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# EARLY CHILDHOOD DEVELOPMENT AND CLIMATE SERVICES

Understanding synergies and entry points for integration

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ECDAN Knowledge Fellows  
program project

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## Abbreviations

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|        |                                                 |
|--------|-------------------------------------------------|
| AA     | Anticipatory action                             |
| CS     | Climate services                                |
| ECD    | Early childhood development                     |
| ECDAN  | Early Childhood Development Action Network      |
| EWS    | Early warning systems                           |
| GFCS   | Global Framework of Climate Services            |
| NGO    | Nongovernmental organization                    |
| NOAA   | National oceanic and atmospheric administration |
| RCC    | Regional climate centre                         |
| RCOF   | Regional climate outlook forum                  |
| UNICEF | United Nations Children's Fund                  |
| WHO    | World Health Organization                       |
| WMO    | World Meteorology Organization                  |

## Executive Summary

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Climate Services (CS), defined as “*the provision and use of climate data to inform decision-making*,” is an essential discipline for climate adaptation and resilience planning.<sup>1</sup> They play a crucial role in anticipating, preparing for, and responding to climate risks.

Young children are among the most vulnerable to climate-related threats, with early childhood development (ECD) directly affected by food insecurity, health risks, and service disruptions.<sup>2,3</sup> However, climate policies often overlook the specific needs of young children.<sup>4,5</sup>

ECD interventions must be integrated into climate strategies to enhance climate resilience, ensuring climate adaptation efforts are effective, equitable, and sustainable. Integrating ECD and CS can strengthen risk assessments by linking child-focused data with climate information. Moreover, there are strengths within the way stakeholders plan and implement ECD interventions (such as community engagement and multi-sectoral coordination) that can enhance the efficiency of climate adaptation strategies. Additionally, joint ECD-CS initiatives can unlock funding opportunities, positioning early childhood as a key component of sustainable climate adaptation.

This integration can occur across the different levels at which CS operates including the global, regional, national, and local levels. The report outlines five key areas for integration:

1. **Embedding ECD into CS governance** - Engaging policymakers to integrate early childhood considerations into national and global climate frameworks, policies, and plans.
2. **Linking ECD and climate information systems** - Connecting child-focused data (e.g., malnutrition rates, education disruptions) with climate forecasting models.
3. **Developing climate-sensitive ECD programs** - Strengthen the climate considerations in the design and implementation of early learning and health initiatives.
4. **Strengthening local CS for families and caregivers** - Ensuring climate information is accessible and actionable for those caring for young children.
5. **Securing resources to enhance integration of ECD and CS** - Developing joint funding proposals, accessing available resources to support integration, and advocating for child-sensitive climate adaptation.

To implement these strategies, it will require policymakers, climate experts, and early childhood specialists to collaborate in bridging the critical gap between ECD and CS. With intentional integration, investment in ECD can become a transformative force in climate resilience, ensuring that young children’s needs are no longer left out of climate plans and action.



# 1. Introduction

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CS are defined as “*the provision and use of climate data to inform decision-making*”.<sup>1</sup> They bridge the gap between raw climate data and actionable strategies, enhancing climate adaptation efforts.

Early childhood development is defined as the period from conception through a child’s first eight years of life.<sup>6,7</sup> This is a critical period that shapes lifelong development, influenced by various factors such as health, nutrition, education, and social protection. Young children are one of the most vulnerable populations to climate risks.<sup>8</sup> Young children’s developmental needs intersect directly with climate risks, from food insecurity to health vulnerabilities.<sup>2,3,9</sup>

CS cannot be fully effective without considering these developmental dimensions. Therefore, taking young children’s development needs into consideration and investing in ECD are critical components of effective climate adaptation, reinforcing resilience in climate policies and systems. Integrating ECD is essential to protecting the most vulnerable, strengthening sustainability, and advancing intergenerational justice.

For successful integration, ECD professionals need a clear understanding of how CS operate, the role they play, and how they function from data collection to application at global, regional, national, and local levels. Since both fields rely on transdisciplinary collaboration, strengthening these connections can lead to more effective, child-centered climate strategies. To guide this analysis, the project was structured around the following key research questions:

- *How does the Climate Services ecosystem work, and what are the main entry points for Early Childhood Development to effectively take part in climate services efforts?*
- *Which are relevant examples of initiatives working around Climate Services that could have/can draw synergies with Early Childhood Development?*
- *What lessons learned from the Climate Services sector could enhance the effectiveness of Early Childhood Development initiatives?*
- *How do those specific Climate Services initiatives work, and which are the entry points Early Childhood Development could have in the development process of those specific initiatives, if they were to be redefined?*

This brief introduces CS to ECD practitioners and policymakers. It proposes practical insights and tools for integrating ECD into CS. It is intended for use by ECD practitioners, as well as climate and ECD policymakers.

The report describes the CS value chain, key stakeholders, data applications, and funding landscape, building a case on why and how to integrate ECD into CS. It highlights transdisciplinarity as a vital tool for collaboration and concludes with strategic entry points for ECD stakeholders and objectives within the CS ecosystem. In this context, “entry points” refer to aligned and/or complementary aims, expertise, or institutional/systems processes that are compelling opportunities for integrating a focus on young children within CS efforts.

## 2. Methodology

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This project employed a multi-phased research approach. The methodology was structured into three main components:

- **A report with an overview of CS and practical insights and tools to integrate ECD into CS.** This report synthesizes findings from the literature review and key informant interviews to offer practical insights for ECD practitioners.
- **A limited mapping of relevant CS organizations and initiatives.** This component identifies examples of organizations working in the CS space with potential intersections with ECD. The mapping highlights key attributes such as the scope of work, structure, and geographical focus. The selection criteria prioritize initiatives that operate at local and regional levels that address context-specific climate challenges, where ECD interventions could add significant value. The mapping results are presented in the [Annex 1](#), as a reference for potential partnerships and collaborations.
- **Deep-dive case studies of three selected initiatives.** Based on the mapping exercise, three CS initiatives were selected for in-depth case studies. The case studies examine how ECD could be integrated into these initiatives, exploring lessons learned and opportunities for ECD integration into these specific initiatives. The selection criteria for these case studies considered initiatives in highly climate-vulnerable regions, with strong integration of climate data and social considerations. These case studies provide a detailed analysis of real-world applications and help validate and expand the general entry points for ECD identified in the broader report. They are found in [Annex 2](#).

### Research Methods

A combination of research methods was used to inform the study:

**a) Desk research.** Desk research served as the foundation for this study. It included a literature review of academic papers, institutional reports, and materials from both the CS and ECD sectors. This phase aimed to outline the CS ecosystem, as well as key areas where ECD can integrate within this space. In addition to informing the conceptual framework, desk research provided background for the mapping of relevant CS organizations and initiatives, as well as for the case studies. Materials from identified organizations were analyzed to understand their scope, structure, and potential synergies with ECD. This research also led to a description of transdisciplinarity found in [Annex 3](#).

**b) Key informant interviews.** Key informant interviews were conducted to gather expert insights and real-world perspectives on the integration of ECD within CS initiatives. Stakeholders from selected organizations provided insights that helped elaborate and refine the overall report, as well as to develop concrete entry points. The list of key informants for this study can be found in the [Annex 4](#).

### 3. ECD in a climate context

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ECD experiences shape lifelong development and are influenced by a myriad of factors, including health, nutrition, education, and social protection.<sup>7</sup> Because of these diverse influences, ECD is inherently interdisciplinary. Although related fields such as health and education are already engaged in climate-related discussions, ECD offers a unique perspective by focusing specifically on the interconnectedness of these sectors during a critical period of life.

The climate crisis is increasingly recognized as a child rights crisis, with young children among the most vulnerable due to their limited capacity.<sup>8</sup> Their well-being relies on their caregivers' ability to either directly provide or access essential services including healthcare, education, water and sanitation, and nutrition, that can all be directly disrupted by climate shocks. For example, a recent report by the United Nations Children's Fund (UNICEF) showed that in 2024, extreme climate events disrupted the education of at least 242 million students across 85 countries.<sup>3</sup> Climate change affects children's physical, mental, and developmental health, with nearly 90 percent of the disease burden falling on children under five.<sup>10,11</sup> Beyond physical risks, they also face heightened exposure to trauma and mental health challenges, leading to lasting developmental consequences.<sup>12</sup>

These challenges position early childhood at the frontlines of the climate crisis, yet climate policies and adaptation strategies rarely account for their unique needs. For climate adaptation strategies to be truly effective, equitable, and sustainable, they must incorporate early childhood considerations. CS offer a crucial opportunity to embed a focus on young children into decision-making by facilitating transdisciplinary collaboration and providing data-driven insights on how and why climate affects young children's development. Within the climate ecosystem, CS stand out as one of the few fields that increasingly recognizes the importance of integrating a focus on ECD into the discussions, as shown in the latest edition of the World Meteorological Organization (WMO) "State of Climate Services" report, which included a call for a "child-centered approach to CS".<sup>13</sup>

### 4. Understanding climate services

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#### 4.1 From data to decision-making

CS play a critical role in supporting climate-resilient development by enabling improved adaptation, mitigation, and planning strategies.

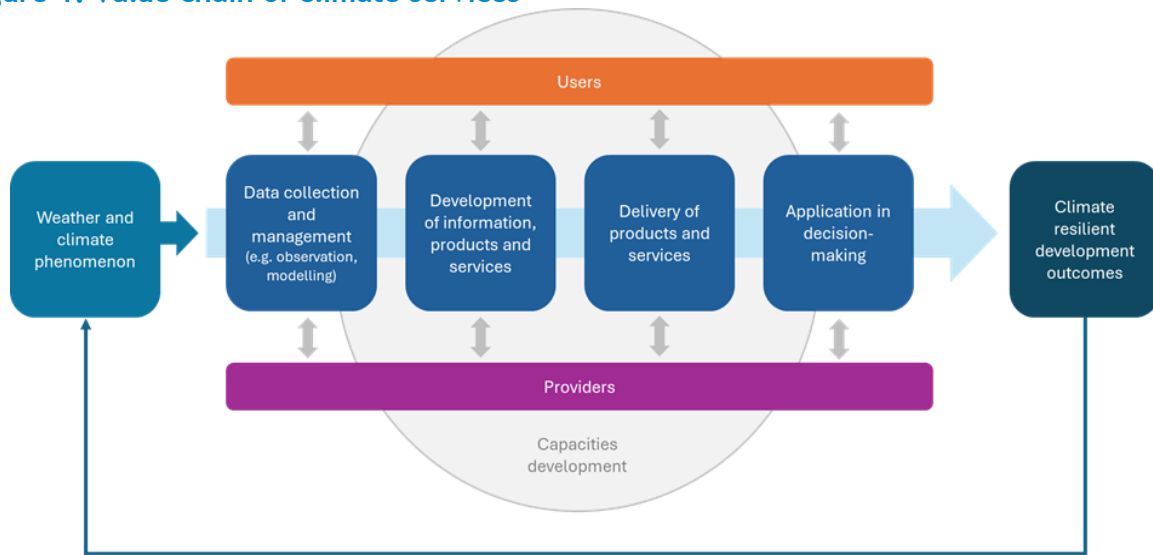
CS operate through a value chain (see Figure 1) that transforms raw weather and climate data into actionable insights. This process begins with weather and climate data collection. Data is transformed into products/services, which are then tailored to specific users through iterative feedback<sup>14</sup>. The products and services can range from basic offerings, such as historical rainfall records typically provided by national climate services or meteorological agencies, to more specialized and targeted services. As user engagement increases, the services become more customized. In these cases, climate scientists collaborate with experts from other





disciplines to co-produce knowledge that integrates the implications of climate data into decision-making. Users apply this information in decision-making, while their interactions with providers through the value chain strengthen their respective capacities.

**Figure 1. Value chain of climate services**



Source: Adaptation based on Hewitt C, Mason S, Walland D. The Global Framework for Climate Services. *Nature Climate Change*. 2012;2(12):831-832. <http://dx.doi.org/10.1038/nclimate1745>  
Climate Sense. *Climate Services: Principles, Requirements, and Guidelines*. Climate Sense; 2022. <https://www.ukclimateresilience.org/wp-content/uploads/2021/01/Climate-Services-Standard-Final-for-Publication.pdf>

CS operate across a broad spectrum, encompassing the generation of technical climate information and its application in tailored, context-specific scenarios. This spectrum includes three primary categories of engagement between CS providers and users, as illustrated in Figure 2, although generally CS happen simultaneously across different categories.

Figure 2. Engagement between Climate service providers and users

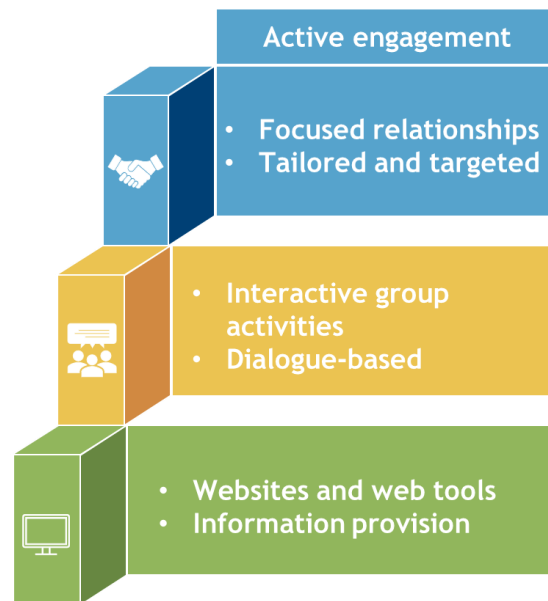


Figure adapted from Hewitt CD, Stone RC, Tait AB. Improving the use of climate information in decision making. *Nature Climate Change*. 2017;7(9):614-616. <http://dx.doi.org/10.1038/nclimate3378>

While CS can take place at a single level in the ecosystem (i.e., local, national, regional, or global), its value increases when integrates data and/or inputs from different levels. For example, national climate data can be aggregated at regional and global levels, providing insights into broader trends. These outputs are subsequently reinterpreted at the national level, incorporating local and global phenomena to refine national models. On the other side of the CS spectrum, particularly in decision-making, CS lessons learned from context-specific projects can be grouped as good practices to replicate at a wider scale. Tailored and targeted CS involve co-production with the user and ensures that adaptation measures directly address the identified challenges within a given context.

CS enhance resilience by enabling anticipation and preparedness for climate variability and extremes. In this sense, research demonstrates that it is more cost-effective to anticipate and prepare for climate events rather than deal with the consequences of those.<sup>6</sup> CS play a crucial role in feeding disaster risk reduction (DRR) plans, early warning systems (EWS), and climate adaptation strategies. EWS provide short-term alerts for imminent climate threats. In contrast, climate adaptation strategies focus on long-term resilience.

Historically, agriculture has been an often-cited example of CS applications. For example, historical seasonal weather forecasts are processed by CS organizations to model predictions, which farmers can then use to plan harvest schedules and optimize yields. However, the evolving scope of CS now spans various sectors, including disaster risk reduction, public health, urban planning, and natural resource management. For example, according to E. L Miles, et. al (2006), CS allowed the US to predict 6 months in advance the impacts of El Niño in 1997-1998, resulting in an estimated 850 lives saved and about \$20 billion in economic gains.<sup>15</sup> As indicated in the World Meteorological Organization State of Climate Services Report, CS provides answers to pressing questions like:<sup>13</sup>

- *Should I plan a vaccination program in my region based on the likely impact of forecasted rainfall?*
- *Is our city's infrastructure resilient to projected changes in extreme rainfall under a changing climate?*

Originally focused on meteorological data, CS are evolving into knowledge-sharing platforms that connect climate and non-climate experts through specific projects. They bring together specialists from climate science, economics, health, and development, helping to turn scientific data into practical solutions. This cross-sector collaboration improves climate responses, making them more coordinated, relevant, and effective.

The structures CS have developed could be leveraged to include a focus on young children in climate-related data collection and decision making, contributing to climate adaptation strategies that are fair and sustainable across generations. In addition, since CS are sometimes criticized for lacking real-world impact, a practical focus on young children can help by making climate solutions more actionable and tailored to the local needs of children and caregivers. It can also help to mobilize the community in climate action.

## 4.2 Institutions and stakeholders

Effective CS are the result of a wide ecosystem of institutions and stakeholders working at various levels, from global to local. The key is the integration between levels, and therefore effective initiatives often combine localized expertise with broader institutional support, leveraging global or national inputs to enhance contextual relevance. This ecosystem and its key stakeholders and focus are described below.

**Global level - Coordination and policy development:** The Global Framework for Climate Services (GFCS), led by the World Meteorological Organization (WMO), is the main platform for international coordination of CS. It is responsible for developing new CS infrastructure where needed to meet society's climate-related challenges, therefore making GFCS a element to consider when planning how to integrate a focus on ECD.<sup>16</sup> This integration can be realized through at least three approaches:

- **Policy development.** The GFCS is the key actor to approach about integrating of ECD considerations into CS policies, which should explicitly address the vulnerabilities and needs of young children in the context of climate change.
- **Capacity development.** Both around climate science and ECD, to be able to reduce the gaps in the understanding of how climate processes work and how those processes influence ECD systems.
- **Generation of information.** Coordinating with GFCS is important to identify what data and information is required to improve CS models' ability to predict climate impacts on young children and ensure these systems are set up.

GFCS plays an important role in the United Nations's [Early Warnings for All \(EW4All\)](#), which aims to ensure that every person on Earth is protected by early warning systems by 2027. While young children are not explicitly considered in this framework, the annual Multi-Stakeholder Forum is a good opportunity to work on highlighting young children and their caregivers specifically in early warning policies. This event convenes climate and non-climate experts to share experiences, aiming to enhance global early warning systems.

**Regional and national levels - Tailored climate information:** Regional Climate Centers (RCCs), and Regional Climate Outlook Forums (RCOFs) play a central role in delivering tailored climate information, as they support national climate agencies in each region to deliver improved CS to national users.<sup>17</sup> RCCs organize climate outlook forums, gathering national meteorological services to receive and discuss forecasts. The forums also include representatives from various sectors (e.g., health) to assess the forecast's implications and develop sector-specific advisories.

National meteorological agencies, such as NOAA in the USA, IMD in India, and the Met Office in the UK, generate localized forecasts and data relevant to specific sectors.<sup>17</sup> They play a central role in developing National Frameworks for Climate Services (NFCs), which offer a crucial platform where ECD stakeholders can engage, integrate data, and coordinate capacity-building initiatives.

Given this is the level at which specific data is generated and tailored, the engagement of ECD stakeholders at this level is necessary to ensure that data collection strategies consider and reflect the needs of young children.

**Local Level - Contextual adaptation and resilience:** The practical application of CS to address specific community needs is done through initiatives led by different types of organizations and actors beyond formal institutions. Actors at this level include nongovernmental organizations (NGOs), local authorities, private firms, and consultants.<sup>18</sup> These efforts are crucial to ensure that climate information solves real-life problems.

Organizations engaged at this level typically use a bottom-up approach and have a strong local presence, while often collaborating with regional partners to ensure interaction with CS information at different levels. Integrating a focus on ECD into local CS initiatives is a strategic opportunity, as both fields have demonstrated high impact through community-driven, context-specific approaches. Champions, service providers, and ECD programs at the community level can enhance the effectiveness and sustainability of climate initiatives. Existing ECD community programs can incorporate climate considerations, increasing the overall integration of CS into early childhood-focused initiatives. Piloting a proof of concept at the local level could serve as a helpful model for influencing CS-ECD integration at higher levels.

**NGOs:** NGOs are playing an increasingly significant role in the contextual adaptation of CS, and its application in practice. There is a growing interaction between CS institutions and NGOs through joint knowledge-sharing initiatives. This connection offers additional opportunities for a focus on ECD to be integrated.

Some NGOs active in CS are global and blend global strategies with localized applications. Several focus on developing anticipatory action, with some explicitly prioritizing children, while others include children within broader focus areas such as inclusion, gender, or livelihoods. Examples of such NGOs active in CS activities that were notable during the creation of this project include:

- **International Federation of Red Cross and Red Crescent Societies Climate Centre** - They established the Red Cross Climate Centre in 2002 to reduce the impacts of climate change and extreme events on vulnerable people.

- **Save the Children** - They developed a [Framework for Anticipatory Action](#) that explains how anticipatory action fits within the scope of Save the Children's work. Save the Children has an anticipatory action team, which is expanding across the organization in country offices, as well as across other organizations.
- **Plan International** - They are also working around AA, leading a working group in the protection of inclusion and gender. Plan also developed a [report collating learnings and best practices](#) around AA, and coordinated the development of a [Guide and toolkit for Protection, Gender and Inclusion In AA](#).
- **CARE** - They developed a [guide of inclusive participatory scenario planning](#) that help translate national climate forecasts into actionable, livelihood-specific plans.

**Climate funders:** Lastly, international climate funders like the Green Climate Fund, FCDO, the World Bank, and the African Development Bank, among others, play a significant role in the CS space. These organizations drive the agendas for climate initiatives by defining the conditions and criteria under which climate funding is offered.

### 4.3 Data, knowledge, and applications

The relevance of climate data is not immediately obvious, and therefore it gains value when complemented with non-climate information clearly stating its social and economic benefits.<sup>19</sup> When the data is combined, it can tell a more complete story and produce climate products, categorized according to their specific function and purpose. These go from simple data services, such as access to raw climate data including temperature and precipitation, to tailored products, such as custom-designed climate information developed to meet the specific needs of a particular sector such as agriculture, or a user group). A description and examples of different climate products are provided in the table below.

**Table 1. Examples of climate products**

|                                         | Description                                                                                                                                      | Example                                                                                                                 |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>Data Services</b>                    | Provide access to raw climate data, such as temperature and precipitation, collected from observation networks.                                  | A meteorological organization providing real-time temperature data to farmers for agricultural planning.                |
| <b>Climate monitoring</b>               | Ongoing observation and tracking of climate variables (e.g., temperature) to identify long-term trends and anomalies.                            | A national meteorological service monitoring and reporting on drought conditions over several years in a region.        |
| <b>Climate analysis and diagnostics</b> | The use of historical data and statistical methods to analyze climate trends, variability, and underlying causes of climate phenomena.           | A study analyzing the causes of unusual rainfall patterns and their links to El Niño events in a specific area.         |
| <b>Climate predictions</b>              | Short-term forecasts (from days to months) of climate variables, based on patterns.                                                              | A seasonal prediction for an upcoming monsoon season, helping farmers in Southeast Asia plan crop cycles.               |
| <b>Climate change projections</b>       | Long-term projections (decades to centuries) of how climate variables may change due to natural and anthropogenic factors, using climate models. | A projection of future sea level rise along coastlines due to global warming, guiding urban planning in coastal cities. |

|                          | Description                                                                                                                          | Example                                                                                                                                  |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tailored products</b> | Custom-designed climate services and information products developed to meet the specific needs of a particular sector or user group. | A tailor-made climate risk assessment for a power company that identifies potential impacts of extreme weather events on infrastructure. |

Source: Adapted from categories in World Meteorological Organization. *2024 State of Climate Services Five-Year Progress Report (2019-2024)*. Geneva: United Nations; 2024.

<https://library.wmo.int/idurl/4/69061>

However, CS go beyond delivering technical climate data. They actively support decision-making by collaborating with stakeholders across different sectors and embedding climate knowledge into real-world contexts. Hewitt et al. emphasize that interactive group activities and co-development processes strengthen trust and make climate information more actionable for decision-makers.<sup>20</sup> Similarly, Jack et al. highlight the value of combining technical data with local knowledge to create solutions that address specific community needs while remaining adaptable to broader climate risks.<sup>21</sup> These efforts demonstrate that collaboratively sharing and developing climate knowledge is an effective approach to integrating climate information into planning.

The data collection, use, and co-creation process followed by CS would be relevant and beneficial for ECD actors due to its multisectoral nature. ECD outcomes depend upon coordinated interventions across multiple sectors, including health, education, nutrition, and social protection. This broad scope presents an opportunity, as many of these sectors are already engaged in climate discussions and possess valuable data and insights from both ECD and climate perspectives. By leveraging these connections, CS can help stakeholders better understand the specific risks of climate phenomena on young children and develop tailored risk assessments and interventions.

To ensure effective interventions, climate impact data should be disaggregated by age, recognizing that within the early childhood period, there are sub-sets with unique needs and characteristics (i.e., prenatal, infant, toddler, preschoolers, school-age) that requires tailored responses. Given this complexity, a focus on ECD can be integrated into existing sectoral initiatives, such as health programs, rather than creating separate efforts. An example of this could be the [CASCADE project](#), which aims to strengthen the resilience of African cities to climate change and health challenges through transdisciplinary collaboration. Leveraging ongoing programs and incorporating a child-centered perspective ensures smoother integration and greater impact.

## 4.4 Funding

Despite the increasing recognition of its importance, CS remain underfunded. While the global expenditure on climate adaptation was estimated at US\$63 billion in 2021/2022, a relatively small portion (approximately US\$4-5 billion) was explicitly dedicated to supporting CS and EWS.<sup>13</sup> This underscores the need for continued investment to close this gap and enhance the effectiveness of CS in supporting adaptation and resilience efforts worldwide, considering only 25 percent of the CS assessed in research by Vaughan have "sustainable" funding.<sup>22</sup>

The funding gap is not just about volume but also allocation. While many countries invest in improving climate data quality through national meteorological agencies, the effective



application of this data in adaptation measures or resilience development often receives less attention and investment. According to most of the professionals interviewed, it is no longer a matter of lack of data or knowledge, but rather the underutilization of it to drive impact.

In this context, CS and ECD can collaborate to emphasize that ECD is essential for the long-term sustainability and effectiveness of climate adaptation programs. As many innovative financing mechanisms are increasingly linked to climate sustainability, integrating a focus on ECD into climate planning and response can open the door to new opportunities for funding ECD initiatives. Development banks, climate funds (Such as the Adaptation Fund, Climate Investment Funds, Green Climate Fund, and the Global Environment Facility), international development agencies, and the private sector are key players in bridging the funding gap, and re-shaping climate agendas to include child-focused approaches.<sup>16</sup>

## 5. The case for integrating a focus on ECD into CS

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### 5.1 Impact, sustainability, and justice

Climate adaptation strategies cannot be truly effective, sustainable, or just if they fail to explicitly consider the specific needs of young children. Based on my analysis and the insights gathered through interviews for this project, embedding a focus on ECD into CS can help to ensure that climate policies by doing the following:

- **Protect the most vulnerable.** Since young children are among the most affected by climate risks, they deserve special consideration.
- **Strengthen sustainability.** It is far more cost-effective to anticipate and prepare for climate events than to deal with their consequences. Thus, supporting healthy development in the early years not only reduces future costs but also helps build adaptive capacity from an early age.
- **Advance intergenerational justice.** Recognizing that climate change is not just an issue of present-day impacts but one that disproportionately affects future generations highlights the importance of investing more in the youngest children to counteract the negative consequences they will inevitably face due to climate change. Integrating a focus on ECD into CS ensures that climate strategies do not merely respond to immediate risks but also invest in long-term solutions that safeguard children's well-being and future opportunities.

### 5.2 Leveraging ECD data for CS

A wealth of ECD data is already collected at global, national, and local levels, providing valuable insights into child health, nutrition, education, and social protection. For instance, organizations like UNICEF, the World Health Organization (WHO), World Food Programme, and the World Bank maintain comprehensive datasets on child well-being, such as the [Multiple Indicator Cluster Surveys](#), the [Demographic and Health Surveys](#), and the [Global Nutrition and Food Security](#) reports. National governments also collect data through education ministries, public health systems, and social welfare programs. Lastly, most ECD programs include a measurement, evaluation, and learning component. Common indicators include child growth, malnutrition, vaccination coverage, school attendance, and household poverty rates. By

intersecting these datasets with climate information, policymakers can develop climate-responsive child risk assessments.

Examples of what this might look like are included below:

- **Malnutrition and drought forecasts:** National nutrition surveillance systems tracking child stunting can be combined with drought projections and climate models to anticipate food insecurity risks for young children. This could enable proactive interventions such as targeted food aid or maternal nutrition support in high-risk areas.
- **Heat exposure and health:** Birth records, neonatal health data, and child mortality statistics can be combined with temperature anomaly datasets to assess how heatwaves impact infant mortality and maternal health. This information can help shape policies, such as temperature-based early warning alerts for caregivers. CS should integrate child-specific thresholds that account for neonatal, infant, and chronic illness vulnerabilities. Climate risk thresholds refer to the specific points or levels at which the impacts of climate change become significant enough to cause harm or require action. For example, the Philippines and Senegal have implemented school-based heatwave warnings, advising when children should stay home to prevent heat-related illnesses.<sup>23,24</sup>
- **Education disruptions and extreme weather:** UNESCO's education tracking systems, combined with national school attendance records, already monitor learning disruptions. These can be linked with disaster databases (for example, the EM-DAT; Emergency Events Database) and weather forecasts to determine how floods, storms, and heatwaves affect early learning continuity, allowing governments to preemptively plan for climate-adaptive school infrastructure and remote learning options.
- **Air pollution and respiratory health:** Integrating [WHO's Air quality guidelines](#), national health records on pediatric respiratory illnesses, and air pollution monitoring data could allow for real-time air pollution alerts to be generated specifically for young children and pregnant women.
- **Mental health and climate stressors:** Climate disruptions affect young children's emotional well-being and that of their caregivers. By analyzing national mental health data alongside climate trends, areas of heightened risk for climate anxiety and trauma can be identified. ECD centers and schools can integrate mental health support to help children and their caregivers build emotional resilience. Additionally, CS should incorporate mental health indicators into risk assessments.

A few key questions illustrate the potential of ECD-CS collaboration:

- *What if EWS could signal when rising temperatures will increase malnutrition risks for children and pregnant mothers?*
- *What if seasonal forecasts could help caregivers and early childhood programs prepare for extreme weather events?*





### 5.3 Strengths of ECD interventions

Beyond providing additional data to integrate with climate data, linking CS to ECD actors and programs could enhance their effectiveness by leveraging strengths that commonly exist within ECD programs. These strengths include:

- **High community engagement:** ECD programs are deeply embedded in local communities, making them a strong platform for involving people in climate-related efforts. Their existing infrastructure, such as ECD centers, schools, and community health service points, can serve be leveraged for delivering climate-sensitive interventions. Climate information can be disseminated through existing channels and where people already gather to strengthen EWS as a cost-effective foundation for embedding climate-focused programs, without the need to create entirely new adaptation initiatives. For example, according to key informants interviewed for this work, in Bangladesh and the Philippines community-based early learning centers already provide disaster preparedness training for caregivers, teaching them how to respond to flooding, cyclones, and heatwaves. This approach helps reduce costs and scale interventions more efficiently. For example:
  - Immunization programs can be expanded to deliver heat safety education to parents.
  - Parenting support groups can incorporate disaster preparedness training.
- **Multi-sectoral nature:** ECD depends upon inputs from various sectors to meet children's holistic needs. Coordination mechanisms and cross-sectoral integration in ECD programs can connect to and enhance the effectiveness of climate adaptation efforts. For example:
  - **Health:** ECD programs can strengthen climate-responsive health interventions, such as linking early malnutrition detection with climate forecasts to trigger timely responses and prevent disease outbreaks.
  - **Food security:** Climate-adaptive nutrition programs in ECD settings can integrate seasonal food planning, ensuring young children receive nutrient-dense meals even during periods of drought or food shortages.
  - **Social protection:** Cash transfer programs targeting vulnerable families can integrate child-specific climate adaptation measures. For example, transfers can be linked to participation in parenting sessions that include climate-related content.
- **Early childhood, early signals:** Due to their rapid physiological and neurological development, young children are often the first to exhibit health and developmental effects caused by climate stressors such as heat, pollution, and food insecurity. This makes it both critical for EWS to reach young children and enables observation of the impact on young children to inform the wider population. For example:
  - Malnutrition rates in infants and toddlers can signal a broader food security crisis, given their limited nutrient reserves, the frequency of their weight checks, which is different from adults. This could allow for faster interventions in drought-prone regions.
  - Increases in childhood respiratory infections due to worsening air quality as tracked by pediatric clinics can serve as an indicator of broader population-level health risks.

- Cognitive and behavioral delays in young children following climate disasters (e.g., hurricanes, floods) can highlight long-term developmental risks, emphasizing the need for early mental health interventions.
- **Involvement of caregivers:** Linked to the point above, parents, caregivers, and early childhood professionals observe and respond to children's needs daily, making them key informants in climate adaptation strategies. Their real-time observations can generate highly localized, community-specific data relevant to CS to complement meteorological modeling. Additionally, ECD services are generally linked to government institutions (i.e., authorities at the local, district, and/or ministry level), providing an established structure for information sharing and decision-making. This connection can facilitate broader support for scaling ECD initiatives and embedding them within policies. For instance:
  - Caregivers noticing more heat-related illnesses in toddlers can provide early warnings for excessive heat exposure in vulnerable communities.
  - Maternal health workers documenting pregnancy complications linked to climate can help refine warning thresholds.
  - Preschool teachers tracking behavioral shifts in children after extreme weather events can recommend that disaster response plans include child-specific mental health support.
  - ECD services can gather and consolidate reports from families about similar concerns with their children, then share this information with the relevant ministry/district authorities, prompting timely action or further investigation.

## 5.4 The role of transdisciplinarity

Integrating a focus on ECD into CS requires collaboration across disciplines such as climate science, health, education, and social protection. To this end, transdisciplinarity must be considered an important approach, given it transcends traditional disciplinary boundaries and focuses on co-production and mutual learning.<sup>25</sup> It can therefore ensure that adaptation efforts are comprehensive, socially responsive, and grounded in both technical expertise and community knowledge. Key areas where collaboration across disciplines is critical include capacity building, communication strategies, and empowerment of local stakeholders. CS have built institutional structures that promote transdisciplinarity, engaging different sectors like health, agriculture, and disaster risk reduction. An example of outputs of this structure is WISER's [Co-production in African weather and climate services manual](#). WISER is a project launched in 2015 to transform the accessibility and availability of weather and climate services across Africa. Further information about transdisciplinarity and its application to integrating a focus on ECD in CS can be found in [Annex 3](#).

## 6. Entry points for integrating ECD in CS efforts

Ensuring that child-sensitive climate strategies are integrated at global, national, and local levels will take deliberate and intentional efforts. The project identified five entry points that offer practical steps stakeholders can take, focusing on aligned or complementary aims, expertise, and institutional processes, to include a focus on ECD within CS efforts.

Each entry point is presented with actions that can be taken at global, national, and local levels. At each of these levels, ECD stakeholders must collaborate with CS governance and other actors, including those mentioned in the Institutions and stakeholders section. Key actors at the global level include the GFCS and WMO, alongside ECD champions such as ECDAN and UNICEF. At the regional and national levels, Regional Climate Centres and national agencies are the main counterparts, as well as national ministries and regional/national ECD networks. At the local level, NGOs organizations and local authorities are the primary actors that apply CS in a community-driven context.

### 6.1 Embedding ECD into CS governance

Climate services and ECD interventions still operate in separate policy and practice spaces. Building strong partnerships where high-level policies and frameworks are defined ensures early childhood vulnerabilities and investment opportunities are addressed in climate adaptation strategies. The table below provides practical ideas on how this can begin.

**Table 2. Actions for embedding ECD into CS governance**

| Level    | Actions for integration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Global   | <ul style="list-style-type: none"><li>Establish working groups between ECD champion organizations with global climate institutions, particularly the GFCS and the WMO, to advocate and coordinate strategies for inclusion of a focus on ECD in climate policies.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                           |
| National | <ul style="list-style-type: none"><li>Engage in regular Regional Climate Centers forums, and advocate for specialists to bring child-sensitive considerations into sector-specific advisories.</li><li>Advocate for improved collaboration between national meteorological agencies and ministries that support ECD outcomes (e.g., health, education, social development) to align on policies and track age-specific climate vulnerabilities.</li><li>Integrate child-focused considerations in the National Frameworks of CS.</li><li>Pilot a “proof of concept” project to demonstrate the impact of integrating a focus on ECD into CS, generating evidence to drive broader adoption.</li></ul> |

Source: Author’s formulation based on: World Meteorological Organization. *2024 State of Climate Services Five-Year Progress Report (2019-2024)*. Geneva; United Nations; 2024.  
<https://library.wmo.int/idurl/4/69061>

### 6.2 Linking ECD and climate information systems

ECD-related data remains largely disconnected from climate information systems. Linking these datasets can strengthen climate risk models and inform more effective policy decisions. Currently, most climate risk assessments overlook child-specific impacts. Integrating ECD data into CS can enhance forecasting and risk assessments, ensuring that adaptation plans fully

account for children’s vulnerabilities. The table below provides practical ideas on how this can begin.

**Table 3. Actions for linking ECD and climate information systems**

| Level           | Actions for integration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Global</b>   | <ul style="list-style-type: none"> <li>Establish data-sharing protocols between WMO, UNICEF, WHO, and other global actors to connect ECD indicators (e.g., health, nutrition, and education) with those of climate, to improve climate impact models and risk predictions.</li> <li>Advocate for child-sensitive early warning alerts, particularly within the Early Warnings for All (EW4All) initiative, including child-focused alerts for caregivers, preschools, and maternal health programs.</li> <li>Create capacity development initiatives (e.g., working groups, knowledge products, trainings) between ECD and CS technical professionals, particularly at national/local levels for learning and joint planning.</li> <li>Co-create manuals or case studies focused on child-centered CS, to ensure wide sharing of this knowledge.</li> </ul> |
| <b>National</b> | <ul style="list-style-type: none"> <li>Develop context-specific climate-sensitive vulnerability indexes (e.g., linking malnutrition tracking with drought forecasts) and thresholds for children, incorporating neonatal, infant, and chronic illness risks, and ensure they are integrated in the National Frameworks for Climate Services.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Local</b>    | <ul style="list-style-type: none"> <li>Work with NGOs to establish/strengthen community-led climate monitoring initiatives that track child-specific health and environmental stressors.</li> <li>Train community volunteers, health workers, and preschool staff to understand and monitor climate-sensitive child trends in health, nutrition, and education.</li> <li>Partner with municipal climate offices to include child-specific actions in local adaptation plans.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                     |

Sources: Author’s formulation based on multiple sources.

### 6.3 Developing climate-sensitive ECD programs

Most ECD programs are not designed to address climate-related risks, despite growing evidence of their impact on child development. Integrating climate considerations into the design and implementation of ECD programs can help services remain effective and resilient. The table below provides practical ideas on how this can begin.

**Table 4. Actions for developing climate-sensitive ECD programs**

| Level           | Actions for integration                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Global</b>   | <ul style="list-style-type: none"> <li>Develop a framework for climate-responsive ECD program design, outlining key adaptations for early learning, health, and caregiver support services.</li> </ul>                                                                                                                                                                                                                                                         |
| <b>National</b> | <ul style="list-style-type: none"> <li>Work with education ministries to integrate climate preparedness education models into early childhood curriculums.</li> <li>Develop climate-smart infrastructure standards for early learning centers.</li> <li>Work with NGOs to incorporate climate risk screening into the development and evaluation of early childhood programs to ensure services remain effective under changing climate conditions.</li> </ul> |

| Level        | Actions for integration                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              | <ul style="list-style-type: none"> <li>• Work with health ministries to ensure early childhood health services consider climate stressors (e.g., pediatric protocols for heat stress) for both physical and mental health.</li> </ul>                                                                                                                                                                                                                                                   |
| <b>Local</b> | <ul style="list-style-type: none"> <li>• Collaborate with NGOs to integrate climate risk awareness into parenting programs, equipping caregivers with tools and support to protect child health and strengthen household resilience.</li> <li>• Encourage NGOs and other program implementers to create and promote play-based climate education teaching and learning materials for young children, as well as provide training for teachers on how to use these materials.</li> </ul> |

Source: Author's formulation based on multiple sources.

## 6.4 Strengthening local CS for families and caregivers

CS need to be practical and easy to use for those who care for young children, to maximize their effectiveness. Caregivers, teachers, and community health workers require climate information tailored to their local context, which provides clear, actionable steps to guide their decisions. This localized, usable information is essential for ensuring that CS positively impact the well-being of children and communities.

**Table 5. Actions for strengthening local CS for families and caregivers**

| Level           | Actions for integration                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Global</b>   | <ul style="list-style-type: none"> <li>• Partner with UNICEF, WHO, and other global organizations to standardize child-focused indicators, climate risk communication, as well as develop communication tactics for explaining the link between ECD and CS.</li> </ul>                                                                                                                                                                                              |
| <b>National</b> | <ul style="list-style-type: none"> <li>• Co-develop with NGOs localized climate early warning alerts specifically designed for ECD professionals and families, leveraging schools and childcare facilities as hubs for climate information dissemination.</li> <li>• Develop context-specific feedback mechanisms to gather insights from parents, caregivers, and children on how climate adaptation strategies in ECD programs are impacting children.</li> </ul> |
| <b>Local</b>    | <ul style="list-style-type: none"> <li>• Use ECD centers as climate resilience hubs, offering education on extreme weather preparedness, and training parents and caregivers on climate risk management.</li> <li>• Establish community-based climate monitoring programs, leveraging ECD programs to track climate impacts on child health, food security, and education.</li> </ul>                                                                               |

Source: Author's formulation based on multiple sources

## 6.5 Securing resources to enhance integration of ECD and CS

The integration of ECD as a focus within CS also creates opportunities to leverage climate finance mechanisms for ECD interventions, given the critical role of early childhood in sustainable adaptation and resilience efforts. The table below provides practical ideas on how this can begin.

**Table 6. Actions for securing resources to enhance integration of ECD and CS**

| Level  | Actions for integration                                                                                                                                                                                                                                                            |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Global | <ul style="list-style-type: none"><li>• Advocate for ECD to be included in climate finance mechanisms (e.g., Green Climate Fund) by developing joint funding proposals with CS organizations, showcasing the social and economic benefits of child-sensitive adaptation.</li></ul> |

Source: Author's formulation based on: Hewitt C, Mason S, Walland D. The Global Framework for Climate Services. *Nature Climate Change*. 2012;2(12):831-832.

<http://dx.doi.org/10.1038/nclimate1745> and key informant interviews.

## 7. Conclusion

Young children are among the most vulnerable to climate risks, yet their needs are often absent from climate policies and adaptation strategies. ECD must be integrated into climate strategies to ensure climate adaptation efforts are effective, equitable, and sustainable.

The transdisciplinary structures developed within CS provide an opportunity for integrating ECD, simultaneously addressing a common critique that CS lacks social impact. By leveraging these frameworks, ECD can enhance the relevance and effectiveness of CS. Both fields stand to benefit from increased investment opportunities.

The entry points outlined in this report show the variety of opportunities that ECD can leverage to be effectively positioned within CS. Relevant initiatives of CS were identified as part of this work, as a reference for potential partnerships and collaboration, where ECD could add significant value. The case studies included in this work provide examples of how such integration could happen in practice.

Moving forward, cross-sector collaboration will be essential. Climate scientists, policymakers, public officials, and early childhood practitioners must work together to bridge knowledge gaps, integrate data systems, and co-develop child-centered climate solutions. Additionally, expanding investment in early childhood-sensitive climate initiatives will ensure that adaptation strategies do not merely react to immediate climate risks, but proactively build long-term resilience for future generations. By positioning ECD as a key consideration for climate resilience planning and investment, CS can become not only scientifically robust but also socially just by providing young children and their caregivers with the information and interventions they need most.

## Annexes

### Annex 1. Mapping of Climate Services Initiatives

This component identifies examples of organizations working in the CS space with potential intersections with ECD, as detailed in the Methodology section. The table below is a summarized version of the full list, which can be found as an Excel sheet in [this link](#).

|   | Initiative                                                                                   | Brief description                                                                                                                                                                                                                                                                                                                                                                                                               | Geographic focus                                           | Link                     |
|---|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|--------------------------|
| 1 | <b>Future Resilience for African Cities and Lands (FRACTAL)</b>                              | <ul style="list-style-type: none"> <li>- Aims to provide CS at the city-regional scale in southern Africa.</li> <li>- Focus on regional/local climate trends in 9 cities in 7 countries in southern Africa.</li> <li>- 4-year project within the multi-consortia Future Climate for Africa (FCFA) program.</li> <li>- Uses a transdisciplinary learning approach to co-produce knowledge with multiple stakeholders.</li> </ul> | Southern Africa                                            | <a href="#">FRACTAL</a>  |
| 2 | <b>Climate Information Services for Resilient Development Planning in Vanuatu (VanKIRAP)</b> | <ul style="list-style-type: none"> <li>- Seeks to build technical capacity to manage climate data, develops practical CIS tools, and disseminates tailored climate information.</li> <li>- The project objectives focus on increasing 1) resilience of most vulnerable people and communities, 2) health and well-being, 3) food and water security, and 4) infrastructure and built environment.</li> </ul>                    | Vanuatu                                                    | <a href="#">VANKIRAP</a> |
| 3 | <b>Strengthening Climate Information Partnerships in East Africa (SCIPEA)</b>                | <ul style="list-style-type: none"> <li>- Focused on improving the accessibility and usability of climate information for key sectors in East Africa.</li> <li>- Emphasize partnerships between meteorological agencies, decision-makers, and local communities to ensure that climate information supports informed decision-making in agriculture, water, and energy sectors.</li> </ul>                                       | East Africa: Kenya, Ethiopia, Uganda, Tanzania, and Rwanda | <a href="#">SCIPEA</a>   |



|   | Initiative                                                                                   | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Geographic focus                                  | Link                      |
|---|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|---------------------------|
| 4 | <b>The Weather and Climate Information Services for Africa (WISER)</b>                       | <ul style="list-style-type: none"> <li>- Conceived to stimulate the uptake of climate information by policymakers and vulnerable groups including the youth and women.</li> <li>-Emphasizes focus on the needs of end-users like governments, farmers, and communities.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | East and Pan Africa                               | <a href="#">WISER</a>     |
| 5 | <b>Cascading Climate Risks: Towards Adaptive and Resilient European Societies (CASCADES)</b> | <ul style="list-style-type: none"> <li>- Investigates how climate risks outside Europe can impact European societies through interconnected systems, such as trade, finance, and migration.</li> <li>- The project explores cascading risks, where climate impacts in one region trigger consequences elsewhere, to inform adaptation strategies and policy responses.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                 | Europe                                            | <a href="#">CASCADES</a>  |
| 6 | <b>Reconciling Adaptation, Mitigation, and Sustainable Development for Cities (RAMSES)</b>   | <ul style="list-style-type: none"> <li>- European research project aimed at providing cities with tools and knowledge to enhance climate resilience.</li> <li>- Focus on quantifying the socio-economic benefits of urban adaptation and mitigation strategies while promoting sustainable development.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                | European cities: London, Antwerp, and Bilbao      | <a href="#">RAMSES</a>    |
| 7 | <b>GreenBook: Adapting settlements for the future</b>                                        | <ul style="list-style-type: none"> <li>- Supports the South African Government in adapting settlements to the impacts of climate change.</li> <li>- The online planning support tool provides quantitative evidence on the likely impacts of climate change and urbanization on South Africa's cities and towns.</li> <li>- The Municipal Risk tool is an interactive tool that shows evidence of the climate risks each local municipality in South Africa is likely to face under a changing climate by 2050. Provides temporally dynamic risk profiles, including information on vulnerabilities, population projections, exposure to climate hazards, and the impacts of climate change on some key municipal resources for each municipality and its settlements.</li> </ul> | South Africa                                      | <a href="#">Greenbook</a> |
| 8 | <b>High Impact Weather Lake System (HIGHWAY)</b>                                             | <ul style="list-style-type: none"> <li>- Aims to improve weather forecasting and early warning systems for communities around the Lake Victoria Basin in East Africa.</li> <li>- Focuses on reducing loss of life and economic damage caused by severe weather events, such as storms and heavy rainfall, through enhanced weather observation, forecasting, and dissemination.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                        | Lake Victoria Basin (Kenya, Uganda, and Tanzania) | <a href="#">HIGHWAY</a>   |

|    | Initiative                                                                                          | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                        | Geographic focus                                  | Link                         |
|----|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|------------------------------|
| 9  | <b>Co-development of Climate Services for Adaptation to Changing Climate Conditions (CoCliServ)</b> | <ul style="list-style-type: none"> <li>- European research project with focus on co-developing climate services to support decision-making.</li> <li>- The initiative emphasizes creating user-centered scenarios that integrate scientific data with local knowledge.</li> </ul>                                                                                                                                                        | Europe                                            | <a href="#">CoCliServ</a>    |
| 10 | <b>Climate Adaptation to Local Environmental Drivers Across Sectors (CALENDARS)</b>                 | <ul style="list-style-type: none"> <li>- Research project exploring how temporal dimensions of climate adaptation are understood and applied across different sectors.</li> <li>- Seeks to align ecological notions with local perceptions of time and decision-making processes.</li> </ul>                                                                                                                                             | New Zealand / Norway                              | <a href="#">CALENDARS</a>    |
| 11 | <b>Supporting Policy and Research on Climate (SPARC)</b>                                            | <ul style="list-style-type: none"> <li>- Research initiative aimed at understanding and improving the connections between climate science, policy, and societal needs.</li> <li>- The project focuses on advancing decision-making by integrating scientific knowledge into climate governance and adaptation strategies.</li> </ul>                                                                                                     | Colorado, USA                                     | <a href="#">SPARC</a>        |
| 12 | <b>Uncertainty Reduction in Models for Understanding Development Applications (UMFULA)</b>          | <ul style="list-style-type: none"> <li>- Focus on improving decision-making in water resource management and climate resilience in southern Africa.</li> <li>- Provides tailored climate information and addresses uncertainties in climate models to support long-term planning in key sectors like agriculture and energy.</li> </ul>                                                                                                  | Tanzania and Malawi                               | <a href="#">UMFULA</a>       |
| 13 | <b>Participatory Integrated Climate Services for Agriculture (PICSA)</b>                            | <ul style="list-style-type: none"> <li>- Empowers farmers by providing tailored climate information combined with participatory decision-making tools.</li> <li>- Helps farmers make informed decisions about crop planning, livestock management, and resource allocation by integrating local knowledge with scientific climate data.</li> </ul>                                                                                       | Zimbabwe, Tanzania, Kenya, Ghana, Malawi, Lesotho | <a href="#">PICSA</a>        |
| 14 | <b>Climatlantic</b>                                                                                 | <ul style="list-style-type: none"> <li>- Provides climate information to support decision-making and adaptation to climate-related risks, driven by social, economic, and environmental factors.</li> <li>- Their approach includes regular and iterative involvement with communities, and multiple disciplines and perspectives, to assess and respond to their needs, addressing climate change impacts on diverse fields.</li> </ul> | Atlantic Canada                                   | <a href="#">Climatlantic</a> |

|    | Initiative                                   | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Geographic focus                                  | Link                                |
|----|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|-------------------------------------|
| 15 | <b>Stockholm Environment Institute (SEI)</b> | <ul style="list-style-type: none"> <li>- Non-profit research institute tackling environment and sustainable development challenges.</li> <li>- Develops knowledge for change that is based on science.</li> <li>- Carry out original applied research as well as conduct synthesis and assessment, and critically analyze evidence to solve problems and address policy agendas.</li> </ul>                                                                                                                                                                                                                                                                                                               | Global                                            | <a href="#">SEI</a>                 |
| 16 | <b>Climate Impact Lab</b>                    | <ul style="list-style-type: none"> <li>- Comprehensive body of research quantifying the impacts of climate change.</li> <li>- Includes breakdown of sectorial information presented in different formats, including an impact map, research, and Lab Impacts &amp; Applications which integrate climate and socioeconomic data.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                | Global                                            | <a href="#">Climate Impact Lab</a>  |
| 17 | <b>Climate Research for Africa (AICCRA)</b>  | <ul style="list-style-type: none"> <li>- Works under CGIAR (a global research partnership for a food-security).</li> <li>- Work with national and regional partners to transform climate services and scale climate-smart agriculture.</li> <li>- Provides smallholder farmers with improved access to raw and processed climate information, as well as using that data to work on successful adaptations. That information helps farmers to develop effective response measures and take preventative action.</li> <li>- AICCRA teams focus activities on four research priorities - sharing knowledge, building partnerships, scaling innovation and fostering gender and social inclusion.</li> </ul> | Senegal, Ghana, Mali, Ethiopia, Kenya, and Zambia | <a href="#">Home page   AICCRA</a>  |
| 18 | <b>APEC Climate Center</b>                   | <ul style="list-style-type: none"> <li>- Aims to enhance the socio-economic wellbeing of member economies by using up-to-date scientific knowledge and innovative climate prediction techniques.</li> <li>- APEC Climate Center provides seasonal and sub-seasonal forecasts, and climate monitoring. Also offers a Climate Information Toolkit and a Fire and Haze early warning system for Southeast Asia.</li> </ul>                                                                                                                                                                                                                                                                                   | Asia-Pacific                                      | <a href="#">APEC Climate Center</a> |

Source: Author's formulation based on multiple sources

## Annex 2. Case Studies

This document is designed to accompany the report titled Early Childhood Development and Climate Services: Understanding synergies and entry points for integration. As part of the project, 18 different CS initiatives were mapped and investigated to understand how they function in practice.

Three examples were selected for deeper analysis and insights. The case studies aim to provide insights into how ECD could be integrated as a focus within these initiatives if they were to be redesigned, and what the value addition of the inclusion of ECD would be. Given ECD's multisectoral nature, ECD stakeholders are accustomed to coordinating across ministries, however, the challenge lies in identifying collaboration spaces within climate adaptation and resilience efforts where ECD stakeholders can contribute meaningfully. This requires bridging disciplinary boundaries to integrate child-focused perspectives into climate adaptation and decision-making processes.

The three CS initiatives selected for case studies were chosen based on several different criteria. First, the three initiatives operate at various levels within the spectrum of CS, with a particular emphasis on local and regional initiatives that are closely aligned with context-specific challenges, where a focus on ECD can add significant value. Second, they focus on geographies that are highly vulnerable to the adverse effects of climate change. Third, initiatives that effectively integrate climate data with social considerations and aim to translate climate information into actionable outcomes, such as policies, adaptation strategies, or practical interventions were prioritized.

Each case study includes an introduction to the initiative and its main objectives, followed by a review of its main outcomes and potential benefits for young children and their caregivers. The implementation strategies and opportunities for integrating a focus on ECD into the initiative are explored before concluding with lessons learned and actionable recommendations to enhance the collaboration between ECD and CS stakeholders, as well as questions for further exploration.

### Case study 1 - Future Resilience for African CiTies And Lands (FRACTAL)

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#### Introduction

The FRACTAL project (2016-2020) brought together a transdisciplinary team of researchers and stakeholders from various organizations, with the objective of enhancing scientific understanding of regional climate responses to human activities. This initiative stemmed from a reaction to the underuse of climate information and aimed to make it more relevant, usable, and impactful, particularly in decision-making contexts.

FRACTAL spanned nine African cities (Blantyre, Cape Town, Durban, Gabarone, Harare, Johannesburg, Lusaka, Maputo, and Windhoek), and is a model of collaboration between academia, government, and other urban stakeholders to co-create knowledge that supports resilient development by helping decision-makers better understand and integrate climate considerations into resource management and urban planning. FRACTAL's work helped support the development of Windhoek's first Climate Change Strategy and Action Plan, the

creation of the Urban resilience hub in Maputo, as well as assistance to develop an early warning tool for climate-induced vector- and water-borne diseases also in Maputo. In each of the nine cities participating in the project, work was structured around three key pillars, which central to the FRACTAL theory of change. This includes:

- **City-specific contexts:** Identify specific climate change risks, impacts, and resilience capacity.
- **Decision-making space:** Create opportunities to incorporate climate information into local decision-making.
- **Physical climate processes:** Develop robust and scale-relevant climate information collection and dissemination systems.

The FRACTAL initiative serves as a good example of how transdisciplinarity can enhance the understanding and integration of climate information in decision-making in context-specific projects. It also highlights the opportunities to incorporate ECD into climate adaptation discussions.

### Outcomes

FRACTAL presents a unique case as it worked within and across cities. The project has compiled a set of [12 guiding principles](#) that made the FRACTAL approach unique. These principles highlight the importance of developing context-specific adaptations and linking present, past, and future for sustainable solutions. Many principles focus on the value of transdisciplinary approaches, emphasizing the importance of creating a safe and respectful space for collective work and getting stakeholders from different sectors to bridge semantic gaps between climate and non-climate colleagues, as well as those academic/technical staff and those who are not.<sup>a</sup>

FRACTAL also used specific methods to integrate knowledge between disciplines. Some of these exercises helped unify criteria and semantics, integrate knowledge and ideas, and agree upon approaches between a wide range of fields, enhancing plurality. Some of these methods include:

- **City learning labs:** These are joint discussions with city stakeholders to identify issues for the group to address. The group aims to have a diversity of perspectives to discuss possible solutions.
- **Climate risk narratives:** These serve as tools to initiate discussions rather than provide conclusive climate data, focusing on plausible future scenarios that are deeply anchored in the specific context of local risks.
- **Climate information distillation:** This is the process of combining data from diverse sources to identify, refine, and present the most relevant insights for a specific context.

The outputs of FRACTAL also include a series of [tools](#) with a range of purposes, including the provision of climate information with guidance for non-climate users, narrating impact stories, and facilitating transdisciplinary collaboration. Examples of these tools include:

- **Africa's new urban climate:** This tool uses the photo story approach, which entails the use of photos and narratives to capture practices on the ground.

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<sup>a</sup> In their own words: “the key learning has been that the value of building trust and mutual understanding across disciplines is equal to the value of the climate information product itself”.

**Climate information portal:** This tool integrates a database of climate observations and projections with guidance documentation that facilitates its interpretation and use.

### Opportunities to integrate a focus on ECD

There are several ways that FRACTAL could be redesigned to include a focus on ECD within its activities, which are explored as follows:

**Integrate ECD professionals into climate resilience planning** - FRACTAL engaged diverse stakeholders, but did not include ECD professionals. The participation of ECD specialists such as pediatric health workers and early childhood educators to advise on child-specific risks could strengthen climate resilience by embedding child-specific needs into city planning and adaptation strategies. Given FRACTAL's transdisciplinary nature, incorporating ECD expertise would not require major structural changes but could enhance decision-making by addressing the unique vulnerabilities of young children.

**Enhance climate risk assessments with child-sensitive data** - Integrating child-related indicators that connect directly to climate factors (e.g., heat exposure, pollution-related respiratory illnesses) and those that connect indirectly (e.g., family economic stress, disruptions to education, and caregiving) would provide a more holistic understanding of climate vulnerabilities, improve risk assessments, and possibly redefine urban resilience metrics. This can be done through an agreed-upon methodology for collecting localized data from health clinics, schools, and community reports, ensuring data privacy and upholding ethical considerations.

**Position ECD as a driver of climate-resilient urban planning** - Including a focus on young children supports urban planning by considering both immediate climate adaptation needs and longer-term sustainability goals. By quantifying the effect of specific climate impacts on young children (e.g., extreme heat exposure in childcare facilities, increased vector-borne diseases affecting infants), cities' resilience can be strengthened by proactive solutions. These prevention measures could include weather resilience measures such as shaded play areas in early learning spaces, early warning systems tailored for caregivers and families prepare for extreme weather, community-driven climate monitoring where caregivers and early educators report local climate-related child health concerns (e.g. rising rates of heat-associated illnesses, food insecurity), and feedback loops to ensure data from community observations is integrated into city-level climate resilience strategies.

**Use ECD networks to put decisions into practice** - FRACTAL promotes transdisciplinary collaboration between academics, government, and technical experts but has not fully tapped into community-level resilience networks. The multisectoral and community-based nature of ECD programs can be leveraged to implement climate-related decisions in an inclusive and participatory manner. This could include activities such as:

- Using existing community networks to ensure the adoption of child-focused climate adaptation strategies.
- Teaching climate-responsive behaviors to young children and caregivers at schools/ECD centers so that they learn early warning responses, thus building lifelong resilience skills from a young age.
- Embedding climate education within school curricula, making climate adaptation a generational behavioral shift, rather than just a policy fix.



### Questions for further exploration

Considering the example of FRACTAL raises additional questions that require further exploration to design a similar initiative with a focus on ECD.

- *How can ECD professionals systematically contribute to climate planning and policy development, redefining concepts such as climate resilience?*
- *What is the best strategy for integrating ECD into climate resilience efforts through existing sectors like health, education, and urban planning?*
- *How can the feedback loop mechanisms be improved so that caregivers' observations are integrated into city-level climate decision-making?*
- *What participatory methodologies (e.g., storytelling, play-based learning) are most effective for integrating climate education into ECD programs? How can these approaches be adapted to engage young children, caregivers, and communities in climate resilience efforts?*

## Case study 2 - Strengthening Climate Information Partnerships in East Africa (SCIPEA)

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### Introduction

The Horn of Africa region faces significant challenges due to climate variability, deeply impacting sectors like agriculture, energy, and disaster risk management. Seasonal climate information is vital for these communities, but some gaps remain in the production, communication, and uptake of that information. The Strengthening Climate Information Partnerships - East Africa (SCIPEA) project (2016-2021) was launched under the Weather and Climate Information Services for Africa (WISER) program to address this. SCIPEA aimed to enhance the generation and use of seasonal climate information. It emphasized partnerships between meteorological agencies, decision-makers, and local communities to ensure that climate information supports informed decision-making in agriculture, water, and energy sectors. This example helps us understand how the integration of ECD in forecasts and more broadly, in conversations around climate could enhance the outcomes of projects of similar nature.

### Outcomes

The SCIPEA project achieved significant results, including enhanced forecast production, better communication, and increased user engagement. To achieve these results the project applied different methods were applied, including:

- **Service development teams (SDTs):** SDTs facilitated collaboration between national meteorological services, end-users, and other stakeholders to co-produce tailored CS. For example, SDTs developed sector-specific seasonal forecasts that supported agricultural planning and hydropower management.
- **Climate cafés:** These were participatory forums that bridged the gap between meteorologists, journalists, and sectoral users. These sessions used localized storytelling to demystify technical climate information, enabling users to better understand and act on forecasts.



- **Visual aids:** SCIPEA focused on simplifying climate information for diverse user groups by using accessible formats, such as visual tools and infographics to communicate seasonal forecasts and their implications. These tools helped bridge the gap between technical data and practical applications, particularly caregivers and children, to make them active participants in the forecast production.

### Opportunities to integrate a focus on ECD

Integrating a focus on ECD into SCIPEA would involve leveraging its existing frameworks to address the unique needs of children and their families. Key opportunities include:

**Leverage Service development teams (SDTs):** Integrating professionals with ECD expertise into these teams could expand their focus to include child-specific outcomes. For example, tailored seasonal forecasts for families can include warnings about weather conditions, which might exacerbate waterborne diseases or malnutrition risks for children. Moreover, forecasts can be used to coordinate vaccination schedules or hygiene campaigns.

**Leverage Climate cafés:** ECD integration could enhance these sessions by engaging caregivers/teachers to identify specific challenges that climate variability poses for children, such as disruptions to education or heightened exposure to environmental hazards.

**Use ECD initiatives as a hub for community engagement** - ECD service centers are trusted community spaces that already serve as entry points for health, education, and social programs, making them ideal for scaling climate adaptation efforts. In SCIPEA, this might look like:

- Using ECD centers as distribution points for climate-related vaccination campaigns (e.g. malaria surges following heavy rains).
- Strengthening early warning systems by integrating child-focused climate alerts into schools, childcare centers, and maternal health programs. Alerts can leverage existing ECD communication channels, like SMS notifications for parents.
- Training community health workers and early educators on how to interpret and use climate forecasts to preemptively scale up nutrition initiatives, health interventions, and caregiving support before crises occur.
- Expanding community radio alerts (widely used and effective in ECD programs) to include simple climate messages tailored for caregivers on how to protect young children from extreme heat, air pollution, and waterborne diseases.<sup>26</sup>

**Develop child-sensitive communication strategies** - SCIPEA has successfully translated complex climate data into visual tools for farmers and policymakers. Similar materials can be adapted for caregivers and educators. This might look like:

- Developing visual forecasting tools and pictograms for parents and early educators, illustrating child-specific climate risks and response actions. Visual education materials are widely used in early education, and have proven effective for behavioral change.<sup>27</sup>
- Expanding radio and mobile alerts to include guidance on hydration, nutrition, and safe spaces for young children during climate stress events.
- Using play-based learning in preschools to teach children basic climate adaptation behaviors, such as safe evacuation procedures and water conservation practices.

### Questions for further exploration

Considering the example of SC�PEA raises additional questions that require further exploration to design a similar initiative with a focus on ECD.

- *How can caregivers, and ECD professionals be trained and mobilized as frontline observers to provide real-time, localized climate data?*
- *What are the most effective ways to leverage ECD networks (e.g. schools, health centers, parenting programs) as hubs for community-driven climate adaptation?*
- *How does local context influence the effectiveness of these networks?*
- *What are the challenges faced by elements of education such as play-based learning to design interactive climate education for communities?*

## Case study 3 - Climate Information Services for Resilient Development Planning in Vanuatu (VanKIRAP)

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### Introduction

Vanuatu, one of the world's most climate-vulnerable nations to climate change, faces threats from rising sea levels, extreme weather events, and intensified rainfall.<sup>28</sup> These challenges demand urgent adaptation measures to protect communities in the short term, alongside strategies to build long-term resilience.

The VanKIRAP project, supported by the Green Climate Fund, aims to standardize and mainstream the use of science-based climate information to enhance resilience. Spanning five critical sectors (i.e., tourism, agriculture, infrastructure, water, and fisheries) the initiative emphasizes local consultations and community-driven approaches, aiming to better integrate climate services into national development planning, ultimately aiming to empower vulnerable populations, particularly those that rely on natural resources.

VanKIRAP is an example that highlights how ECD can be integrated into national-level CS policies, specifically into Vanuatu's National Framework of Climate Services (NFCS). It also illustrates how the inclusion of ECD-related elements in program development could potentially address immediate climate adaptation needs, such as safeguarding child health and access to clean water, while fostering a long-term vision for sustainable development through education, resilience-building, and intergenerational change.

### Outcomes

While the project is still ongoing, it has achieved key outcomes. These include strengthened institutional capacities through training sectoral staff and improving tools for climate data management, as well as the creation of tools for resilience, such as early warning systems to enhance decision-making in the agriculture and water sectors.

### Opportunities to integrate a focus on ECD

Examining the example of VanKIRAP provides several insights into how a focus on ECD could be included in a similar initiative.

Integrating ECD could further enhance VanKIRAP's achievements by explicitly addressing children's vulnerabilities, thus creating a stronger foundation for sustainable community resilience. Potential benefits for ECD can be drawn from the project's focus on water

security, for example incorporating child-specific interventions to mitigate health risks from contaminated water during extreme weather events. Moreover, educational materials designed for children and caregivers could also address long-term community resilience by instilling adaptive behaviors early.

The project is designed with a participatory, community-based approach that serves as a foundation for integrating ECD. However, both in the development process and the outcomes of the project, there is little mention of ECD. Incorporating child-specific considerations into the project's outputs could enhance early childhood protection against climate risks in the country.

**Leverage ECD multisectoral nature** - VanKIRAP demonstrates how the multisectoral nature of ECD could facilitate its integration in ways that align with the project's goals, ensuring that children's unique needs are addressed as part of building a sustainable approach. This integration protects the most vulnerable population, leading to benefits in public health and fostering long-term adaptive behaviors. The project focuses on five main sectors, and offers opportunities to incorporate ECD considerations as follows:

- **Infrastructure:** The participation of ECD professionals can ensure that children's needs are considered. Climate-resilient infrastructure could include shaded play areas, safe evacuation shelters near schools, and child-friendly pathways that remain accessible during floods or other extreme weather events.
- **Water:** Community water management systems could incorporate child-specific features, such as easily accessible and safe water collection points. Educational programs on water conservation and hygiene could be tailored to children and their caregivers, ensuring they understand the risks of water contamination during floods or droughts.
- **Agriculture, fisheries, and tourism:** These sectors are more closely tied to livelihoods. The focus here could be on the role ECD plays within communities, ensuring that children in families and their developmental needs are taken into account in the suggested steps for these key areas.

**Carry out climate education to change behaviors** - ECD programs typically involved education activities to shape behaviors from an early age. Awareness campaigns can simplify complex climate concepts for children and caregivers, embedding sustainability practices into daily routines and fostering a mindset of environmental responsibility. VanKIRAP's resilience-building efforts can be strengthened by integrating climate education into early learning programs and teaching children climate-responsive behaviors such as water conservation, and responses in disaster scenarios. Since children influence family behaviors, equipping them with climate knowledge creates ripple effects across households and communities. This intergenerational transfer of adaptive skills could help climate-conscious practices become ingrained in daily life, fostering long-term resilience and sustainable adaptation.

**Collect information from caregivers as climate observers** - Caregivers, early educators, and health workers can act as frontline observers in this regard, leveraging the networks ECD has developed. They can report localized climate impacts on children's health and development. This would enhance EWS and ensure that adaptation measures are responsive to community needs.



### Questions for further exploration

Considering the example of VanKIRAP raises additional questions that require further exploration to design a similar initiative with a focus on ECD.

- *What are the most effective methods for integrating climate-responsive habits (e.g., water conservation, disaster preparedness) into early learning curricula?*
- *How can behavioral insights from caregivers be used to improve the uptake and effectiveness of climate early warning systems?*
- *What financing mechanisms can support long-term investment in child-centered climate adaptation strategies within national climate policies?*

## Annex 3. Explanation of transdisciplinarity

### What is transdisciplinarity?

Transdisciplinarity refers to an approach to knowledge production and problem-solving that transcends traditional disciplinary boundaries. Unlike interdisciplinary methods, which integrate concepts from multiple disciplines, transdisciplinarity focuses on co-production and mutual learning among diverse stakeholders, including scientists, policymakers, practitioners, and local communities.<sup>25</sup>

Opportunities for integrating a focus on ECD into CS can be found in local adaptation, co-production of knowledge, and capacity building. Local adaptation involves using bottom-up methods to ensure climate data is relevant and actionable for communities. Additionally, capacity building through transdisciplinary approaches enhances the skills of both scientists and practitioners, empowering communities to use actionable climate knowledge to protect and promote communities in the face of climate challenges. When adopting a transdisciplinary process or approach, the following good practices are recommended:

- **Foster safe spaces for collaboration:** Create environments where stakeholders feel comfortable sharing ideas and experimenting, without hierarchies between scientific and non-scientific knowledge.
- **Leverage social science methods:** Use tools such as boundary objects<sup>b</sup>, narratives, physical climate storylines, and co-developed scenarios to facilitate understanding and collaboration across disciplines.<sup>30-33</sup> For example, climate storylines can serve as boundary objects, enabling diverse stakeholders to work together effectively.
- **Iterative processes:** Remain flexible to emergent needs and insights during the collaboration<sup>21</sup> and adapt strategies accordingly.

Despite its benefits and potential, transdisciplinarity also presents inherent challenges, including paradigmatic differences and uncertainty in climate information.<sup>25</sup> Paradigmatic differences refer to the distinct methodologies and approaches used by diverse disciplines, which can hinder effective collaboration. Uncertainty in climate information further complicates decision-making, as the inherent variability of climate data can make it more difficult to develop precise, actionable strategies.

### Applying transdisciplinarity to connect ECD and CS stakeholders

Integrating ECD as a focus within CS offers a compelling case for transdisciplinary approaches, to address the complex interplay between climate impact and child development.

Opportunities for transdisciplinary connections include:

- **Designing ECD-sensitive climate interventions:** Using co-production methods, combine climate predictions with local data to create strategies, tools and systems tailored to protect children's health, nutrition, and learning environments.

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<sup>b</sup> A boundary object is something that is adaptable to different viewpoints yet robust enough to maintain its identity across them. For example, native communities may view water (boundary object) primarily as a cultural and spiritual resource, while scientists may focus on it as a critical environmental factor. Despite differing perspectives, water can facilitate dialogue between these groups.<sup>29</sup>

- **Embedding child-centered indicators into climate risk assessments:** Expand EWS to include alerts for caregivers on heatwaves, flooding, and air pollution. Develop child vulnerability indices that measure climate impacts on nutrition, education, and psychological well-being.
- **Leveraging existing ECD structures for climate communication:** Train early childhood educators and health workers to interpret climate risk data for families. Using mobile technology (e.g., text message alerts) to deliver climate adaptation tips to caregivers.
- **Empowering local stakeholders:** Equip communities with tools and climate information that enable them to make decisions in the interests of young children. Tools such as climate-resilient infrastructure blueprints, localized weather forecasting applications, and interactive educational modules have proven particularly impactful.<sup>34</sup> Additionally, community workshops utilizing participatory mapping and storytelling techniques can empower stakeholders to contextualize and act upon climate information effectively.
- **Capacity building:** Develop training programs for ECD and CS professionals that emphasize cross-sector collaboration and mutual learning.

## Annex 4. Key informant interview participants

- Alice McClure - Researcher: climate risk, vulnerability and adaptation, FRACTAL
- Anna Steynor - Senior Climate Services Scientist, UK Met
- Emma Visman - Global lead advisor in climate and humanitarian action, Save the children
- Ilaria Gallo - Scientific Officer - Climate Science Capacity Development, Climate Services/Services Department, World Meteorological Organization
- Stephanie Arnold - Strategy + Innovation Manager, Climatatlantic
- Sunny Seuseu - Project Manager, VanKIRAP
- Vandana Singh - Member of the scientific steering group, and facilitator of the Education working group, My Climate Risk
- Xinrui Wu (Aurora) - World Meteorological Organization, Climate Service Division

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