WORLD BANK GROUP

Policy Note

Supporting Education for Recovery from the Earthquake Emergency

ASA (P180190)

Executive Summary

The recent earthquakes in 11 provinces in Türkiye affected the learning of more than 5 million students. The natural disasters occurred during a global economic contraction and regional conflicts just after special circumstances caused by the COVID-19 pandemic. These challenges resulted in learning losses, emotional and psychosocial damages with expensive economic consequences that is estimated at more than 3.5 percent reduction in Gross Domestic Product (GDP) annually if not tackled carefully and in a timely manner. These challenges require policy decisions to protect the education system and the learning and skills assets given the political commitment to build back better. This report (i) quantified the challenges, (ii) evaluated the immediate steps taken since the 6th of February by the Ministry of National Education (MoNE) and proposes an emergency response system that can be deployed during future disasters and crises, and (iii) recommends a roadmap to support the education system for recovery from the earthquake emergency. The roadmap focuses on the earthquake regions and consists of (i) institutionalizing of an integrated national program targeting education and care aiming at a strong head start for 3-, 4- and 5-years old children and support to mothers and families; (ii) supporting green and resilient reconstruction to provide a learning environment for all children; (iii) establishing a learning catching up program for acceleration and support towards learning and wellbeing of vulnerable groups; (iv) securing the skills asset for improved production and economic growth with a futuristic vision towards green and technological innovations aiming at signature programs in general secondary, vocational education, professional and higher education focusing on the skilling and reskilling agendas; and finally (v) establishing a national center of excellence for education management in emergencies.

1 Overview

The unprecedented natural disasters, COVID-19 pandemic, global economic contraction, and regional conflicts require Türkiye to use every policy tool to confront its effect on the education system. Türkiye experienced two major earthquakes with 7.7 and 7.6 magnitudes centered in Kahramanmaraş on the 6th

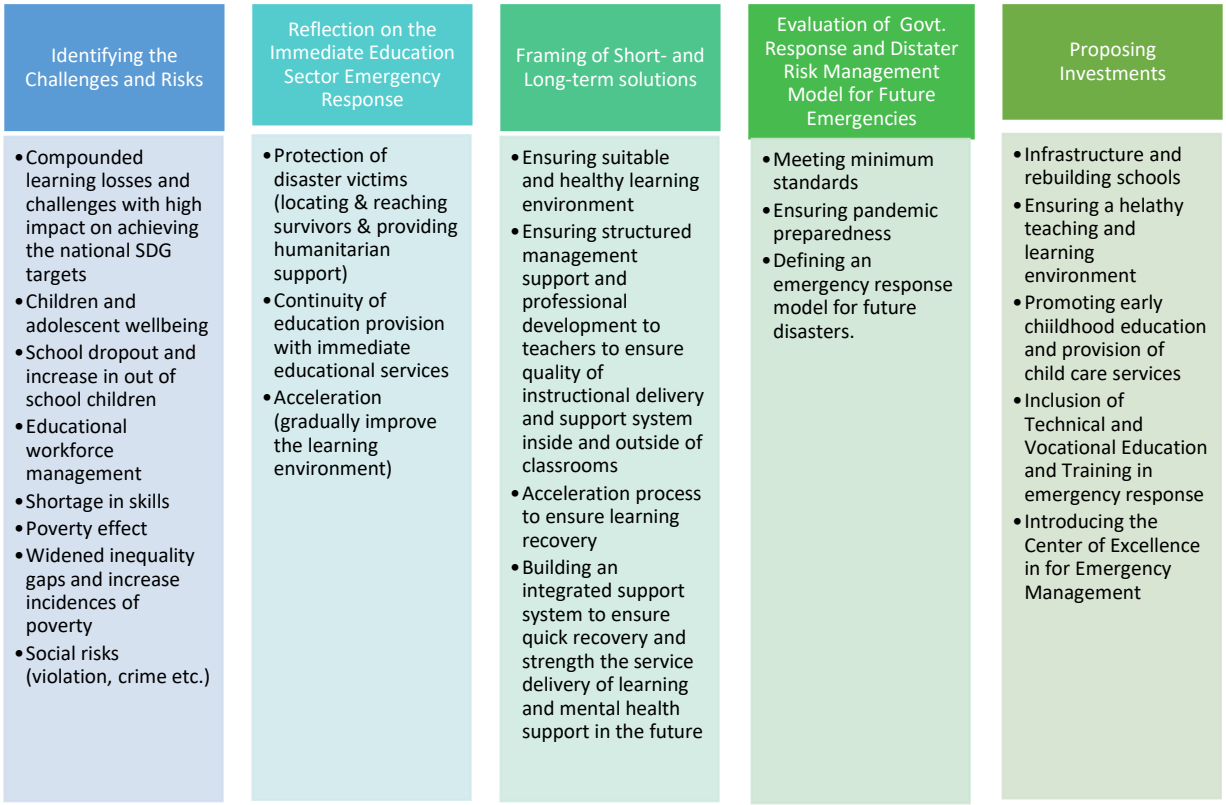
of February 2023. More than 13 million people living in the 11 provinces located in the Mediterranean and South-East region of Türkiye have been terribly affected by the earthquakes.[1]

Türkiye needs to recover quickly, efficiently and build back better to tackle the expensive consequences of these challenges on economic growth, education, family income, unemployment and economic productivity. The learning loss due to extended school closure caused by the COVID-19 pandemic and now from the disruption of schooling in the earthquake regions is likely to hamper the achievement of the national education and skills targets. On the other hand, the earthquakes affected the learning environment in the region, therefore the lack of appropriate and healthy learning environment is expected to have long-term consequences in both the education system and economy. At the same time, Türkiye has serious commitments to reach zero net carbon emission by 2053. Education is realized as a crucial driver towards sustainable and resilient development. The future of Türkiye requires transformations and programs to ensure an effective and disaster resilient education system and improve the country's readiness and competitiveness in technological and green industries and businesses.

Building on political commitment, Türkiye can adapt a framework for learning recovery and acceleration to "building back better" and make rapid progress, starting immediately. The framework (see Figure 1) needs to address the challenges and risks emerged by the earthquakes, evaluate MoNE's quick response to the earthquake, align steps for the recovery and acceleration process and provide options for the solution.

[1] Kahramanmaraş, Hatay, Gaziantep, Malatya, Şanlıurfa, Adana, Adıyaman, Diyarbakır, Kilis, Osmaniye, and Elazığ.

Figure 1 Framework for emergency response and acceleration of learning recovery processes in Turkiye



2 Identification of challenges and needs

The earthquakes led to serious challenges and risks on many fronts such as learning loss, children's and adolescent's wellbeing, displacement, school dropouts, educational workforce management, development agenda targets, economic outputs and GDP, income, and poverty levels, among others. In terms of learning loss, the earthquakes and school closures due to the COVID-19 affected millions of students. Students experienced substantial learning loss (equivalent of 1.25 years of schooling, which if combined with the Human Capital Index's learning gap will add up to 4.1 years) in the absence of effective mitigation measures specific to earthquakes. On the other hand, the quality of education in the affected regions is at risk of becoming more disadvantaged. Even before the earthquakes, though there was improvement in national Programme for International Student Assessment (PISA) scores overall, differences between the earthquake regions and the national average were 29 points in reading, 22 points in mathematics and 25 points in science. A similar pattern is observed in Progress in International Reading Literacy Study (PIRLS), Trends in International Mathematics and Science Study (TIMSS) and Programme for the International Assessment of Adult Competencies (PIAAC) results, indicating that the regions were facing a skill challenge. That would continue in the future if the mid- and long-term interventions are not designed and well-implemented.

In terms of children's and adolescent's wellbeing, the earthquakes have not only caused destruction of buildings, loss of lives and livelihoods, injuries, fatalities, economic and social damages but also have severe psychological effects on the people's mental health in the affected regions, especially on children and adolescents. The effects of such as acute stress reactions, post-traumatic stress disorder (PTSD),

anxiety disorder, depression, panic disorders, and phobias in children and adolescents caused by the earthquakes hinder the continuity of school attendance and healthy learning environment. To continue to life as normal, certain remedial policies and activities are found useful such as social support, self-care activities, positive attitude, and engaging in learning activities. Children separated from parents or family members due to the earthquakes are at risk of negligence, abuse, exploitation, and violence. Ensuring a positive school climate and learning environment would help protect children from permanent severe damage to their mental and physical health. Although education has resumed in all earthquake-affected provinces, attendance levels in Hatay and Malatya are below 50 percent (UNICEF, 2023)[2]. Emergency is a period when children become especially vulnerable. Child labor is work that deprives children of their childhood, their potential, and dignity. During emergencies, children, especially girls, are often pulled out of school by their families to help them find food, water or look after siblings or livestock. This deprives them of the opportunity to attend school, and/or requires them to combine school attendance with long and heavy work.

Hindering factors sharpened due to the earthquakes, which makes the policies and programs more urgent. Underutilization of the human capital is also of serious concern for Türkiye; nearly 3 million youth is neither in education nor in employment, corresponding to one out of four youth is idle. Twenty seven percent of the Not in Education, Employment, or Training (NEET) population (~813 thousand) is in the earthquake-affected provinces. School dropouts and out of school children are another potential risk caused by earthquakes as 24 percent of Türkiye's children population (4.6 million) were living in the earthquake regions**.** 787 thousand children (aged between 6-14) do not continue at any education institution; 28 percent of those (222 thousand) were living in the earthquake regions. So, a significant number of children and youth population were affected by the earthquakes. Even though Türkiye has done a lot in skill building, several groups of students are at increased risk of being left behind in learning or dropouts from education, particularly for girls. There are also dropouts from higher education due to several reasons such as financial difficulties, social adaptation, students' academic histories, dissatisfaction from the choice of study and quality of education. These findings put a special emphasis on not only the quality of higher education but also the necessity of the policies that strengthen the child's development from birth to higher education. Skill-building and employment opportunities for youth is another area that needs to be a top priority to prevent long term damage affecting the skills development agenda.

The earthquakes have also led to serious educational workforce consequences such as death of teachers, movement and reappointment of teachers to other regions, requiring concrete intermediate and long -term plans to ensure continuity of schooling and support to teachers and learners. Even though, the exact number of teachers' death was not officially announced, it is estimated that over 500 teachers died. In the pre-earthquake period, 19 percent of the total teachers in Türkiye (218,146 teachers) were living in the earthquake regions. Adding to this, 4,097 personnel (107 administrative staff and 3,995 teachers) wanted to be appointed away from earthquake regions to other regions of Türkiye. Another important issue is that there is no detailed information about the expertise of the migrating teachers or those who lost their lives, and accordingly which subject areas will be needed while building back better.

There will inevitably be negative effects on household income as the earthquake regions had hosted 39 percent of the country's poor (~3.3 millions) in the pre-earthquake period. The earthquake regions are already lagging in terms of poverty rates. In fact, in the earthquake regions, approximately 40 percent of households were already living below the poverty line, compared to around 32 percent nationwide (NPR,

[2] https://www.unicef.org/appeals/turkiye

2023). It is obvious that detrimental effects of earthquake on economic outcomes and income levels will create additional poor households in the region if significant mitigation measures have not been taken. Increased poverty might lead to more severe problems for children and younger students due to fewer skills and less resources. As the earthquake has resulted in the loss of possessions, shelter, and the family breadwinner for many families, children are forced into economic roles they are not prepared for which can expose them to exploitation and abuse. Different forms of child labor in emergencies include slavery and slavery-like practices, such as sex trafficking, or illicit activities like drug trafficking (UNICEF, 2023)[3].

These above-mentioned challenges also have further economic consequences. Calculations of the economic impact of learning loss due to COVID and the earthquake have been done. One school-year equivalent of a learning loss is calculated in Turkiye to reduce GDP per capita by around 3.5 percent—which corresponds to roughly 26.6 billion USD reduction in GDP measured in 2019 figures. This estimate is slightly higher than the 2.2 percent world-average loss due to COVID in annual GDP calculated by Hanushek and Woessman (2020)[4]. From a longer-term perspective, the long-term losses in Purchasing power parity (PPP)-adjusted GDP (calculated over a 80-year spectrum, losses discounted at 3 percent) for a country like Türkiye would be approximately 6 trillion USD. Therefore, the cost of inaction is expensive as it is also associated with a loss of 10.5 percent in individual earnings which translates to more than 4 percent loss in GDP potential annually.

3 Immediate Education Sector Emergency Response

Building on MoNE's efforts after the earthquakes, Türkiye's Education Emergency Response and Disaster Management Model has emerged. Since the beginning of the earthquakes, MoNE has implemented a tripartite management policy to safeguard the welfare of earthquake victims, furnish them with necessary humanitarian support, promptly transition to educational services, and ultimately achieve normalization by consistently enhancing the delivery of quality education.

- **Locating victims and providing humanitarian support: As an immediate response, MoNE deployed teams (including the Search and Rescue Unit-AKUB) to support the national recovery teams to locate and reach survivors.** All educational institutions under the purview of MoNE that had the capacity for accommodation were utilized as shelters for earthquake victims immediately following the disaster. MoNE took a commendable step by offering students impacted by the earthquake the opportunity to reside in all school/university dormitories throughout the country free of charge. All student hostels, teachers' houses, and educational institutions were used to provide accommodation facilities. The number of earthquake victims sheltering in MoNE institutions reached a peak of over 450,000 during the first week of the earthquake, decreasing to 65,000 after few months as an expected result of the normalization and renovation of the disaster-affected provinces. MoNE Directorate General of Lifelong Learning delivered "production workshops" in 10 provinces and organized courses to prepare food, clothing, sleeping and accommodations materials. As a result, emergency needs were met through MoNE's distribution of packages to the millions including daily meals.

- **Providing immediate education services: MoNE's efforts have been at the center of continuity of education provision with immediate services.** There was particular attention paid to placing classrooms in common living and community temporary spaces, as well as near healthcare units.

[3] https://www.unicef.org/appeals/turkiye
[4] Hanushek, E.A. & Woessmann, L. (2020). The economic impacts of learning losses.

The established classes catered to students from early childhood education to upper-secondary education. For the last two months, the number of tents, containers, and prefabricated classrooms has steadily increased and reached 2,026 across 10 provinces. MoNE appointed teachers and school counselors and made significant efforts to ensure immediate deployment of qualified teachers and counselors in the affected area. Over 20,000 teachers were deployed in the region, including volunteer teachers. These teachers provided education services in tents, containers, and prefabricated classrooms, as well as in hospital classrooms, academic support programs, special education tents even at naval ships.

- **Increased transferability of the students: MoNE worked at enhancing the transferability of students to other provinces.** More than 250,000 students were transferred to other provinces, and approximately 60,000 students recently were helped to return after the reopening of schools in the earthquake-affected regions. MoNE has introduced and implemented two new policies to facilitate the education of students who chose to relocate to different provinces. Firstly, the transfer rules have been abolished, and the transition of students has been facilitated, taking into consideration the physical capabilities of educational institutions, for students who prefer to move from the 10 highly affected provinces to other provinces. This policy provides families who plan to relocate to other provinces with better options to ensure their children can access education as soon as possible. Secondly, MoNE has coordinated to increase the share of students receiving full scholarships at private educational institutions.

- **Provision of healthy and stimulating learning environment and phasing out the return to safe schooling: Having a healthy and permanent learning environment is essential to avoid immense ruins in the education system, to keep children in school, to motivate teachers and to aim at better learning outcomes**. MoNE reported that out of the 20,868 buildings under their jurisdiction in the 10 provinces, only 24 had collapsed, and 83 were deemed unusable due to extensive damage. MoNE implemented a management plan at the provincial and district levels for the transition to in-person education by categorizing the ten most affected cities into three groups based on the level of damage and needs where security controls and assessment efforts of physical school buildings had been completed. Two weeks that were added to the Spring Break across the country. Schools in Diyarbakır, Şanlıurfa, and Kilis, which were the least affected, began face-to-face education on March 1, approximately three weeks after the earthquake. Moderately damaged Adana, Osmaniye, and Gaziantep began on March 13, approximately five weeks after the earthquake. The most heavily damaged provinces of Hatay, Kahramanmaraş, Adıyaman, and Malatya began on March 27, approximately seven weeks after the earthquake. In these provinces, education was initiated in districts that provided suitable conditions for learning, and the number of districts transitioning to in-person education gradually increased with necessary precautions. Efforts cannot disregard the infrastructure needs driven by the earthquakes. Even though permanent school buildings require more time, the mid and long-term recovery plan should consider its urgency as the inefficiency of the temporary learning spaces is realized. Teaching and learning services would not be sustainably provided in such temporary spaces. MoNE explicitly emphasizes the urgency of rebuilding schools severely affected or crashed by the earthquakes. A proper and stimulating learning environment is a key element of learning and does not only mean physical infrastructure or space provided. Learning spaces need to be suitable and enriched with approaches such as “teaching at the right level” to tackle students’ deficiencies and to achieve proficiency levels to that before the crisis. Reconstruction and rehabilitation of school take time so temporary learning settings must be carefully designed and provided to ensure learning.

Facilities with comprehensive furnishing (such as laboratories, sport centers, workshops, multipurpose spaces, health facility, dormitories, etc.) are also urgently needed.

Different teaching, learning and support strategies needs to be envisioned such as grouping children by their proficiency levels-not by their age or grade- and providing special activities and instruction to help children move to the next proficiency level. So that each student can be monitored and tracked. Additional support and self-learning programs with digitalized educational material has been offered through the EBA system and could be further used for enhancing fundamental skills. Small group tutoring programs via hybrid means, for example, can also substantially increase student achievement, especially among low-achieving students.

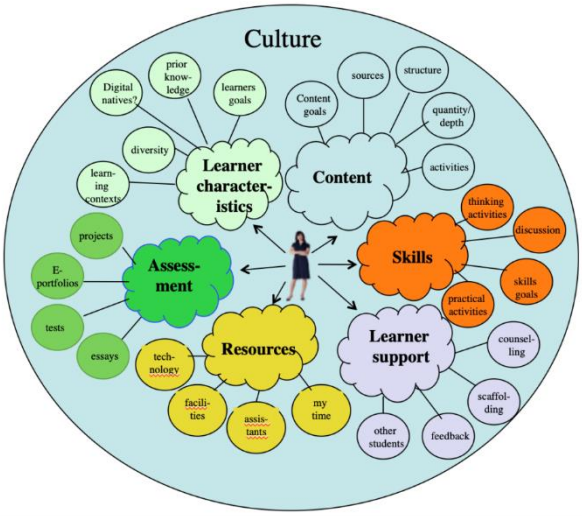
- **Provision of educational material and usage of digitalized and distance education tools: MoNE continued to digitalize to ensure lifelong learning opportunities under all conditions and initiated multiple digital ventures for students and teachers.** Educational materials, stationery sets (e.g., containing supplies, tools, art materials, class resources, and clothing items), tablets were also provided. MoNE printed and distributed millions of textbooks and supplementary resources (around 16 million textbooks, 11 million supplementary resources to students in need, 424 thousand stationery sets). MoNE established "support, game, and activity tents" to provide a safe and enriching environment for children to engage in play and fun activities to help alleviate the negative impacts of trauma experienced after a disaster.

- **Just-in-time professional development opportunities for teachers: MoNE provided teachers with education support resources and equipment, as well as temporary housing and transportation assistance to ensure that they can continue to provide quality education to their students despite the challenges they face.** Teachers were also trained on how to identify and respond to the challenges of students with special needs.

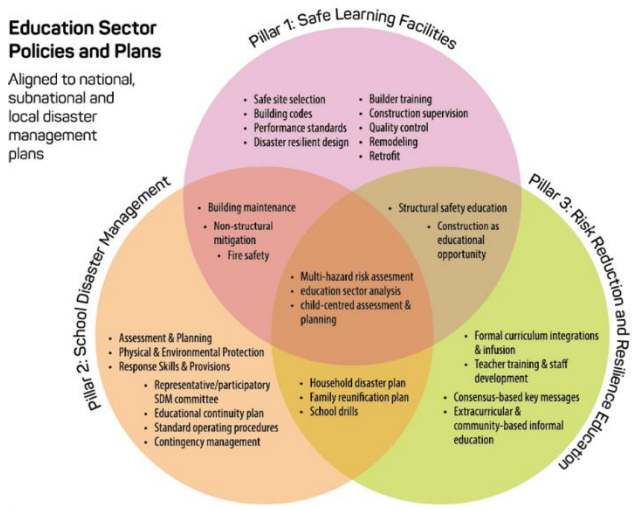
- **Utilizing the teachers' networks in support of the recovery efforts**: MoNE activated all available technological means such as the call centers and the WhatsApp groups to reach out to teachers across the country. Because of these efforts well-trained teachers were brought quickly to the region to help in the recovery efforts and in the provision of emergency support services. Teachers' networks have proven to be most effective in supporting the efforts.

These efforts were needed and helped in reducing and some cases reversing the immediate effects of the earthquake crisis on the education system, but there are other needs that are still to be addressed and challenges have resurfaced which call for stronger plans for "building back better" realizing that special education provision and support programs are still needed to bring students back on track towards completion of meaningful education qualification. With the continued political commitment, robust coordination and plans, funding, and efficient public spending the education goals will most likely be met. In addition to urgent actions that need to be taken, the plans may require multi years sustainable provision of services to be implemented to recover and improve learning to pre-earthquake trajectory.

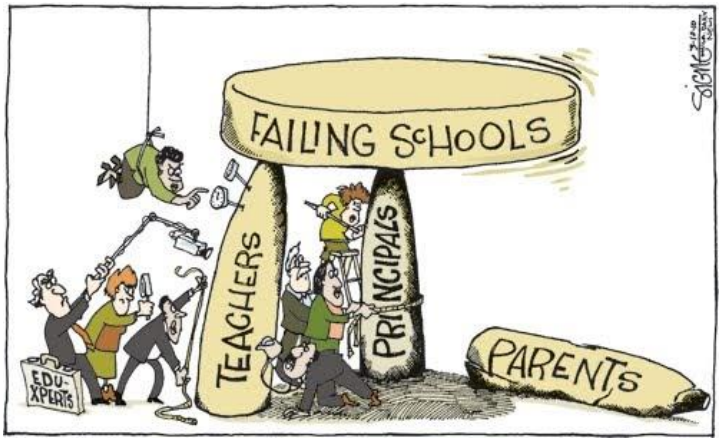
4 Framing of Short- and Long-term Solutions



Providing speedy permanent school settings will encourage teachers and students to return and stay in the school and make them feel they are getting back to normalcy. Ensuring a suitable and healthy learning environment would be the first need to overcome. The education spaces (emergency accommodation (tents), prefabricated classrooms, and permanent housing) were needed in both earthquakes affected provinces and in provinces hosting populations. Therefore, setting up temporary safe school and university spaces for children and youth in the affected regions became a priority while the longer-term construction and retrofitting take place. However, the current temporary arrangement does not always provide a proper learning environment and is not appropriate to be used as is for the long run, which underlines the importance of medium-term arrangements for education facilities. At the same time, it is important to ultimately achieve normalcy by consistently supporting the affected groups and enhancing the quality of education for all aiming at meeting the national goals such as SDGs, the skills, digital and climate agendas. Back-to-school campaigns, monitoring, early warning system for disasters, involving families in children's education, providing free school meals and cash transfers will help to expedite the learning recovery efforts and processes. Prioritizing fundamentals of learning is also critical. The relevant approaches include: (i) devoting more time to foundational skills in literacy and numeracy, (ii) focusing on key competencies, (iii) publishing updated learning objectives and outcomes; (iv) producing updated curricular documents, teacher guides, evaluation criteria, etc., (v) providing schools greater flexibility to adjust teaching plans to their students' needs. Effective teaching practices and learner-focused recovery strategies will also help to gain learning losses. Targeted instruction, self-guided learning programs, structured pedagogy, expanding learning time, and tutoring are among the evidence-based approaches for recovering and accelerating learning.



Ensuring a structured management support system and professional development to teachers to provide quality instruction and services inside and outside of classrooms emerged as another priority to focus on. Improving in-service Teacher Professional Development programs and systems will accelerate the learning process and recovery of the learning loss. Supporting teachers and school administrators with on-going, tailored, focused, practical training and support to energize teacher-student interactions will help in students' development and quality of learning. Introducing boot-camp opportunities, for example, in schools as part of the training curriculum of teachers will prevent teachers from struggling when they confront classroom challenges during emergency situations. Without any mentoring or guidance on how to meet challenges, teachers might have difficulties in managing classrooms with confidence and well-guided abilities. There is a need to meet the housing needs of the teachers, to provide childcare services for their families to keep them attached to schools and accordingly to provide them with adjustments needed (e.g., in relation to pedagogical practices, curriculum adjustments, supporting students, learning assessment, support in the provision of hybrid, online and face-to-face functionalities and incentives).



The earthquakes showed that there is a need for better support systems for both children and families to ensure effective school programs. The support services need to be considered in terms of short and medium-term accommodation approaches to ensure physical and mental health including psychosocial support and referrals, participation in extra-curricular and community activities for social cohesion and parental awareness, outreach and incentives, social programs to support students' families and teachers, and training (e.g., on child protection, dealing with signs of trauma, etc.). Also, special schooling considerations and protecting services for unaccompanied minors and orphans need to be coordinated with the appropriate child protection and family welfare institutions. All facilities need to benefit from a "blended" teaching and learning and support approach, where face-to-face interaction (peers and teacher) are combined with digital/distance interactions. These will require investments in civil works, furniture and equipment, educational awareness and outreach, teacher and parental training, digital content as well as specialized and well incentivized support services. Supporting and strengthening living conditions of families is a main pilar in building learning communities. The resilience of students requires an active role of parents. Many children either lost their parents by the earthquakes or parents became more vulnerable to shocks. The earthquakes have made it clear how important support at home is, and how parents are important in their children's learning and their future. Public policy should provide guidance, support, and

counseling to parents to better fulfill this role as the education system must become more equitable and more resilient. This part of learning is for everyone and everywhere and must be associated with a proper incentive mechanism. Incentives for poorer families can be an effective solution to help families become more supportive to their children at school.

Expanding the daycare system would play a critical role in support of all young children and their families to ensure proper education/health/nutrition programs for children 3 and 4 years old for better readiness to school and for giving the opportunity to mothers for active participation in the labor force and economic empowerment activities. Early learning experiences (at home and in preschool programs) lead to better school readiness and is necessary in such emergencies. Such programs can also help shape students' attitudes and feelings toward language, reading, writing, and math early on in their lives. In-school support is critical, including relevant pedagogical strategies especially in foundational reading and numeracy skills and in motivating students to learn and have a strong head start in life.

Structured all-day schooling arrangements with extracurricular activities under a well-coordinated support system can lead to better educational outcomes for school children and increase their aspiration for professional and higher education. These activities help students to develop their diverse skills and dispositions since it needs to include activities beyond typical curricula such as non-cognitive skills (i.e., self-esteem, self-efficacy etc.), which makes them more motivated to study and to interact with their peers and mentors as well as exposure to adults. Thus, they will develop their personality and character, can reach more information, resources, and support to be more engaged with higher education and able to easily shape their career path. Particular to the earthquake region, given the fact that that possibly high dropouts and weak school attachment, it is important to keep students motivated, engaged and inspired for later grades. Hence the double shift arrangements currently implemented are not suitable for such activities.

To support the development and design of education policies, a strong institutional data system and IT platforms are key and should be part of consolidated management and planning for emergencies. The Turkish Education Management and Information System (EMIS) is well-established and the majority of EMIS processes are well coordinated at the central level. The system is designed to collect, process, and disseminate reliable and timely data. The EMIS collects a wide array of administrative, financial, demographic, and human resource data as well as learning, attendance and achievement data. EMIS should also expand beyond such and truly focus on utilizing education data for measuring, monitoring, and evaluation towards identifying key education policies and providing high quality learning for all. The EMIS's operational use in decision-making and policy design remains limited in Türkiye (World Bank, 2019)[5]. In these critical times, it can be supported by integrating it with other data sources such as health, social assistance, refugee database, which would be beneficial to track students and families as well as disadvantaged groups (e.g., vulnerable, children with disabilities, migrant and refugee children and families) for the sake of designing better education policies and strengthening the targeting processes. Also, the system could be used for institutionalized coordination purposes as well (e.g., coordination between education and emergency agencies, system resilience, linking with private sector, education emergency response system). As part of strengthening the service delivery of learning, Education Service Delivery Indicators could help to track performance and quality of education services aiming at increasing public accountability and good governance by enhancing the active monitoring of service delivery. It also helps to design and test better interventions to improve education outcomes for the earthquake regions and beyond. Tracking teacher knowledge, classroom and school absence rate, time spent by teacher per

[5] World Bank. (2019). Turkey: Education Management Information System. SABER Country Report.

day, equipment and infrastructure availability, student-teacher ratio, share of students with textbooks are among those indicators. Assessing students' learning levels regularly will be important in the mid and long-term once students are ensured to return and stay in schools. This will help policymakers understand learning challenges and their trends over time, and inequalities in learning. So that, it would be easier to identify how to mobilize resources to recover the learning loss and to reduce drop-outs -especially among most disadvantaged groups- as well as design appropriate learning recovery strategies. The assessments and diagnostics can also help in implementing better teaching plans and pedagogical approaches to best ensure students' progress towards learning goals.

The incidence of disability increased by the earthquakes hence future education activities are needed. A process to further strengthen the capacity of the system to reach out to all learners will ensure equitable access, learning, achievement and has an impact on human capital development and economic growth. The emerging needs are basically as: (i) Appropriate and better school facilities: All accommodation needs to follow the needs of children with disabilities for the sake of building a proper and healthy learning environment. (ii) Better data system and monitoring to identify and support inclusive education. Currently, quality data on participation and outcomes for children with disabilities is lacking. In addition, there are barriers on the supply and demand sides which limit access and learning. Effective interventions especially around pedagogical practices and technology-assisted learning need to be identified, implemented, and evaluated. Also, a better data system requires to be integrated with other administrative records. The EMIS system could be expanded with access to different types of specialists who support children with disabilities directly. (iii) Provision of transportation to ensure mobility to specialists. There is a need to have a proper plan for emergency situations to ensure the accessibility throughout the travel chain (e.g., pedestrian access, vehicles, transfer stations) and to assure safety during transportation – including safety from violence, bullying, and harassment –for students with disabilities and students. (iv) Support inclusive teaching. A support system (training, incentives etc.) needs to be developed for teachers and support staff to provide healthy teaching and manage possible problems in and outside the classroom. It is crucial to build school staff competencies and incorporation of support services to support learning for all students through inclusive pedagogies, technologies, curricula and learning environments.

The detrimental effects of the earthquakes might be more severe for the high share of refugee groups in the area, requiring concrete actions and solutions. While refugees are well integrated in all government efforts, it is not surprisingly, refugees might face a high risk of school drop-out, irregular attendance and are prone to long-term social and economic disadvantages. Türkiye is the largest refugee hosting country with 3.6 million refugees. As of June 2023, the earthquake regions are hosting 1.7 million Syrians under Temporary Protection (SuTPs) (corresponding to 48 percent of total SuTPs in Türkiye). The Ministry's "Education for all" policy requires special programs such as second-chance activities. While prevention and intervention programs aim to avoid early school leaving, second-chance programmes can offer alternative pathways to children and youth by allowing them to gain basic qualification, get back into mainstream education, or integrate them into vocational education and training to obtain a professional qualification[6]. Many of the Organisation for Economic Co-operation and Development (OCED) countries have implemented bridging and second-chance programmes to accommodate vulnerable groups. These programs include individualized teaching methods, flexible and needs-based curricula, holistic assessment approaches, small classes with low student-teacher ratios, multi-professional teams supporting learners, integration programs and welcoming learning environments and partnerships with mainstream education institutions, local communities, and employers. In Türkiye, the data system can monitor the enrolment of refugee students in the country including refugees' enrolment in higher education as well, based on the

[6] https://www.oecd-ilibrary.org/sites/2ad78416-en/index.html?itemId=/content/component/2ad78416-en

students' nationality. However, all Syrian students are assumed to be refugees, but not all of them are. A better monitoring system needs to be developed and strengthened the education support system for the refugees. Entry pathways to higher education for refugees may require different conditions. Special admissions, aptitude or university entrance tests, and recognition, validation, and accreditation of prior learning, preparatory and bridging programmes could be facilitated.

In the Way Forward Plan for Türkiye, the efforts need to look at the roots of issues and continue the support, tracking and acceleration over the child's journey in the education system. Based on the in-depth discussions with MoNE and international partners, and evidence-based results from international experiences, Türkiye can recover the learning losses by implementing solid acceleration actions to build back better towards a more resilient and responsive education system. The steps taken so far must be assessed first and gaps, strengths and weakness of the response must be identified as we indicate in the report.

Integrated early childhood development program with a mediated head start is needed to secure the young generation in the earthquake regions. Young children are facing severe challenges, emotional, mental health and wellbeing, and loss and delayed learning) driven by the natural disasters. They have been facing development difficulties in emergency settings, requiring long-term agenda to buffer the negative effects of the earthquake regions, and building resilience for future events. Early childhood development services not only help children to regulate their feelings and emotions, to get rid of negative results of traumatic events, to improve school readiness and to develop early foundational skills in emergency situations, but also have long lasting negative employment outcomes. Given the fact that many children have lost their parents, it is important to have subsidized services in the earthquake regions. In addition, early childhood education matters for women's economic empowerment. Women's weak labor market attachment is an important bottleneck in Türkiye. One third of employed women may need to take their children to work for some reasons such as limited public childcare services or financially unaffordable private childcare services. Therefore, supporting childcare services is key element to attract women in the economic activity and help them to engage in full time jobs. Policy efforts should focus on improving the provision of quality and affordable childcare. Less spending on childcare and less accommodating flexible working arrangements prevents women to return to work and/or work full time.

The earthquake has devastated the labor market in the affected region, consisting of nearly 4 million workers, mostly employed in agriculture, manufacturing, trade, and other, low value-added, services, according to the 2021 Household Labor Force Survey. The interruption of economic activities and its effects on livelihoods have resulted in income losses. The International Labor Organization (ILO) reports that around US$150 million (2,859 million Turkish Lira (TL))[7] reduction in labor income for every month insofar as the situation continues. ILO estimates that the average affected worker will lose, 4,351 Turkish Lira per month as long as the situation continues[8]. President Recep Tayyip Erdoğan issued a decree banning layoffs and introducing short time working allowances for the affected area to curb the problems of the labor market. Although the decree purportedly bans "layoffs" in the region, companies can dismiss workers by paying a fine of only one gross minimum wage. For those who do not benefit from short time working or unemployment allowance and remain unemployed, the Unemployment Insurance Fund will pay a sum of 133 Turkish liras per day or around 4,000 TL per month, during the state of emergency. The workers will be covered by General Health Insurance. However, the poverty line for a family of four already exceeds 30,000 TL. Job loss can be a catastrophe with far-reaching negative psychological and economic

[7] Exchange rate is 19.06

[8] https://www.ilo.org/wcmsp5/groups/public/---europe/---ro-geneva/---ilo-ankara/documents/publication/wcms_873893.pdf

consequences. The negative psychological and economic consequences of unemployment can even spill over to spouses and children. As a result of the layoffs, children, especially girls, are most susceptible to being pulled out of school by their families to help them. At the same time, the UN Population Fund reported that the situation for the 356,000 pregnant women in earthquake-affected areas remains critical, especially the estimated 38,800 expected to deliver in the following weeks after the earthquake. The poverty and social insecurity faced by rural households increase the risk of resorting to child labor as a coping mechanism. Among the affected 11 provinces, Adıyaman, Şanlıurfa, and Diyarbakır are being considered as sending provinces in terms of seasonal agricultural families/workers. These provinces send 66.9, 5.0 and 2.4 per cent of seasonal agricultural workers respectively. Lack of safe shelter opportunities and the postponement of school openings increased the risk of child labor as a significant portion of families are involved in migration for seasonal agricultural work.

As an earthquake response, both Technical and Vocational Education and Training (TVET) institutions and students put significant effort to help earthquake victims by producing food, using available kitchens, production of sleeping bags, blankets, and tents. Moving forward, TVET institutions could have a role in the production process to engage students in practical activities and generate revenues to schools. This emergency experience also gives attention to the Public-Private Partnerships for better practical experience for students, generating revenues, involvement in innovations, strengthening corporation with industries. TVET systems are very effective tools to advance youth employment, to increase decent work, to empower individuals, organizations, enterprises, and communities, to promote entrepreneurship and lifelong learning opportunities towards better occupations, production services and livelihoods. For the long-term agenda and disaster preparedness purposes, TVET systems should be strengthened by adjusting the curriculum to the crisis, explicitly identifying the role of the TVETs in disaster responses and creating strong networks with the private sector.

5 Visiting the Earthquake Regions

Between 20-21 of July, the World Bank education team visited Gaziantep, Hatay and Adana and met with educational institutions, municipal authorities and Non-Governmental Organizations (NGOs). Main observations were as follows:

1. **Proactive role of the municipalities to protect the children, youth and mothers:** Municipalities actively used resources to support the needs of the earthquake victims. In Gaziantep Art and Vocational Training Centers (GASMEK) offer education opportunities for school-aged children, youth and adults. The municipality employees and for the citizens on a need base. Preschool education is offered for 3-5 years old, tutoring services, exam preparation, and extracurricular support activities are offered to middle and high school children. Courses in different fields (e.g. cooking, hairdressing, computer, coding, foreign language etc.) are offered to improve employment chances of youth and adults. These services are approved and certified by MoNE. It plays an important role in creating new skills for those who want it within the scope of Lifelong Learning and transforming it into employment.

Figure 2 Gaziantep Art and Vocational Training Centers (GASMEK)

2. **Youth Support Center in Nurdağı:** The Center was established by the Municipality for earthquake container city in Nurdağı. It offers young people opportunities such as reading, playing chess, using a computer or cooking in this heavily damaged district. It aims to address dropouts and motivation losses and reinforce equality of opportunity.

Figure 3 Youth Support Center in Nurdağı

3. **Support for livelihood:** MoNE is coordinating services and providing resources to sustain the livelihood of the people in the earthquake regions. To this end, the government has facilities to provide daily needs for free and is currently constructing shops to be given to the people living in the containers city to accelerate commercial activities.

4. **Preparations of the Ministry of Education for the new academic year in Hatay:** According to the provincial director of the MoNE approximately 500,000 people left Hatay after the earthquake and it is not certain how many people will return to school. This uncertainty seems to be one of the most important problems. MoNE has planned to bring 5000 new teachers to the region, but the issue of accommodation is still a challenge. Another problem is to deal with the loss of motivation of students and unwillingness to enter closed spaces. It is planned to transfer more students to undamaged schools and continue as a double shift, and to move some schools to the tent-city established by NATO.

5. **NGO role in the emergency response:** Alaçatı Coordination Center of SGDD-ASAM, one of the biggest NGOs working in the field for vulnerable groups all over Türkiye and the region, carry out various emergency activities, humanitarian aid, field work and other response activities for the local people. SGDD-ASAM opened a Multiple Support Center in the garden of the Primary School in Samandağ for psycho-social support to students and their families in the surrounding area.

Figure 4 Alaçatı Coordination Center of SGDD-ASAM

6. **Response of the Universities for the sustainability:** The team met the Rector and visited Çukurova University. During and after the earthquake, the University's Faculty of Medicine was active in the treatment of people injured in the earthquake. The University also operationalized a Child Wellness Center for the psychosocial and physical treatment of children. Other research laboratories and Technopark at the university are state of the art and can be utilized in support of the education and innovations in emergencies.

Main takeaways of the field visits are as follows:

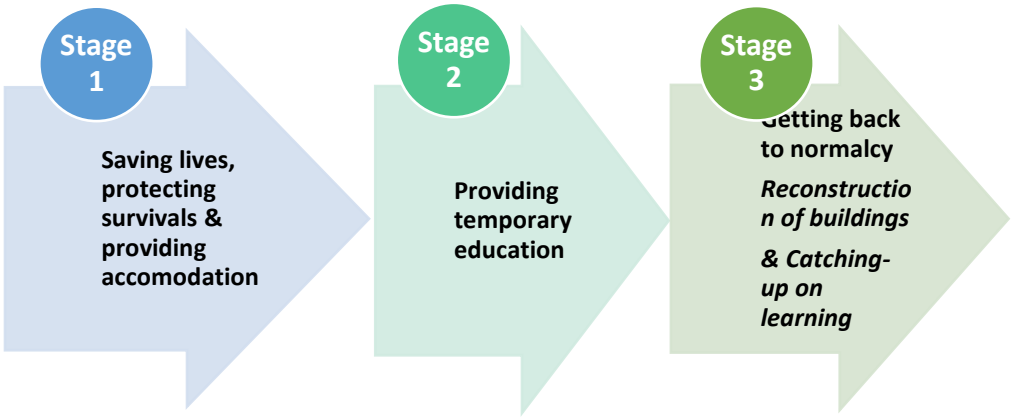
a. The effect of the earthquakes on the education system in the region is a serious challenge. The government has been putting significant efforts to bring education back to normal.
b. There is a need to prioritize the services targeting preschoolers and mothers.
c. Education support services targeting the well-being of children and learning acceleration programs are effective ways.
d. NGOs and private providers are being utilized to support the government efforts
e. School complexes could be a viable solution given the need for integrated services
f. VET strengthening can contribute to the development of the region and help in future emergencies.
g. Universities can play a role in the long-term planning and executing of emergency plans and response.

6 Reflection on MoNE's Response and Disaster Risk Management Model for Future Emergencies

Türkiye has a long history of response to emergencies and created emergency management institutions, such as AFAD, that collaborate with national agencies and international partners to share experiences for risk reduction, emergency response, and building back better. Yet, recent devastating earthquakes showed once again the crucial importance of collaborating with the education agencies for a more sustainable preparedness, response and resilience for disasters. Cities and the regions altogether have a significant share and role in economy, production, agriculture, and historical-cultural heritage recovery efforts. The Ministry's commendable response to the earthquakes can be categorized into three stages: (i) provision of first response to save lives and provide protection and accommodation; (ii) ensuring continuity of service delivery in education-teaching, providing learning and support including managing education workforce (teachers and other education personnel); (iii) getting back to normalcy. The Ministry has put exceptional efforts in provision of first response by saving the lives, providing protection and essential services in many areas. Accommodation and shelters (prefabricated housing, tents) were quickly

provided to the earthquake victims. Health was among the top priorities. MoNE coordinated with the Ministry of Health and done a lot on health (establishing hospital and health care centers, both prefabricated and tents). Immediately, nutrition and food packages were delivered to the earthquake regions. Mobile kitchens were the effective tools for the continuous food service. Sanitation facilities (solid waste disposal facilities, such as containers and waste pits; drainage facilities; adequate water for personal hygiene and to clean toilets) were provided. Still, as highlighted throughout the report, not all the appropriate accommodation spaces are permanent. Accordingly, infrastructure that was quickly provided will not be sustainable considering the changing situations (including seasonal circumstances). Adaptation problems in learning will be more severe for the children living in poor conditions and experiencing traumas due to the earthquake.

Figure 5 Response Stages of MoNE



On continuity of service delivery, MoNE was quick to provide temporary learning spaces, play groups and psychosocial support to both children and families. Education processes have been adjusted to meet the needs. Flexibility in service delivery (digital education, alternative models of delivery, such as self-study, distance learning and accelerated or 'catch-up' learning programmes) has been implemented with the aim to reach all children. Learning materials such as books, maps and charts, supplementary study materials, teachers' guides, equipment, toys and other teaching and learning materials were provided quickly. Training, support and counseling services were provided for students, families and training personnel. MoNE has used mentorship and tutorship tools, structured learning, and child-friendly methods to recover the learning loss, which can be extended to all children and could be seasoned with more techniques such as using pedagogy and teaching methodologies, including positive discipline and classroom management, participatory approaches and inclusive education. Some of the children were transferred to other regions with transportation support. Teachers and other education personnel were provided with temporary spaces. MoNE also provided certain exceptions for the teachers in terms of taking paid leave.

Getting back to normalcy can take longer than expected and is expensive if not planned carefully. The earthquake effects would be deeper if the country takes longer to bring the disaster effects under control, and/or if there are protracted effects on children and families. Accelerating the reconstruction of the buildings is among the requirements of getting back to normal life in the earthquake regions. The multiple efforts should focus on expediting the reconstruction. Another vital step is to recover the learning loss and

to develop catching-up programs as well as mentorship and tutoring services. Based on the technical meetings with MoNE, discussions with other partners in the education sector and field visits observations of the World Bank team to the earthquake regions, certain reflections can be noted. The main areas that need more attention could be: (i) expanding education services to the very young group especially 3-, 4- & 5-year-olds who have started their lives with the earthquake shock, (ii) boosting the acceleration process and expanding support systems, (iii) expediting the reconstruction, (iv) data and information systems, (v) pay special attention to migrants and refuges and (vi) disaster risk management for the future. The reflection can be summarized into:

1. **Early child education:** Considering the importance of early childhood education, MoNE had provided excellent opportunities to pre-school age children such as providing spaces, play hours and materials. These efforts were valuable ones, and the country needs continuity and expansion in early childhood education. Even though the country reached its target rates on pre-primary education, MoNE could consider extending the services to 3- and 4-years old children, who are at their development milestones. This has vital importance in many aspects. Early childhood education is an important element of having better learning outcomes for children. Those who attended pre-primary education would have healthier development, enhanced learning capacity, and increased productivity in adulthood. Pre-school service could also help to improve the female labor force participation rates, which is much lower than the country average in the earthquake regions. This is also critical for single headed families caused by the earthquakes to participate labor.

2. **Acceleration and Support systems:** Even though MoNE has done a lot on providing support for children, families and education personnel, the World Bank reflection is that the efforts should be continuous and expanded with the aim reaching all.

3. **Addressing the needs of migrants and refugees:** The country has put multiple efforts to improve school enrollment, attendance, learning outcomes and reduce inequalities in access and quality for both Turkish citizens and refugees. The influx of Syrian population added challenges and required integration into the Turkish education system. To high extent these efforts were successful in providing education services to refugees. In many hosting countries, refugees and migrants are vulnerable to bullying and unfair treatment at school. For these reasons, Türkiye implemented special initiatives to accommodate and integrate Syrian children in education that can be further extended to the earthquake regions. One of the initiatives was the expansion of the Conditional Cash Transfer for Education programme, that was launched in 2003 to increase disadvantaged Turkish children's participation in education, to include the refugee children in 2016. Also, together with UNICEF, MoNE launched Accelerated Learning Programme, to help out of school youth included Syrian refugee children to re-enter formal education and support their learning. The program also. Promoting Integration of Syrian Kids into the Turkish Education System Project (2016-18) supported by EU was another program, that includes language programmes, catch-up and extra-support classes, transportation and educational material, teacher training, and awareness raising activities in the provinces with the higher share of Syrian refugees. MoNE-PTT (National Postal Service)-UNICEF Teacher Incentives Programme targeted Syrian teachers to meet their needs and to increase their participation. Also, considering the importance of VETs, the efforts also aimed at improving the quality of VET infrastructure in regions with the high density of refugees. Despite these significant initiatives and efforts, 350 thousand of the 1.2 million school-aged Syrian refugee children in Türkiye remain

outside of education (UNICEF, 2022)[9] and this number increased after the earthquakes. In addition to expanding the above programs in the earthquake regions there are promising practices from other countries that could be adopted to help refugees and migrant children excel in education. These programs have proven to be helpful in USA, Canada, Germany, Portugal, Estonia, Belgium, Netherlands, Armenia, Greece and Northern Ireland[10] [11]. Parental engagement, co-operation between schools, migrant organizations, and social offices could raise attendance and learning outcomes. Visiting families and opening education facilities to them to receive language and training courses to strengthen immigrant parents` skills, opening workshops to produce products for family consumption or has a commercial value, and official communications from local municipalities could help families on how to support their children in the learning process.

4. **Expedite the reconstruction:** The World Bank team observed that the earthquake regions need an urgent reconstruction of both school buildings and accommodation. The conditions might be quite challenging in some places for the earthquake victims. Some of the buildings are not resilient to the seasonal conditions, which urgently need to be improved. In addition, the buildings should exhibit greater levels of seismic and disaster resilience.

5. **Data and information systems:** The education data systems were in-use in managing the crisis however, the earthquakes showed that the response and recovery plans require multi-sectoral integration of data to better facilitate an efficient disaster risk management and coordination and monitoring response. MoNE could consider strengthening data systems to be able to track individual students during crises and continue to assess learning. This will help shape a more resilient education policy and actions, planning and implementation to protect and fulfil the needs of different groups of students. Continuous data monitoring and assessments will ensure speedy steps to provide targeted and customized services to ensure meeting the education goals, establish inter-sectoral linkages, and execute well-coordinated national and local education plans.

6. **Disaster risk management and strengthening the system for readiness for future crisis:** Since the first day, MoNE was proactive in supporting the recovery efforts led by AFAD, the national agency for risk management. Their efforts to support children, youth and their families as explained above provides lots of lessons that need to be summarized, evaluated and documented to contribute to a national emergency plan for protection of education during crisis. Building back better requires research, coordination and collaboration between different stakeholders backed by legislative guiding principles. MoNE could consider implementing disaster risk reduction principles coordinated with the other sectors to have concrete emergency preparedness plans. For example, emergencies require special adjustments to the education processes, teacher training, curriculum and textbooks and inclusion of updated and emergency-related content. Practice of simulation drills for expected and recurring disasters and reviews of school structural and non-structural safety measures are essential elements of such a plan.

7 Proposing a Roadmap for Education Sector in Türkiye

[9] UNICEF (2022), *Additional 60,000 children in Türkiye to benefit from School Enrolment Programme*, https://www.unicef.org/turkiye/en/press-releases/additional-60000-children-t%C3%BCrkiye-benefit-school-enrolment-programme%E2%80%AF (accessed on 13 February 2023).

[10] UNCHR, UNICEF, IOM (2019), Access to Education for Refugees and Migrant Children in Europe, Access-to-education-europe-19.pdf (unhcr.org)

[11] OECD (2023), Taking Stock of Education Reforms for Access and Quality in Türkiye

These disasters may have significant and long-lasting impacts on educational programs and academic achievement if not addressed strategically. Hence MoNE could benefit from a World Bank recommended roadmap that includes the several concrete actions. This roadmap can support the existing efforts that MoNE has been putting in. roadmap supports education sector in Türkiye and entails implementation of an action plan involving reinforcement of educational infrastructure throughout the country, with the goal of achieving more equitable socioeconomic development. For this, working with partners like UNICEF and development partners would be strategic, bringing together several workstreams and facilitating synergies. The recommended actions could be as following:

Action 1: Integrated Early Childhood Development Program aiming at Saving the Young Generation with a Mediated Head Start:

a. Expanding and strengthening a whole daycare program targeting 3- and 4-year-old and their families;
b. Provision of learning spaces, kitchens, technologies, playgrounds, and equipment, education curriculum and material;
c. Supporting training and job placement programs for mothers including work and participation at daycare centers. Career services and skilling activities will be operationalized to ensure the accommodation of women and mothers' employment through convenient opportunities (such call centers, art and crafts and producing goods of commercial value, midlevel technological support, health and social services);
d. Support services to include nutrition, health and wellbeing for all children;
e. Provision of special programs prioritizing reading literacy, soft skills, problem solving, social and environmental/climate awareness;
f. Training and professional development for teachers, caregivers and mothers;
g. Strengthening the framework and standards guiding such programs and services.

Action 2: Learning Catching up with Acceleration and Holistic Support Program to ensure learning at the right level and healthy wellbeing for Grade 1-12 age groups:

a. Strengthening the assessment and curriculum adjustment activities and enrichment agenda;
b. Provision of structured after-school activities and academic support programs;
c. Building a support system reaching all vulnerable such as earthquake residents especially orphans, out of school children and youth;
d. Establishing early warning systems to identify at-risk students and strengthening the education management information system utilization;
e. Continuing with the refugees' support and integration in schools;
f. Strengthening the accountability and incentives system based on value added modalities.

Action 3: Securing Skills Asset for Improved Production and Economic Growth with a futuristic Vision Towards Green and Technological Innovations:

a. Strengthening the VET institutions towards adaptive academic programs and strategic employment with active collaboration with industries. This includes curriculum, teaching and learning, communications, and investments in workshops and equipment;
b. Strengthening the education-to-work pathways and introducing signature programs;
c. Enriching the reskilling programs involving professional and higher education institutions;
d. Strengthening the data systems and the monitoring and evaluations framework and processes.

Action 4: Green and Resilient Learning Environment:

a. Supporting school reconstructions, lessons can be learned from the World Bank/EU project under the Facility for Refugees in Türkiye (FRiT), Türkiye's Ministry of National Education under which 62 schools were built, hosting over 1,400 classrooms, based on Türkiye's latest seismic code which was updated in 2018 in accordance with international earthquake engineering standards. These efforts have been undertaken under the auspices of the Education Infrastructure for Resilience Project. Every single one of the 24 schools located in areas affected by the February 2023 earthquakes and aftershocks survived.
b. Pilot with new school/education campuses in catchment areas with classrooms and integrated facilities (dorms for teachers and students, health facilities, kitchen, sports, support services, labs, social and community centers, etc.)
c. Realization of green and digital transformation while combating climate change and implementing the education climate and digital action plans.
d. Capacity building.

Action 5: Establishing a National Center of Excellence for Emergency Management:

The Center will focus on (i) coordination between relevant institutions and centers (e.g., AFAD and centers working on the science, and policy of earthquakes and disasters); (ii) researching and improving processes of response and recovery; (iii) building an integrated data and analytic system working with education, health, social protection and support services to ensure effective continuity of services during and after emergency situations. The Center may have different functions, roles, and divisions to collect information and data on emergencies, conduct studies and evaluations, and build coordination with national and international stakeholders and partners. The Center of Excellence will enhance institutional capacity for research and innovation to optimize response to emergencies, build capacity for other regions in the country, collaborate with international partners, and extend its strategies by providing support to other countries. Evidence shows that the knowledge generated through higher education and research and innovation attribute to growth and to the accumulation of capital and labor for improved productivity. Even though, the economic value of improved research and innovation, better institutional capacity and infrastructure, improved technical and pedagogical skills etc. are difficult to quantify; project-supported investments are expected to generate returns similar to those accruing from private investment in research and development (R&D) as well as spillover effects[12]. There is enough evidence in the literature that research and innovation in these areas leads to significant returns.

To avoid immense ruin, it is important to create sustainable plans, improve preparedness of institutions, citizens, and response systems. The education system in general, and universities and higher education system in particular can and should play a more significant role in protection, response and resilience stages for emergencies. Universities have a crucial role in educating and raising awareness about emergency preparedness and sustainable development. They can make significant contributions to sustainable development and emergency preparedness through various initiatives and actions: 9i) *Revising education programs/curriculum:* By emphasizing emergency response and resilience concepts into education programs across various levels and disciplines, equipping college students with knowledge and skills needed. Universities can contribute to disaster management, emergency response, risk assessment and community resilience. (ii) *Increasing research capacity and innovation* that focus on emergency by investing in research projects that evaluate response systems, analyze impacts of disasters,

[12] Studies have found the spillover impact of research and innovation to be close to 30% across industries: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/333006/bis-14-990-rates-of-return-to-investment-in-science-and-innovation-revised-final-report.pdf

identify strategies, new technologies and promote sustainable systems. (iii) *Collaborating on interdisciplinary and priority topics* among different faculties, academics and students to address complex challenges; fostering partnerships and knowledge exchange between different universities, research centers, and institutions. It is expected that universities will diversify the programs that support the mobility between the economic actors in the region, develop educational programs that will meet the regional needs, and create regional-based learning processes with the employment of students and graduates who know the region better. Universities need to emphasize emergency response in the mission and specialization of the universities in earthquake regions so that they can provide added value to sustainable development of their cities, region, and the country. Currently there is no systematic approach to operationalize the collaboration to effectively implement the priorities. Nevertheless, although there are some attempts to differentiate the missions of the universities by defining specific fields they can concentrate on, there is not a unified and holistic approach systematically focusing on emergencies. Neither in the 11th Development Plan nor in the strategies of higher education institutions/universities nor in the specified roles given to the universities selected as "Research Universities, Universities with Priority Field Mission," emergency has been named a strategic area to act. Therefore, there is an urgent need to link the higher education system and the universities to the emergency response strategies of the country. For this, Center of Excellence could lead the way to research, develop and implement emergency strategies and establish networks. To be more prepared for future crises, it is important to create sustainable and institutionalized responsive systems utilizing key educational actors such as universities, researchers and teachers' networks. Universities could support inclusiveness, equity, and access to all groups in society by bringing actions and meaningful public accountability.

Moreover, the World Bank discussed with the MoNE[13], the Council of Higher Education (YÖK)[14] and the Scientific and Technological Research Council of Türkiye (TÜBITAK)[15] on collaborations in support of the innovation agenda and improving the relevance of education especially on the innovation and inclusion agenda for open opportunity for all students to get involved. Working with TÜBITAK as the sole national agency focusing on strengthening the technology and innovation ecosystem in the country is of high importance to ensure success at the center of excellence. This approach will foster a model for protection, recovery, and response to emergencies. To provide this, programs should be revised in accordance with the needs. All stakeholders in the education system must be involved in coordination, in preparing knowledge, skills, and qualifications in education programs. Moreover, the Center of Excellence on Emergency will help strength the capacity to respond to emergency situations, but needs to redefine, organize, and promote strategic priorities and resources, find innovative ways to collaborate with industry, government, and other stakeholders, create tangible solutions for any challenges.

[13] Ministry of National Education is the Ministry responsible for all levels of education from pre-school to high school.
[14] YÖK is the national authority established by the constitution and responsible for strategic planning of higher education, coordination between universities, and establishing and maintaining quality assurance mechanisms.
[15] TÜBITAK is the leading agency for management, funding and conduct of research in Türkiye, established in 1963 with a mission to advance science and technology, conduct research and support Turkish researchers. It is responsible for promoting, developing, organizing, conducting and coordinating research and development in line with national targets and priorities, it also acts as an advisory agency to the Turkish Government on science and research issues, and is the secretariat of the Supreme Council for Science and Technology (SCST), the highest science and technology policy making body in Türkiye.