reflects an attempt to close the gap between Swiss domestic environmental performance and its global environmental footprint. This effort lies at the heart of the ongoing debate over the future direction of the Swiss sustainability model.

CHAPTER 5

Conclusion

The previous chapter demonstrated how Swiss environmental performance presents a fundamentally ambivalent picture. On the one hand, decades of regulatory intervention, technological progress and behavioral change led to measurable improvements in domestic environmental quality, especially in air pollution, water protection and different aspects of ecosystem management. On the other hand, a consumption-based perspective reveals that these domestic gains are accompanied by substantial environmental pressures, which are generated beyond national borders. The excess of ecological footprint is the result of the Swiss high living standards, economic specialization and strong integration into global value chains. The present chapter shifts the analytical focus from environmental performance to the international and governance implications of its external ecological footprint. Whereas Chapter 4 examined the structural drivers of environmental pressure - as consumption patterns, industrial production, innovative dynamics and sectoral transformations - this concluding chapter explores how these pressures translate into responsibilities and constraints within the international system. The chapter aims at placing the environmental challenge within the broader context of international relations and global sustainability governance. We will shift away from a purely territorial understanding of environmental policy and adopt a footprint-based perspective that highlights the transboundary nature of environmental impacts. These impacts are enshrined in trade, finance and corporate supply chains. This perspective is particularly relevant for Switzerland, where approximately two-thirds of environmental pressures associated with domestic consumption occur abroad. National sustainability objectives cannot be achieved without engaging in international regulatory frameworks, foreign economic policies and multilateral cooperation mechanisms. Against this backdrop, the following paragraphs examine the extent to which existing policy architecture is capable of addressing these transboundary impacts. Particular attention is paid to the tension between strategic commitments to global sustainability and the slower pace of regulatory implementation, as well as to the limits of voluntary and market-based instruments of reducing externally generated environmental pressures. Finally, the objective of this final dissertation is to build a bridge between diagnosis and responsibility, by clarifying the implications of Swiss environmental footprint and the country's role as an economic actor, and diplomatic partner in global sustainability governance.

5.1 Implications for International Relations and Global Sustainability Governance

The analysis developed across the first four chapters demonstrates that Swiss environmental challenge cannot be understood, nor addressed, within a purely domestic or territorial framework. While in early chapters (1, 2 and 3) the conceptual foundations of sustainability, ecological limits and footprint-based accounting were established, the subsequent empirical chapters (3 and 4) showed that the apparent Swiss environmental success is largely due to the externalization of environmental pressures through global trade, finance and consumption patterns. This finding has direct and far reaching implications for the country's role in international relations and global sustainability governance. A central implication is that Swiss foreign policy can no longer treat environmental protection as a predominantly domestic policy field, complemented by development cooperation or climate policy at its margins. Given that approximately two-thirds of Switzerland's environmental footprint occurs outside its territory, environmental responsibility is inherently transboundary. As shown in chapter 4, in order to satisfy Swiss demand, improvements in domestic air quality, water protection and waste management coexist with significant biodiversity loss, land use change and greenhouse gas emissions that are generated abroad. This structural disconnection calls for the systematic integration of environmental concerns into foreign economic policy, trade negotiations, diplomatic engagement and international legal cooperation. From an international relations perspective, this implies a shift from a reactive to a proactive sustainability oriented foreign policy. Economic openness, financial center and multinational corporate presence in the territory grant considerable leverage within global value chains. In chapters 2 and 3 were highlighted how international production networks and trade regimes shape environmental outcomes far beyond national borders. Building on this insight, Swiss foreign policy instruments, such as free trade agreements, investment protection treaties and financial market regulation, represent critical levers for reducing transboundary environmental harm. Embedding binding environmental standards, due diligence obligations and transparency requirements into these instruments would align economic diplomacy with sustainability objectives and reduce the displacement of environmental costs to lower income countries. In this regard, the "common but differentiated responsibilities" principle should not, and must not, be overlooked by displacing its environmental impacts abroad. At the level of global sustainability governance, the Swiss case study illustrates a broader challenge faced by high income and consumption-driven economies. As discussed in chapter 1, sustainability cannot be achieved solely through efficiency gains or technological innovation if absolute levels of resource use remain incompatible with planetary boundaries. In chapter 4 this concept is reinforced, by showing that Switzerland exceeds its fair share of global ecological capacity by a factor of three. In this regards, Swiss International

engagement takes on a normative dimension - continuing to occupy a disproportionate share of global ecological space undermines principles of equity, which are enshrined in the Sustainable Development Goals and international environmental agreements. A better alignment between domestic consumption and global sustainability responsibilities thus emerges as a core requirement for credible international engagement. This alignment entails recognizing that domestic policy choices, which range from food systems to mobility patterns, produce global environmental consequences. As demonstrated in chapter 3, consumption-based accounting reveals impacts that remain invisible in territorial statistics, but are highly relevant for global ecological stability. Incorporating such perspectives into policy evaluation would allow Switzerland to assess its international performance not only in terms of emissions reductions or development aid, but also in terms of reduced pressure on ecosystems abroad. Moreover, the findings of chapter 4 suggest that the Confederation's reputation as a sustainability leader risks to be eroded, if domestic environmental gains continue to rely on ecological outsourcing. International credibility increasingly depends on coherence between internal practices and external effects. In global fora, Switzerland often positions itself as a promoter of multilateralism, science-based policy and rule-based international cooperation. Translating these principles into enforceable environmental standards, alongside global supply chains, would strengthen its role in the international sustainability governance and would enhance trust among partner countries, especially in the Global South. The Swiss case underscores the evolving nature of environmental responsibility in international relations. Linked to consumption, finance and corporate activity, environmental harm challenges traditional notions of sovereignty and jurisdiction. As in chapters 2 and 4 was highlighted, addressing these challenges requires moving beyond voluntary corporate commitments towards coordinated regulatory approaches, international norms and extraterritorial accountability mechanisms. Its ability to navigate this transition will shape not only its environmental footprint but also its broader role as a norm setter in global sustainability governance. The evidence presented throughout these chapters show that the country's sustainability transition cannot be separated from its international engagement. Reducing its external ecological footprint requires embedding environmental responsibility into foreign policy; aligning domestic consumption with global ecological limits and actively contributing to the evolution of global sustainability governance. Without such integration, domestic environmental progress will remain partially and structurally dependent on environmental degradation elsewhere, thereby undermining both ecological integrity and international legitimacy. Additionally, Swiss environmental policy shapes its role in international sustainability negotiations in a distinctive and increasingly consequential way. This way is defined by a combination of strong domestic governance, high environmental credibility and unresolved tensions that are connected with its external ecological footprint. The present analysis demonstrates that Swiss environmental policy provides both the resources and the constraints

which structure its international positioning. On the one hand, its long standing commitment to environmental regulation, scientific expertise and institutional stability enhances its legitimacy in international sustainability negotiations. Domestic successes in areas such as air and water quality, waste management and climate governance allowed Switzerland to present itself as a technically competent and reliable negotiating partner. This credibility is further reinforced by its support for multilateral environmental agreements, science-based policy making and international cooperation mechanisms, including climate finance and technology transfer. As a result, Swiss environmental policy enables the country to act as a broker, facilitator and norm promoter in international forums, particularly in contexts where consensus-building and technical precision are valued. At the same time, the present analysis shows that the country's international role is shaped more by the recognition of its externalized ecological footprint. This structural feature of the Swiss economic model challenges the coherence between domestic environmental performance and global sustainability outcomes. In international negotiations, this creates both pressure and opportunity - pressure for addressing accusations of burden shifting and ecological outsourcing and opportunity for advancing policy instruments that explicitly target transboundary environmental impacts. Swiss environmental policy responded to this tension by gradually expanding its scope from territorial environmental protection to global sustainability governance. This shift is visible in the integration of sustainability objectives into foreign economic policy, the promotion of environmental provisions in trade agreements and the endorsement of responsible business conduct standards for multinational companies. In climate negotiations, Swiss engagement with cooperative mechanisms under the Paris Agreement reflects an attempt to align domestic mitigation efforts with global emission reductions, while maintaining high environmental integrity standards. More broadly, Swiss policy increasingly frames sustainability as a matter of shared global responsibility rather than solely national performance. Nevertheless, in chapter 4 the limits of the approach are underscored. While strategic frameworks articulate ambitious goals, legal implementation and regulatory enforcement remain cautious, with respect to extraterritorial corporate accountability and mandatory due diligence in particular. This gap between policy ambition and regulatory depth constrains the Confederation's capacity to fully translate its environmental principles into negotiating leverage. Moreover, domestic political sensitivity for costs and competitiveness affects Swiss willingness to assume a more assertive leadership role in international sustainability governance. Overall, Swiss environmental policy shapes the the country's role in international sustainability negotiations by positioning itself as a credible, science-oriented and cooperative actor. Simultaneously, it exposes structural contradictions rooted in high levels of consumption and externalized environmental impacts. The effectiveness of Swiss international engagement ultimately depends on its ability to align domestic consumption patterns with global ecological limits. As long as this alignment remains incomplete, Switzerland's negotiating role

will continue to oscillate between normative leadership and cautious pragmatism. Strengthening the integration of environmental concerns into foreign policy, trade and corporate regulation would enhance Swiss capacity to contribute meaningfully to global sustainability governance and to negotiate both as a promoter of standards, and also as a state which is willing to internalize the global consequences of its own prosperity.

5.2 Future Studies

The findings illustrated in these chapters point to several directions for future research. These directions are meant to be important for closing Switzerland's persistent ecological gap. While scientific assessments clearly demonstrate that Swiss environmental footprint exceeds planetary boundaries and that a majority of environmental impacts occur abroad, the pathways through which societal support, political decision making and policy implementation can be aligned with these findings remain insufficiently understood. Future studies should therefore move beyond the solely diagnosis of environmental outreach and focus more explicitly on the social, political and institutional conditions under which transformative sustainability policies can gain legitimacy and durability. The first priority for future research should concern public support and political feasibility. Although surveys consistently show high levels of general support for sustainability objectives, in chapter 4 a declining willingness to bear the economic and social costs associated with more ambitious environmental policies was highlighted. One explanation lies in the long-term improvement of local environmental conditions in Switzerland since the 1970s, which fostered a perception that major environmental problems have largely been resolved. As shown, social, economic and technological conditions may have improved in the last decades, however the climate change threat is more visible as time passes by. This perception is due to the improvement of living standards and general disregard of climatic consequences for its own consumption-based patterns. Future studies should investigate how this perception shapes risk awareness, policy preferences and voting behaviors, especially in relation to environmental impacts that occur outside national borders. By understanding the cognitive and informational barriers that obscure the global consequences of domestic consumption is crucial for designing communication strategies and policy instruments, which are capable of mobilizing broader public support. Closely related to this issue is the need to carry out researches on deliberative and participatory processes. Therefore, closing the ecological gap is not merely a technical challenge, but a societal one. This challenge raises questions of responsibility, fairness, and burden sharing. Future research could examine how inclusive national dialogues can contribute to a shared understanding of global environmental responsibility and the distribution of costs associated with sustainability transitions. The national dialogues should be aimed at bringing together

policymakers, businesses, civil societies and citizens. Comparative studies of participatory governance models in other high income countries may offer insights into how consensus can be built around policies that require reductions in consumption or structural changes to everyday practices. A further area for future inquiry concerns policy prioritization. The present case study suggests that incremental measures and efficiency gains are insufficient for achieving alignment with planetary boundaries. Hence, future studies should explore how strategies can be implemented with clearly defined timelines, sector specific targets and different levels of policy intensity. This includes assessing which policy combinations - such as regulatory standards, economic incentives and public investment - are most effective in reducing absolute environmental pressures, particularly in consumption-intensive sectors such as food, housing, mobility and digital infrastructure. A vertical policy analysis could help identify the conditions under which more ambitious measures become politically viable over time. From an international perspective, future research should examine how Swiss environmental policy can evolve into a more globally conscious framework. While this dissertation showed that Switzerland possesses advanced domestic environmental governance, its external ecological footprint remains substantial. Future studies could analyze the effectiveness of integrating consumption-based indicators into foreign policy evaluation, trade negotiations and development cooperation. This should be applied not only for Switzerland, but also for the other members of the international community. Furthermore, research on extraterritorial regulation and corporate accountability could clarify how national legal systems can contribute to the reduction of environmental harm alongside global value chains, without undermining economic resilience or international cooperation. Finally, there has been highlighted a need for interdisciplinary research that bridges environmental science, political economy, sociology and international relations. The ecological gap identified in the previous chapters is sustained by a combination of material consumption patterns, institutional arrangements and social norms. Addressing it requires analytical frameworks that are capable of capturing these interdependencies. The next studies should integrate quantitative footprint assessments with a qualitative analysis of governance, public opinion and policy design. This would result in a comprehensive basis for action. The pillars for action should include a researches focused not only on what needs to be done in order to achieve sustainability but also on how societal acceptance, political commitment and institutional capacity can be strengthened. Closing Switzerland's ecological gap will depend on the ability to translate scientific knowledge into socially legitimate and politically robust strategies that acknowledge global responsibility and move beyond the limits of domestically framed environmental success. Lastly, a further direction concerns the interaction between mitigation, adaptation and international climate responsibility, under the light of accelerating climatic changes. Recent national climate scenarios underscore that Switzerland is warming significantly faster than the global average, thus reflecting its particular geographical sensitivity.

With temperatures already approaching three degrees above pre-industrial levels, projected impacts include more frequent and intense heatwaves, a sharp increase in in tropical nights in urban areas, drier and more drought prone summers, heavier but more sporadic precipitation events and a continued decline in snow cover due to rising zero degree altitudes. These developments highlight that, even under ambitious global mitigation pathways, adaptation will become an increasingly central pillar of Swiss climate policy. For future studies, this raises two interconnected research priorities. Firstly, greater attention should be paid to how international climate negotiations and global mitigation trajectories translate into differentiated domestic impacts. This should reinforce the relevance of Swiss engagement in ambitious international climate governance. Internal contradictions hinder the effective implementation of ambitious climate measures at the national level. A key structural challenge is represented by the high standards of living. As seen, elevated income levels contribute to high consumption patterns, which in turn increase environmental pressure. Secondly, research should explore how adaptation strategies - covering urban planning, ecosystem protection, water management and agriculture - can be integrated into a globally conscious environmental policy that recognizes the limits of adaptation in the absence of strong global emissions reductions. Being an international hub, and the major transit country within Europe, the Swiss territory has high emission in the transport sector. Public acceptance represents another critical constraint, as environmental policies perceived as threatening individual welfare tend to face strong political resistance. This constitutes a problem if we consider that Switzerland has a system of direct democracy. The dynamic was evident in the popular votes opposing measures such as the fuel price increase aimed at discouraging private car use. In 2021, 51% of the electorate voted against the measures designed to reduce greenhouse gas emissions with a car fuel levy and a tax on air tickets.¹⁸⁷ The result was due to the worries that the country would have faced a further impact on the economy, considering that it was recovering from COVID19. This shift of focus is also evident with the 2023 elections, when the Greens lost 11 seats in the Parliament.¹⁸⁸ Following the pandemic, a renewed wave of climate skepticism and political reprioritization of environmental issues emerged worldwide, influencing both public discourse and electoral outcomes. The broader shift in voter attention toward economic security, energy prices and geopolitical concerns rather than environmental protection involves almost all the countries of the international community. By explicitly connecting global temperature outcomes to concrete national risks, future studies can help bridge the gap between abstract international climate targets and their tangible implications for Swiss society. At that point, future research might strengthen public understanding, policy

¹⁸⁷ BBC, Swiss voters reject key climate change measures, 2021. Accessible at: <https://www.bbc.com/news/world-europe-57457384> (Accessed on 20 January 2025).

¹⁸⁸ SwissInfo, Elections 2023: results, 2025. Accessible at: <https://www.swissinfo.ch/eng/politics/elections-2023-projected-results/48897354> (Accessed on 20 January 2025).

urgency and support for both international mitigation efforts and domestic adaptation planning. The declining political momentum is particularly striking, given that Switzerland is disproportionately affected by climate change impacts. In the light of climate change as a matter of “common concern of humankind”, the analytical framework presented here should be applied to all the countries. Switzerland had been selected as primary focus due to its distinctive role in international environmental negotiations, its long-standing diplomatic tradition and its active engagement in climate governance. However, the challenges identified throughout the chapters are not unique to Switzerland. Future research should therefore extend this analytical perspective across national boundaries and apply it to all the countries. Given the transboundary nature of global change and its ecological degradation, effective responses cannot be confined within territorial limits but must operate at a global scale.

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