

# **Green skills and just transitions. Analysing International Organisations' discourses with a focus on the Global South.**

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## Abstract

In recent years, the topic of green transitions has attracted considerable attention. Notably, these transitions are often framed as a skills issue, reflecting perceived gaps in the technical skills required for green technologies. Moreover, skills are frequently presented as central to ensuring that green transitions are socially just. Since the 2010s, international organisations have played a leading role in shaping the green skills debate, with their policy literature exerting significant influence, particularly in the Global South.

However, the global debate lacks conceptual clarity. The term ‘green skills’ encompasses a wide range of meanings. From the perspective of the Global South, additional questions emerge. What do green transitions imply for informal economies and subsistence agriculture? What does it mean, in such contexts, to ensure a just transition? What role can vocational and technical education (VET) systems play and what do they need to meet these expectations?

This paper seeks to address part of this gap by analysing green skills publications produced by international organisations, with a particular focus on the Global South. It examines the underlying conceptualisations of green skills and green transitions.

**Key words:** green transition, skills issue, vocational education and training, education policy transfer, social dialogue, human development

# 1. Introduction

In recent years, the topic of green transitions has attracted considerable attention. Notably, these transitions are often framed as a skills issue, reflecting perceived gaps in the technical skills required for green technologies. Moreover, skills are frequently presented as central to ensuring that green transitions are socially just. And that no one is left behind. This framing has led to an increasing body of literature on green skills in the field of international cooperation and in academic debates. Since the 2010s, international organisations have played a leading role in shaping the green skills debate, with their policy literature exerting significant influence, particularly in the Global South.

However, it has become apparent that the global debate lacks conceptual clarity. The term ‘green skills’ encompasses a wide range of meanings, leaving considerable room for interpretation about what they actually entail. As McGrath and Ramsarup (2024: 248) note, „the adjective ‘green’ serves as a ‘floating signifier’ meaning everything and nothing, and capable of being both radically transformative and minimally reformist.”

Behind this lies a similar conceptual ambiguity surrounding the term ‘green transition’, spanning a wide range of understandings from minimally additive to radically disruptive change.

From the perspective of the Global South, additional questions emerge. What do green transitions imply for economies in which the informal sector and subsistence agriculture play an important role? What does it mean, in such economic contexts, to ensure a just transition? What role can vocational and technical education (VET) systems play in these transitions, given that they tend to be weak, underfunded and fragmented? How can they break away from their traditional focus on training for unsustainable economic activities in industry and mining? How can they help to leave no one behind, if the historic patterns of post-colonial education and VET systems are rooted in reproducing social inequity rather than the contrary? What needs to be done so that education and VET systems can fulfil their expected role?

These kinds of questions remain unanswered in most of the green skills literature. This paper seeks to address part of this gap by analysing green skills publications produced by international organisations, with a focus on the Global South, where international organisations play a particularly influential role. It examines the underlying conceptualisations of green skills and green transitions.

In the first section, we will provide an overview of the wide range of definitions that exist in this debate. The second section will briefly discuss academic literature in the field. This is followed by an outline of our conceptual framework, which serves as a basis for our literature review. Sections 5 and 6 describe the methodologies and results, respectively, while Section 7 discusses the findings. Policy recommendations and concluding remarks close the paper.

## 2. What are green skills – definitions and terminological issues

To date, there is no universally agreed-upon definition of ‘green skills’. Often publications refer to the following early definition by CEDEFOP: “[Green skills refer to the] knowledge, abilities, values and attitudes needed to live in, develop and support a society which reduces the impact of human activity on the environment (CEDEFOP 2012: 20).”

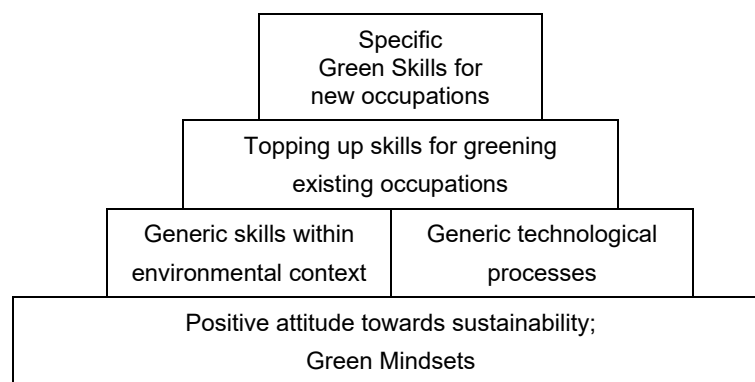
While many definitions are equally broad, some have a narrower technical focus, e.g., “(...) green skills refer to skills to develop or modify products, services or operations in response to climate change (OECD/CEDEFOP 2014: 16)”.

This points to distinctions made between different categories of green skills. Most often, a dichotomic categorisation distinguishes between technical skills on the one hand and a second

category, for which various descriptions are used, on the other. Sometimes they are called ‘transversal skills’ encompassing soft skills such as adaptability or problem-solving and wider ‘green competences’ such as sustainability awareness, values, attitudes and behaviour. In some cases, the categorisation is expanded to three-tiers, dividing the second group of skills into work-related soft skills (transversal) and green attitudes, values and behaviours (wider green competences). The latter concept is often referred to as the EU’s sustainability competence framework ‘Green Comp’ (European Commission. Joint Research Centre 2022), which encompasses 12 competences organised into the following four areas: a) embodying sustainability values; b) embracing complexity in sustainability; c) envisioning sustainable futures; d) acting for sustainability.

The ‘Typology of Green Skills’ elaborated by Pavlova (2017, cited in Pavlova 2022: 9) has become quite influential within educational and VET debates, both academic and policy-related. It arranges various layers of different skill sets in the form of a pyramid, the basis being ‘green mindsets’, while ‘specific green skills for new occupations’ form the top of the pyramid.

**Figure 1: Pavlova’s Typology of Green Skills**



Source: Pavlova 2017

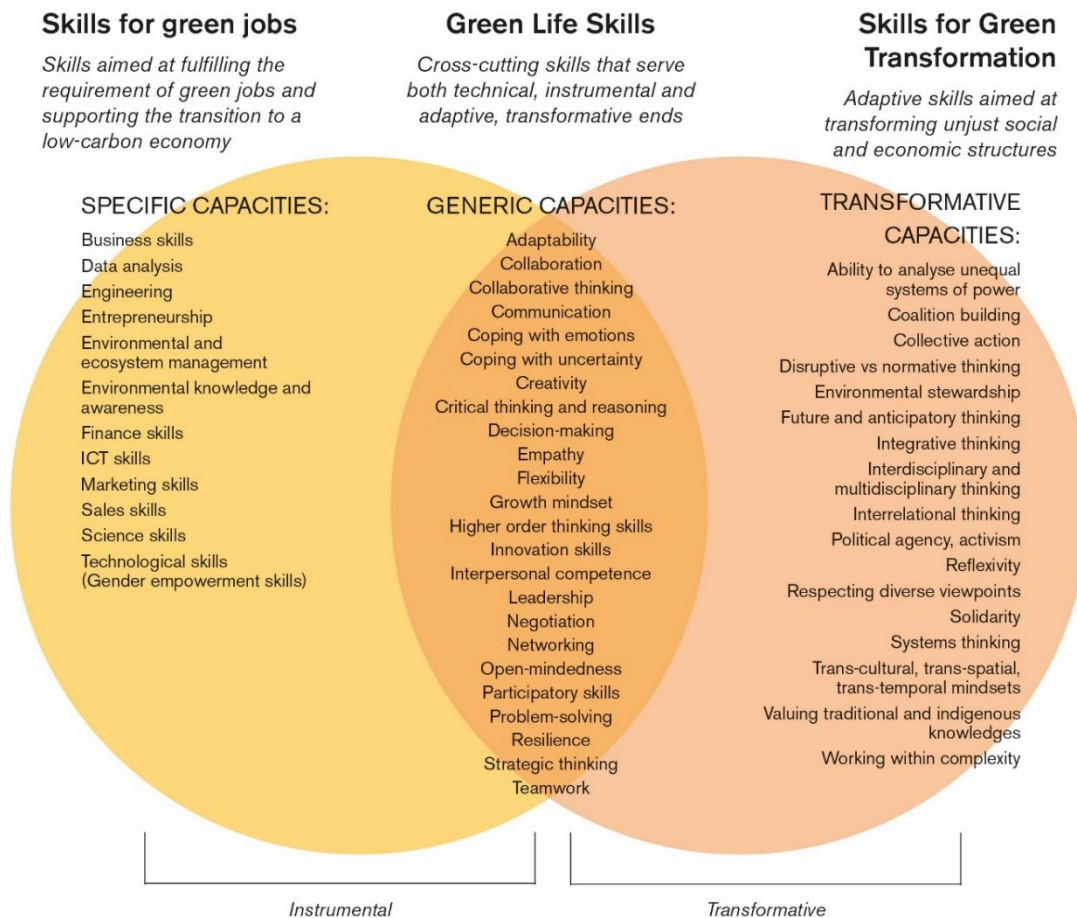
These typologies rarely encompass skills related to political agency. The EU Green Comp Framework refers to the competences ‘political agency’, ‘collective action’ and ‘individual initiative’ under the area ‘Acting for sustainability’ (European Commission. Joint Research Centre. 2022). Similarly, Kwauk and Casey (2022) introduce the category ‘skills for a green transformation’ as third pillar into their green skills framework, alongside ‘skills for green jobs’ and ‘green life skills’. They consider these three to form a continuum, rather than mutually exclusive categories. However, ‘skills for green jobs’ – the first pillar – remains the predominant understanding of green skills. The perspective here is technical and work-related, reflecting the underlying assumption that the climate crisis can be solved by technological solutions.

The second pillar, ‘green life skills’, encompasses transversal skills like ‘decision-making’ or ‘adaptability’. This perspective focuses on skills that aim at achieving change in individual behaviour through education as the solution to the climate crisis. To these well-known skill types, the authors add a third one that aims at transformative capacities to enable collective action for transformative structural change. It includes, for instance, the ‘ability to analyse unequal systems of power’ or ‘disruptive vs normative thinking’.

More economically oriented definitions of ‘green skills’ typically gravitate around the respective notion of ‘green jobs’ or ‘green sectors’, whose definitions are similarly diverse than those of the term ‘green skills’. According to ILO, ‘green jobs’ are “decent jobs that contribute to preserving or restoring the environment, be they in conventional sectors such as manufacturing and construction, or in emerging green sectors such as renewable energy and energy efficiency” (van der Ree 2017: 2). The German development agency Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) defines ‘green sectors’ as (...)

“economic sectors or industries whose outputs contribute to the reduction of emissions and environmentally harmful practices” (GIZ 2022: 15).

**Figure 2: Kwauk and Casey’s Green Skills Framework**



Source: Kwauk/Casey 2022: 4

The Asian Development Bank refers to four different approaches to defining green jobs, labelling them (1) sustainability, (2) green industry, (3) task profile, and (4) green task definition. The first definition has a normative stance. Here, sustainability is seen as a guiding principle. All jobs have work processes that can and should be made more sustainable. Therefore, all jobs are green jobs. The second approach affiliates green jobs with economic activities that are deemed green. Studies following this approach often refer to the US Bureau of Labor Statistics taxonomy<sup>1</sup>. By contrast, the third approach is task-based, measuring to what extent task profiles in jobs have changed due to green transition requirements. Finally, the green task definition (4) focuses on identifying green tasks in job profiles regardless of whether tasks have changed. The ‘greenness’ of a job is indicated on a scale from 0 (no green task) to 1 (all tasks are green) (Tsironis 2023: 2).

Moreover, the notion of the ‘green economy’ comes into play. The common understanding, underpinning most of the policy literature, focuses on the aspects of carbon-neutrality and resource efficiency. Yet official definitions point, again, to a very broad spectrum of understandings.

<sup>1</sup> [www.bls.gov/green/home.htm](http://www.bls.gov/green/home.htm)

An early, but still influential definition is that of UNEP which describes a green economy as one “that results in improved human well-being and social equity while significantly reducing environmental risks and ecological scarcity (UNEP 2011: 2)”. According to the European Environment Agency, “a green economy can be understood as one in which environmental, economic and social policies and innovations enable society to use resources efficiently, inclusively enhancing human well-being, while maintaining the natural systems that sustain us<sup>2</sup>”. These definitions emphasise not only ecological, but also social objectives of the envisaged transition. Indeed, some literature refers to a ‘green and just’ rather than only a ‘green’ transition, suggesting that such a transition cannot be expected to occur without social distortions, such as massive job losses in certain sectors, that call for specific policies.

Referring to Gass et al (2020), GIZ defines the ‘green and just transition’ as one “to a more climate friendly, less polluting and resource-efficient society in terms of one that offers more, better and decent work as well as social and environmental justice (GIZ 2022: 15)”. According to the ILO, the term ‘just transition’ refers to a process of “greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind”<sup>3</sup>.

To sum up, the term ‘green skills’, as well as the notions related to it, are fuzzy. Definitions vary within a broad spectrum of meanings, mostly overlapping, but also contrasting in some respects. One determining dimension stands out: the degree of transformation envisaged by the transition and, at the skills level, the agential skills required to achieve it.

While the following chapter will give an overview of the state of research, we will come back to conceptual debates subsequently.

### 3. State of Research

Albertz and Pilz (2025a) state two periods of increased public debate and literature production on green skills. As they point out, the discourse emerged in 2010/11 and was vividly debated until about 2014. Then, since 2022, they have witnessed renewed attention to the topic.

Much of the available literature stems from international or regional organisations, including ILO, UNESCO, OECD, ETF, and CEDEFOP, and is therefore policy-oriented. This body of literature will be discussed in detail in the empirical sections of the paper. Academic research on this topic started later (ibid.: 8) and spans various disciplines, from educational sciences through geography to political science and economics.

Several literature reviews (e.g., Albertz/Pilz 2025a; Fuchs 2024; Persson Thunqvist et al. 2023; Toró et al. 2024) confirm the wide range of understandings of and research approaches to the topic of green skills. As discussed in the previous chapter, the technical skills vs broader competencies divide is also visible in the literature. Fuchs calls it an adaptive vs. transformative green skills divide (Fuchs 2024: 4). Albertz and Pilz (2025a) state that over time, the initially predominating narrow interpretations have given way to broader ones. Yet most publications continue to investigate the topic from a human capital perspective with an underlying understanding of green skills as technical and work-related. Often, the aim is to measure the ‘greenness’ of occupations (e.g. Vona et al. 2019 for the US, ESCO 2023 for the EU<sup>4</sup>) or to estimate potential job gains and losses in certain sectors (e.g. Bowen 2012). Publications discussing the broader definitions, such as green competencies or transformational skills, as well as systemic issues in the education and VET systems, are considerably scarcer (Ramsarup et al. 2024b; Weijzen et al. 2023).

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<sup>2</sup> [Inclusive Green Economy \(switchtogreen.eu\)](https://switchtogreen.eu)

<sup>3</sup> <https://www.ilo.org/resource/other/climate-change-and-financing-just-transition>

<sup>4</sup> <https://esco.ec.europa.eu/en/about-esco/escopedia/escopedia/green-skills-labelling-esco>

As will be exhaustively discussed in the empirical part of this paper, international organisations approach the topic mostly, but not exclusively, with an underlying technical and work-related understanding of green skills. Sometimes, they have specific publications on the impact of climate change on the education system and how education can and should contribute to the struggle against climate change (e.g. Bos/Schwartz 2023; Sabarwal et al. 2024). These are often not framed as ‘green skills’. Likewise, there is the whole body of literature on education for sustainable development (e.g. Olsson et al. 2016). Although there is an obvious congruence with the green skills debate, at least with the broader understandings of the term, the connection is not always made.

An increasing amount of empirical work addresses specific countries, sectors (Fuchs et al. 2025; Gustavsson et al. 2025; Lagorio et al. 2024; Odondi 2023), and actors or institutions (e.g. Albertz/Pilz 2025b). On the other hand, studies on the informal economy are rather scarce (e.g. Owusu-Agyeman/Aryeh-Adjei 2024). This also applies to studies focusing on workers’ or trade unions’ perspectives (e.g. Grenzdörffer 2021). Much of the empirical literature applies an economic or employer perspective, framing the discourse in terms of skills deficits (Ramsarup et al. 2024b) and changing skills requirements from industry. There is also some incipient work from geopolitical perspectives. For example, Veron and van der Meer (2025) discuss green skills in terms of geopolitical competition between the EU and China over Africa, pointing to the rising significance of skills development for technology export and market access.

Publications applying a system-perspective on the education and VET systems, are less frequent. Important early work was done in this regard by UNESCO, introducing the notion of ‘greening VET’ as early as 2010. This approach encompassed five steps of greening VET institutions in a holistic way, including facility management, curriculum, community relations, research and promoting of a green culture (Majumdar 2010). The Third World Congress on VET, held in 2012 in Shanghai, called for a double transformation seeking to transform VET in moving it closer to more inclusive, socially just and environmentally sound educational practices, and at the same time, enhancing its potential to contribute to a wider process of building sustainable futures (UNESCO 2012).

Yet on the ground, this double transformation is often constrained by the scarcity of conditions in which most VET systems in the Global South have to operate. These systems are often under-resourced, fragmented and lacking social recognition (McGrath 2022; Ramsarup et al. 2024a). They appear to be in a weak position to fulfil their tasks in the envisaged green and just transitions.

With reference to green skills, this body of literature claims that what is needed are transformative rather than add-on reforms (Ramsarup 2024). VET systems have to transform themselves to be able to act in a transformative way.

Existing work in this field (e.g. Allais 2023a; Ramsarup et al. 2024a) points to limited changes in VET systems in Africa, despite ‘greening’ being a clearly expressed policy priority in many countries. Weijzen et al come to a similar conclusion for European countries (Weijzen et al. 2023). Ramsarup et al summarise the predominant approaches as ‘bolt-on’ of green(ing) ideas to the existing system, leaving the system itself largely unchanged (Ramsarup et al. 2024b: 13).

This is consistent with Allais’ findings on the broader context in which the examined VET systems are embedded: Economies and labour markets show limited transition: most jobs and work opportunities are not long-term, nor do they meet the definition of ‘decent’ in ILO terms, nor are they ‘green’ (Allais 2023a).

In their work on skills for the just energy transition in South Africa, Ramsarup et al draw on several empirical studies. Their findings point to a fragmented picture of pockets of demand. On the VET side, there is a short course culture, mainly offered by private providers, which they describe as a disjointed sustainability response, suggesting a reactive, fragmented and poorly coordinated education and training landscape. The predominant demand-led approach

to skills frames the transition within a market mindset, reducing it to a technological issue and leaving poverty and inequality untouched (Ramsarup et al 2023, 5-6).

Pavlova and Askerud (2024), although less critical of the predominant demand-led approach than the aforementioned authors, confirm the systemic problems entailed by fragmentation in their comparative study on Hong Kong and Denmark. Volatile industrial demand for green skills hampers VET institutions in designing and upscaling respective programmes and consequently hinders the structural transformation of VET systems from reactive towards green and innovative systems. The authors also underline insufficient levels of generic skills and academic knowledge among VET graduates. Consequently, they call for stronger government involvement in curricular reforms and closer integration of VET with the 'academic' streams of education to foster innovative and critical thinking.

Beyond analysis of the status quo, the literature also discusses ways forward. Most of the policy prescriptive and demand-led literature points to strengthening the relations between the VET system and the private sector to increase market responsiveness. The system oriented and critical approaches put forth the concept of skills ecosystems. This approach allows to foreground local context and helps to understand regional or sector social formations, in which skills are developed collectively rather than viewing them as confined to individuals. The approach engages the full range of actors, beyond the usual VET institution – employer dialogue. It includes learners, communities, and civil society organisations as important actors in skills dialogues (e.g. McGrath 2022; Ramsarup 2024; Ramsarup et al. 2023; Wedekind et al. 2021).

## 4. Conceptual Framework

The last two sections have depicted how broad and varied the spectrum of understandings of the term green skills is. As the literature review suggests, an author's respective understanding appears to be determined by the underlying concept of the green transition's socioeconomic features. Precisely, it is the degree of envisaged macroeconomic and social transformation that determines to what extent the understanding of green skills is additive or transformative.

It is useful to draw on the academic discussion analysing green economy discourses (e.g. Death 2014; Faccer et al. 2014; Ferguson 2015), which describes a wide range of transformational understandings from minimal shifts to radical changes.

For the purposes of this paper, we draw on Faccer et al (2014), who distinguish three types of discourses related to the green economy.

Based on the classification of Faccer et al (2014), we have developed a framework to analyse the conceptual understandings underlying green skills discourses of international organisations. We have expanded Faccer et al's (2014) typology by introducing a fourth category, 'radically transformative', to better distinguish between strands of discourse that call for a rupture with the prevailing macroeconomic paradigm and those that substantially question it but refrain from completely breaking with it. In summary, our conceptual framework distinguishes four main categories of paradigmatic shifts, from incremental to radically transformative. These four categories are applied to analyse green skills discourses at the following thematic levels: a) ecological challenges and how to solve them; b) macro-economic paradigm; c) social and human development, including power relations; d) work; e) (green) skills, learning, education and VET.

**Table 1: Three discourses on the green economy**

Discourse	Distinguishing features
Incrementalist	<ul style="list-style-type: none"> <li>• Pro-growth, consistent with the prevailing economic paradigm;</li> <li>• Environmental cost avoidance (e.g. emission taxes) will provide insurance against slowed growth and crises over the medium term;</li> <li>• GDP as an unchallenged and appropriate measure of progress;</li> <li>• No clear comment on environmental limits (although efficiencies are emphasised);</li> <li>• Job opportunities through manufacturing and technology associated with environmental efficiencies</li> </ul>
Reformist	<ul style="list-style-type: none"> <li>• Pro-growth, with improvements to (but still within) the existing economic paradigm;</li> <li>• Costs of inaction important (as above) for the long term and new sources of wealth (e.g. ecosystem services) available for advanced growth;</li> <li>• Additional indicators of value needed in addition to what is in current use (e.g. 'beyond GDP')</li> </ul>
Transformative	<ul style="list-style-type: none"> <li>• Pro-development (broadly defined, beyond simply GDP growth) for developing countries;</li> <li>• Zero/de-growth most appropriate for developed countries;</li> <li>• Demands more attention to human rights, including voice of minorities in green economy debate;</li> <li>• Emphasis on absolute rather than relative decoupling;</li> <li>• Suggest alternative measures of progress, including a consideration of a broader conception of societal well-being;</li> <li>• Caution against technology as a panacea, highlighting risks of overconsumption and risks to social and ecological communities</li> </ul>

Source: Facer et al. 2014: 645

Our framework is informed by different strands of academic discussions that will be briefly outlined below.

Predominantly, our work is based on the bodies of literature emanating from the critical political economy of skills approach (e.g. Allais 2012; Allais/Marock 2023; Brown et al. 2011; Lauder et al. 2017), and the approach recently developed from this, the political economy ecology of skills approach (e.g. Lotz-Sisitka 2023; McGrath/Ramsarup 2024; McGrath/Yamada 2023). Critical political economy of skills foregrounds the socioeconomic context in which skills development systems are embedded, the particular institutional forms they take, and the dynamics between them and the labour market. Here, we particularly draw on the work by Allais on Africa and low- and middle -income countries, where these socioeconomic relations tend to be shaped by colonial legacies (e.g. Allais 2023b, 2020b, 2020a). The colonial patterns of education and VET systems training workforce for colonial interests, regardless of the socioeconomic realities on the ground, are still tangible in many countries. They often materialise in marginal and irrelevant VET systems that do not account for the predominant sectors of work activities, i.e. the informal sector and subsistence agriculture. Consequently, their relevance for social mobility is limited. Similarly, most VET policies are still transferred from Western countries, and they only insufficiently correspond to the local requirements (Allais 2023b; McGrath 2023).

The political-economy-ecology of skills approach challenges VET's origins in the industrial and mining sectors, stating that this path-dependency has shaped it as being complicit in maintaining ecologically unsustainable economic practices, rather than the opposite (McGrath

2022). This recently conceptualised approach calls for a theoretical move beyond the political economy of skills given that the “teleology at the heart of the [political economy of skills...] is fundamentally unsustainable [since it assumes] that growth, development and industrialisation are good, and that the real question is about how their fruits are distributed” (McGrath/Ramsarup 2024: 251). By contrast, the political economy-ecology of skills claims that we need to address the ecological dimension of economic activity, which means to move beyond the conventional understanding of VET, changing its conceptions of work, learning and skills development (Lotz-Sisitka 2023). Accordingly, the notion of work needs to be expanded from its current formal, remunerated understanding to encompass the informal, care and subsistence economies. It is also necessary to reconsider the productivist notions of skills for work (Ramsarup 2024). Rather, notions of work should include dimensions such as individual and collective well-being and agency as well as ecological and social sustainability (Langthaler et al. 2021; Ramsarup 2024).

Critical debates on learning and its role in green and just transitions have also fed into the political-economy-ecology of skills approach. They advocate that we need new ways to think about learning, moving from an individualistic to a collective understanding of learning and conceiving it as radical and disruptive rather than aiming at the social reproduction of the status quo (Langthaler et al. 2021). Lotz-Sisitka has importantly contributed to this debate, elaborating on change-oriented, transformative and transgressive learning, all of which are necessary for learning to enable sustainability transitions (Lotz-Sisitka et al. 2017, 2015).

Another important body of literature in our framework stems from comparative education approaches in the field of education and development. Here, we mainly draw on work by Bonal, Klees, Hickling-Hudson and others that is critical of the human capital orthodoxy underpinning most education policies in international cooperation (e.g. Bonal 2016; Hickling-Hudson 2002; Klees et al. 2012; McGrath 2010; McGrath/Powell 2016; Tikly 2019). The human capital approach has led to an oversimplified, linear understanding of the impact of education on development, devoid of context and relational conceptualisations of education. Foregrounding education as an economic investment expected to yield returns, the World Bank and other donor organisations have pressurised southern governments to adopt education policies that were not always and not necessarily suitable to their respective country contexts. The impact of the Structural Adjustment Programmes in the 1980ies and 1990s with heavy cuts in public education budgets, falling participation and rising inequity rates as well as the hollowing out of higher education structures is still tangible today, and it is only the most obvious example (Bonal 2002; see Langthaler 2015 for an overview).

Our reflections on macroeconomic paradigms and greening strategies substantially draw on the debate about green growth vs degrowth (for an overview, see Engler et al. 2024; Weiss/Cattaneo 2017). Green growth proponents basically advocate the utilisation of new technologies and improved resource management to achieve a low-carbon and resource-efficient economy within the boundaries of the traditional growth paradigm. By contrast, degrowth approaches question the growth paradigm in itself as it inherently strives for ever-increasing valorisation of nature. Instead, degrowth approaches call for a „planned reduction of energy and resource throughput designed to bring the economy back into balance with the living world in a way that reduces inequality and improves human well-being” (Hickel 2021: 1106). However, such a planned reduction of resource use is claimed mainly for affluent societies, while it is acknowledged that low-income countries might need further growth to grant the well-being of their populations. An important concept is ‘economic democracy’, pointing to a social model where decisions about what to produce and how to use a society’s collective surplus should be democratically determined<sup>5</sup>.

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<sup>5</sup> See: [https://jasonhickel.substack.com/p/why-capitalism-is-fundamentally-undemocratic?utm\\_source=publication-search](https://jasonhickel.substack.com/p/why-capitalism-is-fundamentally-undemocratic?utm_source=publication-search)

In this debate, indigenous worldviews such as the Latin American 'Buen Vivir' (see e.g. Kothari et al. 2014) and the Southern African 'Ubuntu' (see e.g. Metz 2011) provide alternative frameworks that challenge the dominant growth paradigm and resonate with the goals of degrowth. These indigenous concepts emphasise community well-being, the unity of human beings and nature, and holistic approaches to life, offering valuable insights into how societies might organise themselves without a focus on perpetual economic expansion.

There is not much academic literature available on degrowth and education, although interest has been growing recently (Tannock 2025). Most of the studies focus on curriculum and pedagogies (e.g. Getzin 2019; Prádanos 2025), viewing education as a potentially strong medium to challenge predominant growth imaginaries. Tannock (2025) adds to this a notion of necessary rupture with the individualistic directionality of formal schooling, enshrined e.g. in the social mobility through schooling imaginary. This entails building linkages with radical collective movements and a focus on the manifold opportunities for collective learning offered by non-formal education.

In the field of ecological conceptualisations, we draw on political ecology approaches (e.g. Dietz/Engels 2021; Leff 2021; Martinez-Alier 2002), and on approaches addressing the topic of environmental justice and green colonialism (e.g. Bringel/Svampa 2024; Lang et al. 2024). Both strands of literature problematise the conventional understanding of nature and society as being two separate entities, which underlies much of the academic and policy debate. By contrast, political ecology approaches view society and nature as mutually constitutive of each other. Consequently, ecological problems do not simply result from political or market failures, nor can they be solved by technical innovations or improved management. Rather, they are part of broader social, political, and economic contexts and the capitalist exploitation of nature (Dietz/Engels 2021). Studies on green colonialism focus on global asymmetries, problematising how the costs for the transition to a green economy (understood as a technologically modernised market economy) in the North are primarily born by the Global South. Indeed, the massive quest for critical raw materials and alternative energy sources by northern governments resonates with colonial patterns of resource appropriation in the Global South (Bringel/Svampa 2024).

Drawing on the above sketched out bodies of literature, we have elaborated indicators characterising each of the thematic fields in each of the four discourse categories of our conceptual framework. These are set out in the table below. Inevitably, no neat lines of separation can be drawn between the four discourse categories. Rather, boundaries are blurred and categories are overlapping. However, such a stylised typology is helpful for analytical purposes, as will be shown in the empirical part of this paper.

**Table 2: Conceptual framework**

Distinguishing features of four discourses on green skills			
<b>Degree of change with respect to the prevailing macroeconomic and social paradigm</b>			
<b>Incrementalist</b> Broad acceptance of the prevailing paradigm while calling for minimizing its impact on environment.	<b>Reformist</b> Targeting changes beyond limiting environmental degradation. Emphasising opportunities that the green economy offers to promote economic growth and improve the social and environmental situation.	<b>Transformative</b> Calling for a more fundamental paradigmatic shift emphasising social justice and human flourishing.	<b>Radically transformative</b> Calling for a radical break with the prevailing paradigm and establishment of a new economic and social order based on “economic democracy”, decommodification and planned reduction of resource use in high-income countries.
<b>Ecological challenges and how to solve them</b>			
Focus on climate change. Decarbonisation and resource-efficiency by technological means as solution (“green growth”).	Focus on climate change, complemented by reference to biodiversity loss and environmental degradation.  Decarbonisation and resource-efficiency by technological means as solution, complemented by reference to a circular economy.	Broader problematisation of ecological crisis, interlinked with a variety of social dimensions. Problematisation of North-South dimension (“climate justice”).  Solution viewed as necessary change of macro-economic structures including patterns of consumption and production.	Problematisation of ecological crisis as expression of unsustainable patterns of the prevailing social and economic order at global scale. Problematisation of North-South dimension (“green colonialism”).  Solution viewed as necessary disruption of the growth paradigm, establishment of “economic democracy” (decommodification and planned reduction of resource and energy use in high-income nations).
<b>Macro-economic paradigm</b>			
Economic growth paradigm is accepted and not problematised.	Economic growth paradigm is broadly accepted. Call for complementation through increased ecological and social policies (“inclusive green growth”).	Orthodox economic growth paradigm is critiqued but not explicitly rejected. Call for transformation along the lines of social justice and human well-being.	Economic growth paradigm is rejected, at least for high-income countries.

Source: own compilation, adapted from Faccer et al 2014

<b>Social and human development (incl. power structures and relations)</b>			
GDP is the unchallenged measure of progress and human well-being	Additional social indicators beyond GDP are needed.	Relative decoupling of growth and development. Social justice and human well-being as main indicators.	Absolute decoupling. Human development based on community and/or collective solidarity perspectives beyond material wealth.
No or minimal consideration of prevailing power structures.	Calling for "democratic participation" of disadvantaged groups without fundamentally challenging existing power structures. "Leave-no one-behind"-paradigm.	Power structures are criticised calling for more horizontal alternatives but rarely discussed in detail.	Existing power structures are rejected calling for alternatives based on horizontal and collective concepts, often inspired by indigenous world views.
<b>Work</b>			
Focus on productivity and income generation. Work is primarily conceived as formal sector, regulated, remunerated work, little attention to informal, unpaid, care and subsistence work.	The productivity paradigm of work is prevalent. More attention is given to informal, subsistence, reproductive and care work, but they are considered as marginal phenomena.	The productivity paradigm of work is questioned and complemented by a social (doing good for the community) and non-monetary (self-worth) dimension. Focus on the reality of work in the global South with prevalence of informal, unpaid and subsistence work.	The productivity paradigm of work is questioned. Focus on work for community and society. Inspired by indigenous world views and their holistic understanding of working, caring and living together beyond the work-life-dichotomy.
<b>(Green) Skills, learning, education and VET</b>			
Human capital perspective: skills for employability and productivity.	The human capital perspective and the employability/productivity paradigm are prevalent, but more attention is paid to (life) skills needs of marginalised groups and informal workers.	The human capital perspective and the employability/productivity paradigm are critiqued. Focus on human and social purposes of education/VET beyond the preparation for formal sector work.	The human capital perspective and the employability/productivity paradigm are rejected.
Green skills: focus on work-related skills (technical and soft)	Green skills: work-related and transversal (sustainability knowledge, attitudes, values and behaviour)	Green skills related to substantial transformation of society, economy and VET systems. Suggested alternatives include "learning networks" and "regional skills ecosystems"	Reference to holistic ways of learning, working and living rather than explicit "green skills" conceptualisation
Performance-oriented learning for employability and competitiveness.	Learning for employability and competitiveness, complemented by awareness, life skills, attitudes and behaviours.	Learning for agency, rather than employability. Transformative & transgressive learning focussing on critical reflection and change-oriented action.	Transgressive learning focusing on critical reflection, change-oriented action and breaking with norms to explore radically different ways of being.  Collective learning processes addressed at collective well-being rather than at individual social mobility.

## 5. Methods

We have used the above outlined conceptual framework to undertake a semi-systematic literature review (Snyder 2019) of policy documents published by international organisations addressing the topic of ‘green skills’ in a developmental context. This choice is motivated by the observation that international organisations have a stronger influence on VET systems and VET policies in middle- and low-income countries as their VET systems tend to be less institutionalised than those of high-income countries (Albertz/Pilz 2025a).

The aim of this review is to analyse the usage of the terms ‘green skills’ and ‘skills for green and just transitions’ in international development policy to gain a deeper understanding of its underlying conceptions. In particular, we want to examine whether there are substantial differences between the single organisations’ conceptions and what they consist of.

The literature review was conducted in two stages. In the first stage in spring 2024, we selected publications from six international organisations identified as leading actors in the field of green skills in developing countries. These included the African Union (AU), the Asian Development Bank (ADB), the European Training Foundation (ETF), the International Labour Organization (ILO), UNESCO, and UNICEF. This selection followed two criteria. First, we identified the main supra-national organisations active in this field based on publications on their websites (Niemann/Martens, 2021). Given their interest in VET and green skills and their policy influence, regional bodies, such as regional development banks and the ETF, were included. In the following, all selected organisations will be referred to as international organisations (IOs). Second, to ensure feasibility, we set a time frame for document selection, focusing on publications dated between 2020 and May 2024. Documents were selected based on two main criteria: their publication date within the specified time range and their availability on the publicly accessible websites of the respective organisations. Sector studies were excluded from the selection based on the argument that their discourse would be necessarily biased towards a technical understanding of the term ‘green skills’.

To begin the selection process, we searched the websites of each organisation for full-text documents in English that contained relevant keywords. We then filtered the results based on their titles and a preliminary review of the content, ultimately selecting a purposive, non-representative sample of 19 publications for close analysis.

For data extraction and analysis, we employed both deductive and inductive approaches. Initially, the selected documents were coded using the software *Atlas.ti*. Next, data from each organisation was synthesised. Drawing on our conceptual framework, we developed key themes. Finally, the synthesised data from each organisation was analysed and compared across the identified themes.

Based on the preliminary results from the first stage (see Langthaler/Catalán Lorca 2025), we decided to expand the scope of the review to include additional international organisations. In the second stage, the time frame was extended to cover publications from 2011 to December 2024, and four additional organisations were included: the African Development Bank (AfDB), the Inter-American Development Bank (IDB), the OECD, and the World Bank, while the African Union was eliminated from the sample.

The selection process for the second stage followed the same procedure as outlined for the first stage. The search of each IO’s website for full-text documents in English employed the following keywords: #green skills, #green jobs, #green economy, #transitions, #green, #skills. The search returned a total of 178 documents, out of which 66 were selected as a purposive, non-representative sample for close analysis. See Table 3 below for the distribution of documents per IO.

**Table 3: Number of documents screened and selected for sample per IO.**

International Organisation	Number of publications screened	Number of publications selected
AfD	11	1
ADB	19	9
ETF	10	8
IDB	11	4
ILO	35	10
OECD	16	9
UNESCO	34	10
UNICEF	21	6
World Bank	21	9
<b>Total</b>	<b>178</b>	<b>66</b>

Source: Own compilation

The initial search revealed high numbers of publications for some IOs (e.g. ILO: 35, UNESCO: 34), while rather few for others. For the purpose of feasibility, the maximum number of publications per IO was defined as 10. As in the first stage, we excluded sector studies for their inherent conceptual bias. Country studies were excluded for the IOs with an abundance of publications. They were included for those IOs where only a few publications had been selected in the first screening process. As for the types of documents to constitute the sample, we included reports, policy and strategy papers, as well as policy and conceptual notes, excluding books, project documents and periodicals.

Selection criteria for documents from IOs with an abundance of documents included: relevance, distribution across the time frame (2011 – 2014), and influence of the document on the international policy debate (e.g. two ILO synthesis reports, ILO 2019, 2011).

Based on the first stage, we refined the codes used for coding with the software *Atlas.ti*. We defined codes for each of the themes corresponding to one or more of the four discursive categories as set out in our conceptual framework. The themes included: ecological challenges and solutions; macro-economic paradigm; perspectives on transition; social and human development; power; work; (green) skills; education and VET. In addition to these, we added two further themes entitled “actors” and “cooperation”, achieving a total of 89 codes (see list in Annex II).

After coding, the data was analysed firstly based on the totality of codes. This first analysis showed that some of the codes had been assigned rarely or not at all at the entire sample. This is in itself a significant finding, as will be discussed in more detail below. In a second round of data analysis, these codes were eliminated, resulting in the elimination of the entire fourth discursive category ‘radically transformative’. Additionally, for each theme, the most frequently assigned codes were selected, resulting in a restricted set of 41 codes that were used for detailed data analysis (see Annex III). For the interpretation of the quantitative code analysis, we attributed the codes of this restricted set to the three remaining discursive categories (see Annex IV). Just as the boundaries between our discursive categories are fluid, only a few codes could be clearly assigned to a single discursive category. Most codes fall into two of the three remaining categories, according to the context. Therefore, for results interpretation we gave more weight to the relations between codes from different categories than to the absolute number of codes. In addition, the quantitative analysis (number of allocated codes) was complemented by a contextual reading of the text snippets.

We assessed the data through two major lenses. First, we analysed the identified themes of the green skills discourses as to which discursive category they could be attributed to. Second, each IO was analysed according to the three remaining discursive categories.

Limitations resulted above all from the diversity of types and lengths of documents. Indeed, our corpus encompasses short policy notes as well as very extensive reports. In addition, some of the documents are specifically dedicated to green skills, whereas others touch upon the topic only in a few sections. The relational interpretation of the quantitative results mentioned above was helpful to balance this limitation.

Another limitation points to the observation that, upon a contextualised reading, some codes appeared to bear rhetorical significance only. This refers above all to codes from social and human development themes, including ‘decent work’ and ‘tripartite social dialogue’, among others. We attempted to account for these important nuances in defining gradations, i.e. ‘strong’ and ‘weak’ decent work or tripartite social dialogue etc. (see list of codes in Annexes II and III).

A third limitation refers to the fact that some IOs have separate documents on climate change education (mostly dedicated to general education). We decided to include these documents in the overall corpus, especially for organisations with a limited number of documents such as the IDB. After coding we saw that these documents substantially distorted the results of the IO’s conception of green skills. We therefore undertook a second analysis of the affected IOs eliminating the respective documents. This is discussed in more detail below.

Results are outlined in the following section<sup>6</sup>.

## 6. Results

The first round of data analysis showed that codes referring to the radically transformative discourse category were not or very rarely assigned across the whole sample (see Table 4).

**Table 4: Frequency of codes referring to the radically transformative discourse**

Themes	Codes referring to radically transformative discourse	Frequency across whole sample
<b>Ecological challenges and solutions</b>	Disruption of growth paradigm solution	0
	Economic democracy, decommodification, planned resource reduction	0
<b>Macro-economic paradigm</b>	De-growth	0
<b>Perspective on transitions</b>	De-growth perspective	0
<b>Social and human development</b>	Human development based on community perspectives	0
<b>Power</b>	Alternative (community) power concepts	0
<b>Work</b>	Holistic understanding of working and living together	0
<b>(Green) Skills</b>	Skills for agency	11
<b>Education and VET</b>	Holistic ways of learning, working and living together	1
	Transgressive learning, change oriented	0

Source: Own compilation

<sup>6</sup> Detailed spread sheets containing numbers of code allocations are available upon request.

The exception here is the code ‘Skills for agency’, which was assigned 11 times across the whole sample. While this is a very low frequency compared to other codes, it still stands out compared to the absence of all other codes from this discursive category. Hence, as a first result, we can state that the radically transformative discourse, underpinned by concepts from the degrowth approach, is absent from IO’s discourses on green skills. Consequently, the radically transformative discourse was excluded from further data analysis.

In a second round of analysis, a restricted body of codes (see Annex III) referring to the remaining three discursive categories was assessed as to their distribution across the whole sample in terms of the themes identified in the conceptual framework (see p.14/15).

The analysis shows that for the themes ‘**ecological challenges and solutions**’ as well as ‘**perspective on transition**’, the distribution of codes is fairly balanced between the incrementalist and the reformist discursive categories (see Table 5 below). The only transformative feature of significance is the code ‘pattern of consumption and production’, which has a frequency of 21. Unexpected findings are the fact that a development bank, i.e. ADB, has a clear reformist, rather than incrementalist discourse; and the fact that UNICEF displays in total a very low number of codes under these themes, which indicates weak discussion of ecological challenges in UNICEF documents. However, it should be stated that results in this thematic field are weak and therefore their significance is limited.

**Table 5: Code distribution (restricted set) according to discursive category, thematic field ‘ecological challenges and solutions & perspectives on transitions’**

Codes	AfDB	AsDB	ETF	IDB	ILO	OECD	UNESCO	UNICEF	WB	TOTAL
Ecological challenges and solutions										
Focus on climate change	0	8	5	5	2	7	4	3	13	47
Climate change, biodiversity loss, environmental degradation	0	2	2	0	5	4	6	0	4	23
Decarbonisation and resource-efficiency	0	0	0	6	2	9	2	1	7	27
Consumption and production	0	0	6	0	5	0	9	0	1	21
Perspectives on transitions										
Green transition without just	1	8	7	8	5	27	4	1	14	75
Green and just transitions	1	10	11	1	26	5	4	2	7	67
Job creating potential	0	3	3	1	9	2	2	1	4	25
Job creating potential, but also losses	0	7	6	1	19	23	3	1	7	67
Colour assignment discursive category										
Incrementalist										
Reformist										
Transformative										
Incrementalist/reformist										

Source: Own compilation

In the thematic field ‘**society**’, we summarised the code groups ‘**macroeconomic paradigm**’, ‘**social and human development**’, ‘**power**’ and ‘**work**’. The theme ‘macroeconomic paradigm’ has the only strongly incrementalist result, with 102 allocations of the code ‘green growth’ (compared to 62 for the code ‘inclusive green growth’ and 4 for the code ‘social justice and human wellbeing’) across the whole body of literature. The World Bank is the IO with the highest number of allocations of this code (30). For the rest of the themes, the discourse is clearly reformist. It is noticeable that equity is highly referenced across most IOs and publications (total number of allocations: 107). ‘Decent work’, whether strong or weak, has a relatively high frequency (70 allocations in total). This, however, is mainly thanks to the ILO’s publication, which is also the reason why, in total, a strong notion of decent work results in more references (42 allocations) than a weak notion (37 allocations). It is noticeable that reference to informal work is weak in general.

**Table 6: Code distribution (restricted set) according to discursive category, thematic field 'society'**

Codes	AfDB	AsDB	ETF	IDB	ILO	OECD	UNESCO	UNICEF	WB	Total
Macroeconomic Paradigm										
Green growth	0	11	4	4	18	24	8	3	30	102
Inclusive green growth	1	5	4	2	16	10	18	3	3	62
Social justice and human wellbeing	0	0	0	0	1	0	3	0	0	4
Power										
Leave no one behind	0	3	3	1	1	3	1	0	3	15
Some notion of power and political agency	0	1	4	3	1	2	8	3	0	22
Social and human development										
Growth plus social policies	0	7	4	0	13	19	2	0	11	56
Some notion of equity	1	24	9	0	20	31	12	9	1	107
Work										
Decent work (strong)	2	1	1	0	24	1	11	2	0	42
Decent work (weak)	1	0	7	0	15	5	2	0	7	37
Productivity plus attention to informal	3	2	0	0	3	10	2	0	5	25

Colour assignment discursive category
Incrementalist
Reformist
Transformative
Incrementalist/reformist

Source: Own compilation

The thematic field '**skills and education**' summarises the code groups '**(green) skills**' as well as '**education and VET**'. The discourse in this thematic field has stronger transformative features than in the others. As for the understanding of green skills, a technical and work-related notion clearly prevails with 241 allocations of this code, compared to 142 allocations for a notion focusing on sustainability knowledge, awareness and behaviour (code: 'green competences'). This contrast is even stronger when the specific publications on climate change education are excluded from the body of literature, which lowers the number of allocations of the code 'green competences' to 109 (see Table 8). The combined understanding of green skills as spanning technical skills and green competences accounts for 100 allocations. It is remarkable that the transformative code 'broad and context-dependent notion of green skills' and the radically transformative code 'skills for agency' account for 15 and 11 allocations respectively. While this is very little compared to the predominant technical notion, it still indicates that the IO discourse in the field of skills is more nuanced, offering a broader range of understandings than is the case for other themes.

The same picture arises regarding the theme 'education and VET'. While the incrementalist discourse is quite strong with 89 allocations of the code 'market demand', the reformist discursive category is even stronger as reflected in 102 allocations of the code 'some system perspective on VET'. Also, under this theme, the analysis shows some allocations of the transformative codes 'holistic notion of greening VET in the context of transforming VET' (10) as well as 'systemic perspective on education and VET' (26). While UNESCO has a clear leading role in terms of transformative features in this thematic field, UNICEF's strong reference to the concept of skills for agency is as well remarkable. On the other hand, the World Bank is the IO which most strongly discusses the need for education and VET to respond to market demand (44 allocations).

**Table 7: Code distribution (restricted set) according to discursive category, thematic field ‘skills and education’**

Codes	AfDB	AsDB	ETF	IDB	ILO	OECD	UNESCO	UNICEF	WB	Total
(Green) Skills										
Technical and work-related green skills	0	38	30	9	35	48	20	13	48	<b>241</b>
Technical skills and green competences	0	8	12	6	11	14	22	3	24	<b>100</b>
Green competences	0	15	20	7	19	19	31	11	20	<b>142</b>
Broad and context-dependent notion of green skills	0	0	0	0	0	0	8	7	0	<b>15</b>
Skills for agency	0	0	0	0	0	2	2	6	1	<b>11</b>
Education and VET										
Human capital perspective	0	7	1	3	1	4	0	0	2	<b>18</b>
Market demand (strong)	1	2	5	11	13	7	5	1	44	<b>89</b>
Some notion of greening VET	0	2	6	2	13	2	7	0	10	<b>42</b>
Some system perspective on VET	0	8	8	13	24	10	4	1	34	<b>102</b>
Holistic notion of greening VET in context of transforming VET	0	0	1	0	1	0	7	0	1	<b>10</b>
Systemic perspective on education/VET	3	0	6	0	7	0	8	0	2	<b>26</b>
Learners' perspective	0	0	2	0	2	2	4	3	0	<b>13</b>
Colour assignment discursive category										
Incrementalist										
Reformist										
Transformative										
Incrementalist/reformist										
Reformist/transformative										
Transformative/radically transformative										

Source: Own compilation

**Table 8: Number of allocations of the code ‘green competences’ with and without specific publications on climate change education.**

Codes	AfDB	AsDB	ETF	IDB	ILO	OECD	UNESCO	UNICEF	WB	Total
Green competences allocations across all documents per IO	0	15	20	7	19	19	31	11	20	<b>142</b>
Green competences allocations in specific publication	0	11	4	7	0	6	2	0	3	<b>33</b>
Green competences allocations without specific publication	0	4	16	0	19	13	29	11	17	<b>109</b>

Source: Own compilation

Finally, in the thematic field ‘**actors, cooperation and dialogue**’, we find a predominantly reformist discourse with a high number of allocations of the codes ‘women’ (101 allocations) and ‘marginalised groups’ (83); and significant allocations for the code ‘communities’ (42) across the whole body of documents and for most IOs. This might shift the discursive category gradually towards the transformative category. Yet the incrementalist discourse is represented through the very high number of allocations of the codes ‘private sector’ (110) and ‘cooperation with the private sector’ (71). As for the code ‘trade unions’, this is allocated 23 times, mostly in the ILO and OECD, but also in some ADB publications. ‘Weak tripartite social dialogue’ has a relatively high frequency (74 allocations), while its strong counterpart accounts for much fewer allocations (23). Here, the obvious front runner is the ILO and, to a lesser extent, the OECD, while in all other bodies of literature, reference to these codes is negligible. Remarkably, the code ‘informal workers’ accounts for only 17 allocations, mostly by the ILO and ADB.

**Table 9: Code distribution (restricted set) according to discursive category, thematic field ‘actors, cooperation and dialogue’**

Codes	AfDB	AsDB	ETF	IDB	ILO	OECD	UNESCO	UNICEF	WB	Total
Actors										
Private sector	0	7	20	5	29	16	9	9	15	<b>110</b>
Communities	0	4	8	0	6	5	15	2	2	<b>42</b>
Informal workers	0	5	2	0	8	0	2	0	0	<b>17</b>
Learners	0	0	9	0	8	0	6	0	5	<b>28</b>
Marginalised groups	1	14	8	1	25	11	10	7	6	<b>83</b>
Trade unions	0	3	2	0	10	8	0	0	0	<b>23</b>
Women	1	17	12	3	18	15	5	11	19	<b>101</b>
Cooperation and dialogue										
Private sector	1	20	6	7	8	7	5	0	17	<b>71</b>
Tripartite social dialogue (weak)	1	1	5	0	42	19	4	1	1	<b>74</b>
Tripartite social dialogue (strong)	0	1	2	0	17	6	1	0	2	<b>29</b>

Colour assignment discursive category
Reformist
Incrementalist/reformist
Reformist/transformativ

Source: Own compilation

A third round of data analysis focused on the discourse of each IO. Results for all IOs will be described in alphabetical order below.

According to the data analysis, the **African Development Bank's** (AfDB) discourse on green skills can be characterised as generally reformist. However, since there was only one AfDB publication included in the corpus of documents, the result's informative value is very limited.

**The Asian Development Bank's** (ADB) discourse (9 publications analysed) is mixed, showing both strong incrementalist and reformist features according to the different thematic fields. ADB's conception of green skills is clearly underpinned by a strongly technical and work-related understanding (38), with a much weaker presence of green competences (15), especially if the publication on climate change education is excluded (4). As for education, there is 'some system perspective' (8), which appears to be based on the 'human capital perspective' (7). The macroeconomic concept is one of 'green growth' (11), rather than 'inclusive green growth' (5). Predominant cooperation partner throughout the body of documents is the 'private sector' (20 allocations), with 3 allocations of the code 'trade unions' and 2 of 'tripartite social dialogue'. However, what stands out is a strong reformist leaning of ADB's discourse in the social field, with relatively frequent reference to the codes 'women' (17), 'marginalised groups' (14) and 'social equity' (24).

The **European Training Foundation** (ETF) (8 publications) has an overall reformist discourse. Again, its understanding of green skills is primarily technical and work-related (30 allocations, vs 20 allocations of 'green competences'). Reference to the private sector as an important actor (20 allocations) and cooperation partner (6) is predominant under this theme. However, the ETF discourse displays relatively more reference to a broad range of other actors (e.g. 'women': 12 allocations, 'learners': 9 allocations, 'communities': 8 allocations, 'marginalised groups': 8 allocations) than other IOs. Consideration for social equity issues is also reflected in 9 allocations of this indicator, 11 of the indicators 'green and just transitions', as well as 7 for 'decent work'. As for education and VET, ETF shows a relatively systemic understanding of learning processes ('some system perspective': 8 allocations). Yet the overall orientation of the VET system appears to be market responsiveness (5 allocations).

The **Inter-American Development Bank** (IDB) (4 publications) displays expectable patterns for a development bank with a discourse oscillating between the incrementalist and the reformist categories, however, showing some strong incrementalist features. Its understanding of green skills is technical and work-related (9 allocations, vs 7 for 'green competences'), especially when excluding the publication on climate education (0 for 'green competences').

Under the theme of actors and cooperation partners, it is remarkable that there are very few allocations beyond the code 'private sector'. As for education and VET, there is some consideration of the system perspective (13 allocations); however, generally, education and VET are supposed to respond to market demands (11 allocations). In terms of social considerations, IDB's discourse is particularly weak with no allocations for codes such as 'decent work', 'equity' or 'social dialogue'.

The **International Labour Organization's** (ILO) discourse (10 publications) is by far the strongest in terms of social considerations. This is reflected in high allocations of the codes 'decent work' (24), 'social equity' (20), 'growth plus social policies' (13), 'green and just transitions' (26), 'tripartite social dialogue' (59), and 'marginalised groups' (25). In addition, the codes 'decent work' and 'tripartite social dialogue', when mentioned, tend to be much more strongly emphasised than in many other IO's publications, where they read more like lip service. As can be expected from its mandate, more than other IOs the ILO focuses on questions of decent work and workers' interests, highlighting the role of trade unions (10), considering informal workers (8), and deploying a more nuanced discourse on the green transition's alleged employment potential (19 allocations of the code 'job creation and loss'). As for the theme 'education and VET', ILO's discourse is, however, leaning stronger towards the incrementalist category than could be expected. Its understanding of green skills is predominantly technical and work-related (35), even though the concept of green competences (19) and the combined conception (11) is also quite strongly present. The private sector is the

most frequently mentioned actor (29), and the call for market responsiveness of the education and VET system is also quite prominent (13). All in all, the ILO's discourse on green skills can be classified as reformist.

The **Organization for Economic Cooperation and Development** (OECD) (9 publications) displays a generally reformist discourse with some emphasis on social issues. This is reflected in relatively high allocations of the codes 'social dialogue' (19 weak, 6 strong), 'growth plus social policies' (19), 'equity' (31), 'marginalised groups' (11) and 'trade unions' (8). There are, however, some contradicting indicators, such as 27 allocations of the code 'green transition without just' (vs 5 of 'green and just transition'), as well as 24 allocations of the code 'green growth' (vs 10 of 'inclusive green growth'). Its green skills concept is strongly underpinned by technical and work-related understandings (48 allocations vs. 19 of 'green competences'). Similarly, an economistic perspective on education and skills is reflected in the highest code frequency of the private sector as actor (16) and of market responsiveness as orientation of the VET system (7).

The **United Nations Educational, Scientific and Cultural Organization's** (UNESCO) discourse (10 publications) is also generally reformist. However, there are some transformative features in the thematic field of education and VET, which distinguish it from other IOs. Besides UNICEF (see below), UNESCO is the only IO whose understanding of green skills is based on green competences (31 allocations), rather than on technical and work-related notions (20). Again, besides UNICEF, it is also the only IO whose discourse displays a nuanced understanding of green skills that goes beyond the work-related vs competences dichotomy and perceives green skills as a broad and context-dependent concept (8 allocations). It is also the only IO with noteworthy reflections on how VET systems have to transform themselves holistically in the context of greening (7 allocations). While there is some reference to market responsiveness in education and VET systems (5), there is also a reference to the learners' perspective (4), and, not surprisingly, the systemic perspective on education and VET is strong (8).

The picture in terms of the social imaginary of UNESCO's discourse is mixed. On the one hand, there is some reference to power and political agency (8 allocations), which is almost absent from the other IOs' discourse. There is also some reference to social equity (12) and emphasis on decent work (11), although less than in some other IOs' discourses (see ILO and OECD above). On the other hand, there is not one allocation of the code 'trade unions', and only a few of the code 'social dialogue' (4). The macroeconomic paradigm is clearly reformist, with 18 allocations of the code 'inclusive green growth' (vs 8 of 'green growth'), but remarkably, there are also three allocations of the code 'social justice and human wellbeing', which can be assigned to the transformative discursive category

The **United Nations International Children's Emergency Fund's** (UNICEF) discourse (6 publications) is remarkable due to its high variation according to thematic fields. It is generally weak on actors, cooperation, ecological challenges, as well as education and VET, with much fewer code allocations to these thematic fields than other IOs. It is comparatively stronger than others on the theme of agency, expressed in comparatively more code allocations than others. For instance, it is the IO with the most allocations of the code 'skills for agency' (6). Its understanding of green skills is more balanced between a technical and work-related notion (13 allocations) vs one of green competences (11 allocations) than that of others. Besides UNESCO (see above), it is the only IO with some reference to a broad and context-dependent notion of green skills (7). It is, however, remarkable that UNICEF's discourse pays little attention to systemic issues in education and VET as well as to questions of work.

As can be expected from a development bank, the **World Bank's** discourse oscillates between the incrementalist and the reformist categories. Its understanding of green skills is predominantly technical and work-related (48 allocations). However, there is also a considerable number of mentions of green competences (20 allocations) and of an understanding that encompasses both concepts (24 allocations). In terms of the macroeconomic paradigm, the World Bank's underlying concept is that of green growth (30 allocations, vs. 3 for the code 'inclusive green growth'), its perspective on the transition is rather

green (14 allocations), than green and just (7 allocations), and its social considerations are rather weak. However, there is an emphasis on women (19 allocations), some attention to marginalised groups (6), social policies (11) and decent work (7), although the latter read like lip service rather than serious consideration. There is only minimal consideration of equity (1). Tripartite social dialogue is mentioned twice, while there is no mention of trade unions. In the thematic field of education and VET, there is some system perspective on VET (34), although this seems biased towards an economic understanding. This is expressed in the highest frequency of the code 'market responsiveness' (44) across all IOs. The private sector is predominant among actors (15 allocations) and cooperation partners (17).

## 7. Discussion

The above outlined results allow for some interesting observations.

Initially, it should be stated that some organisations, including OECD, the World Bank and ADB, show a high degree of heterogeneity among their publications on green skills, with some documents deploying narrow foci on technical skills and economic development, while others revert to a more nuanced conceptualisation of green skills and broader social and human development concerns. The reasons for this might be that the documents are edited by different departments within one IO (e.g. employment vs education), authored by (external) experts from different fields or co-authored by other IOs. It is therefore important to bear in mind that IOs are not monolithic blocs, rather positions and concepts are contested within the organisations themselves.

It is interesting to note the geographical differences emerging from the literature analysis. The analysis of the literature authored by regional development banks points to quite different regional dynamics. While ADB is among the most prolific editors of green skills publications, this is not true for IDB and much less for AfDB, with only one publication. Africa, however, is a well-targeted continent for green skills policy papers by other IOs and in the academic literature (Albertz/Pilz 2025a). This might lead to interpretations that assume that political priorities by (regional) African actors themselves are not (yet) focused on the green transition to the same extent as in other regions.

The findings confirm the existence of a conceptual divide in the green skills debate mentioned earlier between the technical/work-related understanding and the broader understanding of green competences. This divide is most visible in the literature of the economically oriented IOs, such as the World Bank and the IDB, since they have specific publications on climate education deploying different concepts and different perspectives than the remaining body of literature. Although this divide is not equally strong in all IOs' publications, it is still tangible in the overall international policy-oriented debate. It can be summarised as an implicit common sense that teaching green competences is the responsibility of the general education system, while the VET system shall focus on transmitting technical and work-related skills. Evidently, there are exceptions to this in single publications and in general in UNESCO's work. Yet this divide epitomises the traditional narrow conception of VET as preparation for work, which is understood as formal, remunerated and productivist, marginalising those forms of work that are predominant in many low- and middle-income countries, namely informal, care and subsistence work. There are only a few traces of a more holistic understanding of education and VET for work, community and society.

As for the underlying macro-economic paradigm and the perspectives on the transition, growth is rarely explicitly discussed, except for the development banks, especially the World Bank and the IDB. However, it can be said that implicitly the whole green skills debate by IOs is underpinned by a macroeconomic conception of green growth, mostly inclusive green growth, where add-on social policies are designed to take care of those left behind, while macroeconomic structures remain substantially unchanged. Questions of distribution of wealth and power, of socio-economic order or uneven division of labour are hardly ever touched upon.

This leads to an understanding of the current growth-oriented macroeconomic paradigm as naturally given. Change is confined to the realm of technology and counter-balancing policies rather than being conceived of in structural terms.

This brings about a particular conception of the role of skills, interestingly, most visible in the work of IOs with a strong focus on social equity, such as the ILO. Skills are often conceptualised as the key tool to ensure a just transition in making or keeping individuals employable. However, this appears to be an unrealistic role for skills. Indeed, while access to education and skills is undoubtedly a precondition for social equity, it is not a panacea. Rather, conceiving of skills as the main equity tool means placing the responsibility for social exclusion on the individuals (and their alleged lack of skills) rather than viewing it as a question of social order.

This individualistic view on skills, predominant in many IOs, is also reflected in a fragmented or omissive perspective on education and VET as complex institutionalised systems. Here, a rather unexpected finding of the literature analysis points to the fact that some economically oriented IOs, including the World Bank and the IDB, show a strong system perspective on VET in calling for a fundamental strengthening of the whole VET system, rather than advocating a skills-on-demand approach. However, often these systemic perspectives are firmly rooted in human capital approaches to education and VET, conceptualising VET reforms with the sole purpose of enhancing market responsiveness rather than more holistically. UNESCO, on the other hand, deploys a different approach emphasising the potential role of VET institutions and systems for broader social change and learners' empowerment. In so doing, it underlines the learners' perspective on VET, which goes beyond short-term employability. UNICEF also references the learners' perspective in emphasising young people's agency. Moreover, occasional references can be found in OECD, ILO and ETF's publications. However, in general, the employers' perspective is undoubtedly predominant across the whole body of IO literature on green skills.

The thematic field of ecological challenges and solutions is not discussed in a very sophisticated way throughout the IO literature on green skills. There is mostly a focus on climate change, and the solution is viewed in decarbonisation and resource efficiency by means of technological innovation and awareness raising.

As for the field of social and human development, social equity is present as an objective of green transitions across the IO literature, although some IOs emphasise it more than others, with the World Bank and IDB having little to no reference. However, the claim for social equity mainly materialises in reference to perceived underprivileged groups and the leave no one behind approach through targeted interventions. It is not surprising that the topic of decent work, tripartite social dialogue and trade unions is clearly underdeveloped compared to the attention the private sector receives. A contextualised reading of the respective codes reveals that there is much lip service rather than real emphasis, and it often remains unclear what the term 'social dialogue' refers to. This is especially true for the development banks, although ADB has a much more nuanced discourse than the World Bank and IDB. The exception to this is the ILO and, to some extent, the OECD, with a strong discourse on decent work and workers' perspectives. What is unexpected, however, is that UNESCO also appears to be quite weak in conceptualising decent work and workers' agency as important topics in VET.

The analysis in the field of actors and partnerships clearly shows a strong bias across the whole body of IO literature towards the private sector as the by far most frequently mentioned actor and preferred cooperation partner. Trade unions, communities or civil society organisations receive substantially less attention.

While women as a special target group are frequently mentioned in the overall green skills debate by IOs, there are not many publications specifically dedicated to a gender analysis of green skills topics. The few that exist (ETF 2024; UNICEF 2023) present rather sobering findings: In general, gender asymmetries tend to be reproduced in the green transition. Given that most newly created jobs are in STEM fields, with traditionally lower rates of female employment, women tend to benefit much less from the job creation potential of the green

transition than men. This finding appears to strengthen those approaches that call for a much broader transformation than the one defined in green growth terms.

While marginalised and underprivileged groups are present in many publications, there is little reflection on what a just transition could mean for them. Usually, targeted interventions are advocated for in an effort to 'leave no one behind'. The literature hardly ever discusses the root causes of their exclusion or aspirations expressed by these groups themselves. Similarly, little attention is dedicated to informal workers, although in many low-income countries they constitute the majority of the workforce and are active in many ecologically relevant sectors.

Last but not least, it should be mentioned that the question of power is very weakly mentioned throughout the IO literature on green skills. This reflects the weak perception of the radically transformative approach in the IO literature.

To summarise, the findings of this literature analysis point to a conception underlying green skills discourses of IOs firmly rooted in the predominant growth-oriented macroeconomic paradigm. Nuances and differences in these underlying conceptions are visible in thematic fields such as education/VET or social and human development rather than in macroeconomic conceptions. What is remarkable is that the impact of the degrowth approach and its call for a break with the current paradigm is negligible in the IO's green skills discourses. Transformative thinking is very limited, at best visible in the thematic field 'education and VET' in UNESCO's work. Issues of social equity and decent work are strongly present, allocating the discourse of organisations such as the ILO, ETF, OECD and UNICEF in the reformist discursive category. This is not the case for the development banks that have an incrementalist discourse. The exception here is the ADB, whose discourse is in general more heterogeneous, catering more for social concerns and deploying broader understandings of the terms in question than the other banks. For the UN organisations, it can be observed that their discourse is most nuanced in their respective mandates (such as education/VET for UNESCO, decent work for ILO, children's agency for UNICEF), but surprisingly unsophisticated in other thematic fields. This might suggest a lack of exchange between the UN organisations.

## 8. Recommendations

Given that green skills are increasingly becoming an area of intervention for international cooperation and a field of interest for academic research, a few recommendations at the policy and research level shall be derived from the above findings.

- Green skills policies and interventions should be based on a **broad understanding of the term**, including technical and work-related skills as well as green competences and skills for individual and collective agency.
- To avoid fragmented approaches, **green skills interventions should be developed considering the broader contexts** of a) the given education/VET systems; b) the given labour market dynamics, including the informal sector; and c) other relevant policies such as environmental, labour market, gender, social security, education/VET, industrial and others.
- Government bodies and donors should avoid designing green skills policies or interventions with the sole purpose of satisfying companies' immediate workforce requirements. Rather, such **designs should reflect balanced purposes** serving the greening of the economy in the same way as learners' and workers' requirements of holistic educational pathways beyond short-term employability as well as societal requirements of broadly increased sustainability awareness.
- While partnership with the private sector is important, **dialogue** should be sought **with a much broader range of stakeholders** including trade unions or other bodies of workers representation, communities, women associations, civil society organisations and

others. This is indispensable to help avoid exploitative labour arrangements and to integrate the workers' and learners' perspective in green skills policies.

- Offering holistic educational pathways implies strengthening the **interlinkages and permeability between general education and VET** to allow for upward social mobility of VET learners. It also implies **strengthening academic content, including education for sustainability, in VET curricula**.
- At the system levels, government bodies and donors should avoid designing green skills interventions in a way to furthering fragmentation and hollowing out of education/VET systems. This implies investing in a **general strengthening of VET systems** including in public regulation capacities for private providers specified in green skills training. This might be necessary to avoid implications on equity of access and quality.
- A further implication is that government and donor policies should keep in mind that **solid basic education** is key for any further training, in particular in view of empowering disadvantaged groups. Investments in green skills interventions must therefore not come at the expense of lower secondary education budgets.
- Policy **focus** should be placed on a) developing green skills interventions for **informal sector workers** and **subsistence farmers** in close cooperation with their associations; b) analysing the labour market and green transition dynamics through a **gender lens** as a basis to avoid reproducing a gender bias in green skills interventions.
- At the level of **research**, the academic VET community should seek **stronger exchange with Education for Sustainable Development and critical learning approaches**. These more pedagogically oriented debates used to be focussed on, if not confined to, general education, which has strengthened a narrow technical understanding of VET's role in the green transition. In addition, the **degrowth approach** should be more strongly discussed in the field of education and VET as to its potential contributions to the green skills debate. Last but not least, green skills research should increasingly **address non-formal forms of work**, including in the informal economy, subsistence agriculture and care work.

## 9. Concluding remarks

This paper is based on the initial observation that there is little clarity in the international academic and policy debates on green skills about the actual meaning of the term. To the contrary, seen in the context of skills for green and just transitions, there is a remarkably broad spectrum of different understandings from minimally additive to radically transformative. To shed some light on the underlying conceptual understandings of major actors framing the debate with a focus on low- and medium-income countries, we have undertaken a literature analysis of publicly available documents from nine international organisations active in the field. The findings indicate that while there are conceptual differences in thematic fields such as education/VET or social and human development, understandings are firmly rooted, whether explicitly or implicitly, in the existing macroeconomic growth paradigm. The transformative content of the debate can be considered very limited.

The question arises whether such a predominantly incrementalist or additive understanding of green skills is suitable for achieving green and just transitions, specifically in the context of low- and medium-income countries. Will it be helpful to solve the multiple problems VET is expected to solve, from employability to greening, to social equity and inclusion? We suggest that a profound conceptual debate is needed around the key question of whether an additive approach is sufficient or rather a transformation is required, and what this should look like.

Given the paucity of conceptual research on this topic, we hope that our study will stimulate further discussion in this field.

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## About authors

**Marcela Victoria Catalán Lorca** is a Master's student in Development Studies at the University of Vienna with a background in Psychology (MSc Mind and Brain). Her research focuses on social movements and social transformation, exploring the psychological, structural, and material factors that influence collective action. During her work at ÖFSE, she contributed to a project on transformative education in development cooperation, focusing on TVET, skills development, and education policies.

**Margarita Langthaler** is a researcher in the field of education and development. In her work, she focuses on education strategies in the context of development cooperation, on TVET and skills development and on education policies in developing countries. She is a political scientist and philologist by training and has been a researcher at ÖFSE since 2003.

## Annex I

### List of coded documents

*Documents are listed for each organisation in chronological order, regardless of authorship.*

#### **African Development Bank (AfDB)**

ILO /AfDB (2023): Building pathways to sustainable growth. Strengthening TVET and productive sector linkages in Africa.

#### **Asian Development Bank (ADB)**

ADB (2011): Social Dimensions of Climate Change: Adaptation, Water, Energy and Green Employment. Policy Brief. 4 October 2011. Millennium Seoul Hotel, Republic of Korea.

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Hughes, Kate / Rescalvo, Miguel (2021): Just Transition Beyond the Energy Sector. ADB Briefs No. 195.

ADB (2022): Strategy 2030. Education Sector Directional Guide

Jun, Dukwoo / Vandenberg, Paul / Shin, Meekyung /Seo, Jiyoun (2023): The Role of Tertiary Education for Green Transition: Initiatives in the Republic of Korea. ADB Brief No. 287.

Tsironis, Alexander (2023): Preparing the Workforce for the Low-Carbon Economy: A Closer Look at Green Jobs and Green Skills

ADB (2024): Climate Change and Education Playbook. Investing in Education and Skills for Climate Resilience in Asia and the Pacific.

ADB (2024): Quality jobs and the future of work in Asia Pacific. Impacts of a Triple Transition – Demographic, Digital and Green.

#### **European Training Foundation (ETF)**

ETF (2021): Skills for Green and Inclusive Societies in the Digital Era.

CEDEFOP/ETF/European Commission /OECD/ILO/UNESCO (2022): Work-based Learning and the Green Transition. Interagency Working Group on Work-Based Learning.

ETF (2023): Skilling for the Green Transition. ETF Policy Briefing. Evidence, Practice & Advice for Policy Makers.

ETF (2023): GRETA – Greening Responses to Excellence through Thematic Actions. Greening of Vocational Education and Training: Processes, Practices and Policies.

ETF (2023): Skills for the Green Transition. Evidence from the EU Neighbourhood.

ETF (2024): From Awareness to Action: Engaging Youth in the Green Economy and Climate Action.

ETF (2024): Navigating the future. How the colours of the economy shape the future of skills and work. An ETF Policy Brief.

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Bos, María Soledad/Schwartz, Liora (2023): Education and Climate Change: How to Develop Skills for Climate Action at School-Age? IDB Education Division. Policy Brief N. IDB-PB-00376.

IDB (2023): Skills for Work in Latin America and the Caribbean. Unlocking Talent for a Sustainable and Equitable Future. Dossier.

Findlater, Emma/Näslund-Hadley, Emma/Acosta, Ingrid/Prada, Maria Fernanda/Eckardt, Mario (2024): Building a Skilled Workforce for the Green Transition. The Changing Technical and Vocational Education Landscape in Belize. IDB.

### **International Labour Organization (ILO)**

ILO (2011): Skills for Green Jobs. A Global View. Synthesis Report Based on 21 Country Studies.

ILO (2013): Meeting Skills Needs for Green Jobs: Policy recommendations.

ILO (2014): Greening the Economies of Least Developed Countries: The Role of Skills and Training. Skills for Employment. Policy Brief.

ILO/UNESCO UNEVOC/Ministère de la Transition Écologique et Solidaire, France/Agence Française de Développement(2017): Advancing Green Human Capital. A framework for policy analysis and guidance.

ILO (2018): Greening with Jobs. World Employment Social Outlook

ILO (2019): Skills for a Greener Future. Bases on 32 country studies.

ILO (2021): Greening Guidelines for TVET institutes.

ILO (2022): Greening TVET and Skills Development. A Practical Guidance Tool.

ILO (2022): Skills development for a just transition. Just Transition Policy Brief.

ILO (2024): Decent Work in Nature-Based Solutions. Unlocking Jobs through Investment in Skills and Nature-Based Infrastructure.

### **Organization for Economic Cooperation and Development (OECD)**

OECD (2013): Greener Skills and Jobs for a Low-Carbon Future. OECD Green Growth Papers 2013-10.

OECD (2013): Trends Shaping Education 2014 Spotlight 4.

OECD (2018): Boosting Skills for Greener Jobs in the Western Cape Province of South Africa. OECD Green Growth Papers 2018-01.

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OECD (2023): Assessing and Anticipating Skills for the Green Transition: Unlocking Talent for a Sustainable Future, Getting Skills Right.

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OECD (2024): OECD Employment Outlook 2024. The Net-Zero Transition and the Labour Market.

OECD (2024): Cultivating Green Futures: Helping Students Understand and Progress Towards Green Jobs. OECD Education Policy Perspectives No. 104. Directorate for Education and Skills.

### **United Nations Educational, Scientific and Cultural Organization (UNESCO)**

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UNESCO-UNEVOC/CEDEFOP (2024): Meeting Skills Needs for the Green Transition. Greening TVET for a Greener Future. UNESCO-UNEVOC/CEDEFOP Practical Guide (Vol. 1) – Brief.

Giannini, Stefania (2024): Bridging the Green and Digital Transitions through Education. UNESCO.

### **United Nations International Children's Emergency Fund (UNICEF)**

UNICEF (2021): Empowering the Workforce of Tomorrow. The Role of Business in Tackling the Skills Mismatch Among Youth.

UNICEF (2022): Protect, Prepare, Prioritize. A Call to Action on Climate and Children.

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UNICEF (2023): A Gender Mapping of the Green Economic Transition in Europe and Central Asia. UNICEF Europe and Central Asia Regional Office.

UNICEF Innocenti (2023): Accelerating 'Green' School-to-Work Transitions. UNICEF Innocenti – Global Office of Research and Foresight.

UNICEF/ILO/ the World Bank (2024): Skills for a Green Transition. Solutions for Youth on the Move.

## **The World Bank (WB)**

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Bowen, Alex (2012): 'Green' Growth, 'Green' Jobs and Labor Markets. Policy Research Working Paper 5990. The World Bank Sustainable Development Network. Office of the Chief Economist.

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## Annex II

### Themes and codes – Complete set

Themes field	Code
<b>Ecological challenges and solutions</b>	
	Focus on climate change
	Technological solutions
	Decarbonisation and resource-efficiency
	Climate change and biodiversity loss, environmental degradation
	Technology plus circular economy solutions
	Ecological and social crisis
	Climate justice (North-South dimension)
	Structural transformation solution
	Consumption and production
	Green colonialism
	Disruption of growth paradigm solution
	Economic democracy, decommodification, planned resource reduction
<b>Macro-economic paradigm</b>	
	Green growth
	Inclusive green growth
	Social justice and human wellbeing
	De-growth
<b>Perspective on transitions</b>	
	Green transition without just
	Job creating potential
	Twin transitions (focus on digital)
	Green and just transitions
	job creating potential, but also losses
	Transitions embedded in societal transformation towards social justice
	Sceptical view on digital
	degrowth perspective
<b>Social and human development</b>	
	Growth brings social development
	Growth plus social policies
	Some notion of equity
	Focus on social and distributive policies
	Human development based on community perspectives
<b>Power</b>	
	Leave no one behind
	Some notion of power and political agency
	Critique of power structures
	Alternative (community) power concepts
<b>Work</b>	
	Productivity and income
	Focus on formal sector work
	Productivity plus attention to informal
	Decent work (weak)
	Productivity paradigm questioned
	Reality of non-formal work
	Decent work (strong)
	Holistic understanding of working and living together

<b>(Green) Skills</b>	
	Technical and work-related green skills
	Skills for employability and productivity
	Technical skills and green competences
	Skills for employability plus life skills
	Environmental education
	Foundational skills
	Broad and context-dependent notion of green skills
	Skills for agency
<b>Education and VET</b>	
	Human capital perspective
	Industry need approach to VET (no system perspective on VET)
	Skills mismatch (strong)
	Market demand (strong)
	Entrepreneurial skills (strong)
	Technical notion of greening VET
	Some system perspective on VET
	Some notion of greening VET
	Skills mismatch (weak, contextualised)
	Market demand (weak, contextualised)
	Entrepreneurial skills (weak, contextualised)
	Human development and social purpose of education/VET
	Systemic perspective on education/VET
	Pathways for people approach to VET
	Need for strong basic education
	Holistic notion of greening VET in context of transforming VET
	Learners' perspective
	Regional skills ecosystems
	Transformative learning, agency, critical reflection, change-oriented action
	Holistic ways of learning, working and living together
	Transgressive learning, change oriented
<b>Actors</b>	
	Private sector
	Governments
	Private VET providers
	Public education and VET institutions
	Marginalised groups
	Women and girls
	Learners
	Workers
	Informal workers
	Teachers
	Communities
	Trade unions
	Civil society
	Local and regional actors
<b>Cooperation and dialogue</b>	
	Government and private sector (focus)
	Private sector, government, VET providers
	Tripartite social dialogue (weak)
	Tripartite social dialogue (strong)
	Local and community actors

## Annex III

### Themes and codes – Restricted set for data analysis

Themes	Selected codes for data analysis
<b>Ecological challenges and solutions</b>	
	Focus on climate change
	Decarbonisation and resource-efficiency
	Climate change and biodiversity loss, environmental degradation
	Consumption and production
<b>Macro-economic paradigm</b>	
	Green growth
	Inclusive green growth
	Social justice and human wellbeing
<b>Perspective on transitions</b>	
	Green transition without just
	Job creating potential
	Green and just transitions
	Job creating potential, but also losses
<b>Social and human development</b>	
	Growth plus social policies
	Some notion of equity
<b>Power</b>	
	Leave no one behind
	Some notion of power and political agency
<b>Work</b>	
	Productivity plus attention to informal
	Decent work (weak)
	Decent work (strong)
<b>(Green) Skills</b>	
	Technical and work-related green skills
	Technical skills and environmental education
	Environmental education
	Broad and context-dependent notion of green skills
	Skills for agency
<b>Education and VET</b>	
	Human capital perspective
	Market demand (strong)
	Some system perspective on VET
	Some notion of greening VET
	Systemic perspective on education/VET
	Holistic notion of greening VET in context of transforming VET
	Learners' perspective
<b>Actors</b>	
	Private sector
	Marginalised groups
	Women and girls
	Learners
	Informal workers
	Communities
	Trade unions
<b>Cooperation and dialogue</b>	
	Private sector
	Tripartite social dialogue (weak)
	Tripartite social dialogue (strong)
	Local and community actors

## Annex IV

### Allocation of codes to discursive categories (restrictive set of codes)

Just as the boundaries between discursive categories are fluid, only a few codes can be clearly assigned to a single discursive category. Most codes fall into two of the three categories, according to the context. Where brackets are used, this indicates that the corresponding code should only be assigned to this category in exceptional cases depending on the respective context.

Theme	Code	Discursive Category		
		Incrementalist	Reformist	Transformative
<b>Ecological challenges and solutions</b>				
	Focus on climate change	X	X	
	Decarbonisation and resource-efficiency	X	X	
	Climate change and biodiversity loss, environmental degradation		X	X
	Consumption and production		(X)	X
<b>Macro-economic paradigm</b>				
	Green growth	X	(X)	
	Inclusive green growth		X	
	Social justice and human wellbeing			X
<b>Perspective on transitions</b>				
	Green transition without just	X		
	Green and just transitions		X	
	Job creating potential	X	X	
	Job creating potential, but also losses		X	
<b>Social and human development</b>				
	Growth brings social development	X		
	Growth plus social policies		X	
	Some notion of equity		X	(X)

<b>Power</b>				
	Leave no one behind		X	
	Some notion of power and political agency		X	
<b>Work</b>				
	Productivity plus attention to informal		X	
	Decent work (weak)	(X)	X	
	Decent work (strong)		X	(X)
<b>(Green) Skills</b>				
	Technical and work-related green skills	X	X	
	Technical skills and green competences		X	
	Green competences		X	(X)
	Broad and context-dependent notion of green skills			X
	Skills for agency			X
<b>Education and VET</b>				
	Human capital perspective	X	(X)	
	Market demand (strong)	X	(X)	
	Some system perspective on VET	(X)	X	
	Some notion of greening VET		X	
	Systemic perspective on education/VET		(X)	X
	Holistic notion of greening VET in context of transforming VET			(X)
	Learners' perspective		(X)	(X)
<b>Actors</b>				
	Private sector	X	X	
	Marginalised groups	(X)	X	X
	Women and girls	(X)	X	X
	Learners		X	X
	Informal workers		X	X
	Communities		X	X
	Trade unions		X	X

<b>Cooperation and dialogue</b>				
	Private sector	X	X	
	Tripartite social dialogue (weak)		X	
	Tripartite social dialogue (strong)		X	X
	Local and community actors		X	X