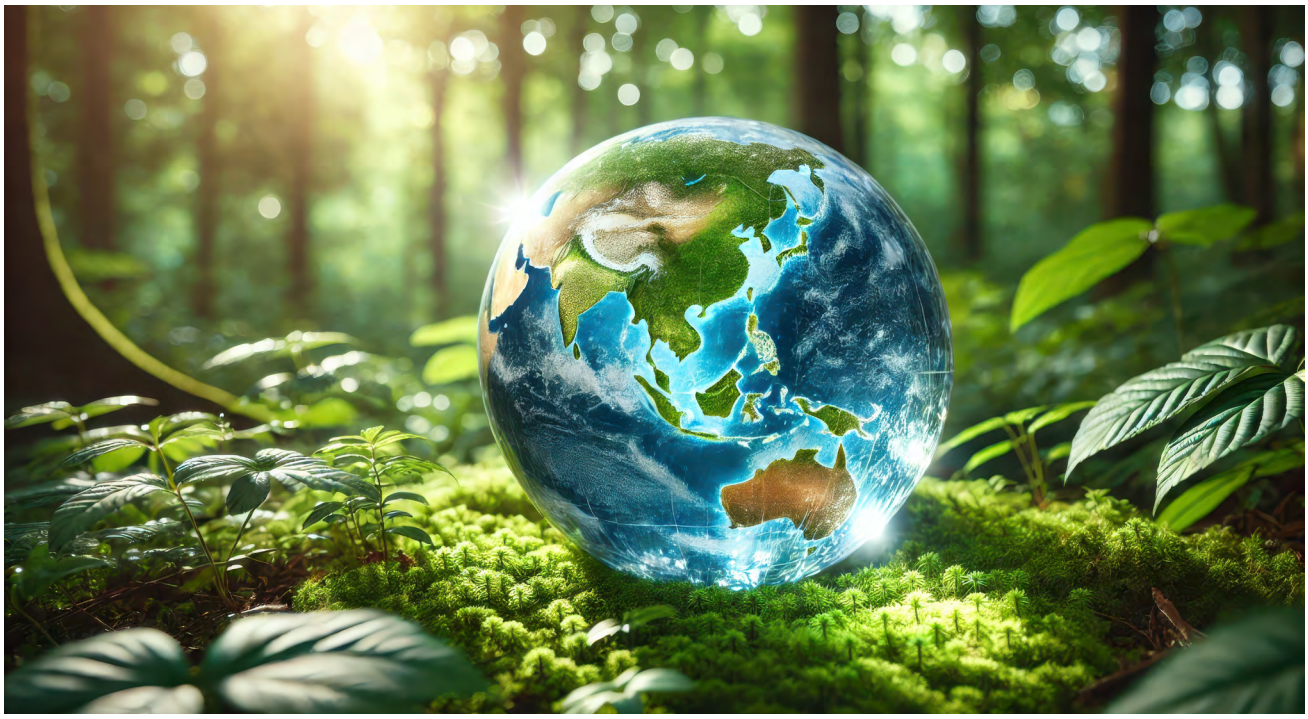
Centre for Social and Economic Progress | CSEP
Independence | Integrity | Impact

THE ASIAN COLLECTIVE FOR HEALTH SYSTEMS

Executive Policy Brief | June 2026

Developing Competencies for a Climate-Resilient Health Workforce in South and Southeast Asia

Priyanka Tomar and Neethi V. Rao



1. Introduction

Across South and Southeast Asia, climate change is intensifying existing pressures on health systems. Heatwaves, flooding, shifting vector ecologies, and climate-sensitive disease outbreaks are increasing health service demand in contexts already characterised by workforce shortages, uneven infrastructure, and high baseline vulnerability. While there are no estimates of workforce requirements for addressing the health impacts of climate change, the World Health Organization (WHO) (n.d.) estimates a shortage of 11 million health workers by 2030 in low and lower-middle-income countries. Many countries have begun integrating climate considerations into health planning; however, the extent to which these efforts are systematically reflected in workforce development and training remains variable (Rao & Tomar, 2026).

While countries have established human resources for health (HRH) frameworks aligned with national health priorities, these systems were not developed with climate-related risk management in mind. Climate–health content remains unevenly integrated into professional education and in-service training; environmental health expertise is limited; monitoring and evaluation systems are evolving; and coordination across health, environment, and disaster governance structures continues to pose institutional challenges (Rao & Tomar, 2026). Consequently, workforce preparedness does not always keep pace with emerging climate-sensitive risks.

Strengthening climate–health competencies across HRH is therefore central to building climate-resilient health systems in the region. Drawing on a

peer-reviewed global scoping review and regional stakeholder interactions (Tomar & Rao, 2026), this policy brief examines ten climate-vulnerable countries in Asia[1] and advances three contributions: (a) a structured climate–health competency framework; (b) identification of cadre-specific requirements across community, clinical, and public health management roles; and (c) phased recommendations that operate at two levels—short-term operational actions to strengthen training and service delivery, and longer-term institutional reforms to embed these capacities within HRH systems.

2. KSTCP Competency Framework for Climate-Ready Health Workforce

Our analytical synthesis of global competency frameworks, climate–health literature, and workforce capacity gaps reported across health systems in 10 selected countries in South and Southeast Asia enabled us to develop a novel framework that classifies climate–health competencies into coherent and practice-oriented categories (Tomar & Rao, 2026). Designed to reflect the multisectoral and rapidly evolving nature of climate–health challenges, this framework organises competencies into five interconnected domains: Knowledge (K), Systems Thinking (S), Technical Skills (T), Communication & Leadership (C), and Professional Practice (P) (Figure 1).

In this brief, 'competency' refers to the knowledge, skills, attitudes, and behaviours required of individual health workers to respond effectively to climate-related health risks, while 'capacity' refers to the broader institutional and system-level conditions that enable these competencies to be applied in practice. Gaps in demonstrated competency should therefore not be understood solely as training deficits, but may also reflect challenges related to supervision, workforce retention, incentives, and other enabling conditions.

3. Cadre-Specific Competency Development

Current climate–health workforce planning largely treats capacity development as additive rather than role-specific, failing to articulate differentiated competencies for frontline, clinical, and managerial cadres despite their distinct functions (Tomar & Rao, 2026). To address this, we reviewed the climate–health functions mentioned in these policies across the selected countries and mapped them to cadre-specific competencies (see Appendix 1). Building on this, we assess ongoing training initiatives in the region using the best available evidence, including peer-reviewed literature, policy documents, and programme reports, while acknowledging variation in the depth and quality of available country-level information. We examine the extent to which these initiatives align with policy-defined functions and role-specific workforce needs, and identify areas where the current approach remains limited.

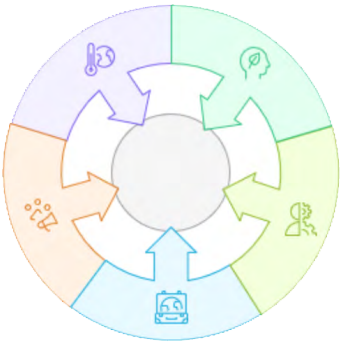
Figure 1: KSTCP Framework for a Climate-Ready Health Workforce

Practice:

- Integration in clinical practice
- Ethical responsibility and professional conduct
- Sustainable health practice
- Emergency preparedness and crisis response
- Resilience and reflexivity

Knowledge:

- Understanding scientific evidence linking climate change to health
- Approaches for addressing climate change
- Policy context awareness
- Environmental and resource stewardship



Communication and Leadership:

- Advocacy
- Interdisciplinary collaboration
- Mentorship and capacity building
- Organisational change

Systems Thinking:

- Recognising interdependencies and risks
- Integrated planning

Technical Skills:

- Risk assessment and early warning
- Research and critical thinking
- Evidence-based decision-making

Source: Framework developed by the authors, visualised using Napkin AI.
Note: See Tomar & Rao (2026) for details.

[1] These countries are Bangladesh, India, Indonesia, Malaysia, Nepal, Philippines, Singapore, Sri Lanka, Thailand, and Vietnam.

Community health workers (CHWs): Climate–health competencies for CHWs are developed primarily through pilot initiatives that are typically locally targeted and hazard-specific, hindering scalability and sustainability, and most often led by non-governmental organisations (NGOs) or donors in collaboration with governments (Box 1). This pattern is illustrated in several ongoing heat-related pilot initiatives in India, where CHWs are expected to disseminate information and provide basic, immediate care (Balachandra, n.d.).

Community health workers are increasingly relied upon to identify and communicate household-level climate risks, yet climate–health training for CHWs remains fragmented, uneven in coverage, and weakly institutionalised, with limited integration into formal surveillance, early warning, accreditation, supervision, and health information systems. As a result, CHWs' climate–health roles are operationally significant but not systematically institutionalised. For example, the vast amount of data that CHWs routinely collect could be better used for predictive analysis and forecasting if better integrated into the national surveillance system. This can be effectively done by enabling access to digital tools for CHWs, especially in countries that are tech-enabled.

Clinicians: Clinicians routinely manage climate-sensitive conditions such as heat-related illnesses, vector-borne diseases, and respiratory conditions exacerbated by air pollution, yet climate–health competencies remain implicitly acquired through practice rather than through formal training. Training exposure generally occurs through disease-specific guidelines, short courses, NGOs, or academic programmes, and ad hoc workshops, with limited integration into national medical curricula or accredited continuing medical education.

Some countries have begun to respond. For instance, the Philippines has taken steps toward more formal incorporation of climate–health content within professional systems, signalling an important institutional shift (Box 1). As with most systemic reforms, however, translating curricular and policy changes into routine clinical competence will take time and sustained implementation. Across countries, efforts are progressing, but important gaps remain in areas such as anticipatory care, surge management, integration of climate risk into routine practice, and stronger linkage between clinical services and public health surveillance.

Public health professionals: In countries where dedicated climate–health programmes exist, they are increasingly expected to lead climate–health planning and intersectoral coordination, positioning them at least in policy intent as the principal institutional actors responsible for translating national climate commitments into operational health system action. Their roles extend beyond conventional programme management to include climate–health risk assessment, vulnerability mapping, integration of early warning information into preparedness planning, coordination with environment, disaster management, water, energy, and urban development sectors, and oversight of health system adaptation and resilience measures. In many settings, they are also expected to mobilise and manage climate financing, guide procurement of climate-resilient infrastructure and supplies, and establish monitoring and evaluation frameworks to track adaptation outcomes.

At present, however, as summarised in Box 1, training for all these roles across countries largely emphasises knowledge-building aspects of climate and health, greening of health systems, upstream planning functions such as vulnerability assessments, with comparatively less attention to routine service delivery integration, or performance-linked competencies. As highlighted in box 1, training is often delivered through short-term workshops rather than embedded within public health education systems or formal career pathways, limiting sustained system-level impact.

Box 1: Promising Examples of Climate–Health Capacity Building Across Selected Asian Countries

Bangladesh

- **Clinical staff (doctors and nurses across facility tiers):** National Heat-Related Illness (HRI) guidelines include structured training modules for four levels of care: Community Clinics, Union Sub-Centres, Upazila Health Complexes, and District Hospital/Medical College Hospital/Specialised Hospitals (Directorate General of Health Services [DGHS], Bangladesh, 2024).
- **Public health officials and professionals:** Through the certificate courses offered by Climate Change Health Promotion Unit, Ministry of Health, mid-level professionals, health officials, and decision-makers working at the climate–health interface receive training on climate science, climate-sensitive diseases, and integration of climate risks into health planning and governance (CCHPU, n.d.).
- **Community health workers:** Under the Global Fund-supported initiatives, CHWs collect data on climate-sensitive conditions (e.g., dengue, malaria, diarrheal diseases, heat-related illness) and receive training in climate-sensitive care, gender-responsive service delivery, and disaster response protocols. This initiative is specifically for displaced and low-income groups, including urban informal settlements (ATACH, n.d.).

India

- **Public health administrators and planners (state/district):** Under national and state action plan on climate change and human health (NAPCCHH and SAPCCHH), state and district nodal officers are trained in climate–health vulnerability assessments, surveillance data use, and district action planning (e.g., Heat Action Plans) (National Centre for Disease Control [NCDC], n.d.).
- **Medical officers (facility level):** Cascading training model: state trainers → district trainers → medical officers. Training covers clinical management, surveillance, and health facility preparedness for air pollution, heat, and extreme weather. Annual training plans suggest sustained capacity building rather than one-time sensitisation (NCDC, n.d.).
- **Community health workers:** Accredited Social Health Activists (ASHAs) engaged in climate–health outreach, including heat resilience work in Ahmedabad (Mahila Housing Trust) and clean air campaigns in Indore (Gore, 2023; Balachandra, n.d.).

Nepal

- **Training manuals for health professionals:** Nepal's National Health Training Centre (under the Ministry of Health and Population) has developed and disseminated climate–health training manuals that are regularly used to train health professionals, including frontline workers and managers. These materials are integrated into sub-national workshops and training on environmental health, WASH, and healthcare waste management, reaching hundreds of trainees annually (ATACH, n.d.).

Philippines

- **Medical professionals (pre-service):** Integration of climate change and health into medical education following the 2019 Memorandum of Understanding (MoU) between the Climate Change Commission (CCC) and the Philippine College of Physicians (CCC, 2019).
- **Frontline health workers/community cadres (Barangay Health Workers):** Americares and the Department of Health developed a *Climate Resilience Toolkit* with short, localised modules on extreme heat, floods, and typhoons, including home-visit messages, clinic preparedness checklists, and simple job aids (Americares, 2025). Under the CCC's ACT LOCAL programme, pilot training sessions (e.g., in Caloocan City) reached approximately 150 Barangay Health Workers, strengthening climate risk awareness and community response (CCC, 2025).

Regional training pilots

- **Health professionals and facility leaders:** Advocacy and professional development initiatives by Health Care Without Harm Southeast Asia and the Sunway Centre for Planetary Health (Malaysia) have included climate-and-health advocacy training and workshops to strengthen competencies in communicating climate risks, building sustainable/ resilient healthcare systems, and engaging in policy-relevant action (HCWH, 2023).
- **Clinicians, public health practitioners, and hospital leaders:** The regional certificate course 'Climate-Smart Healthcare in Developing Countries' was developed by St. Luke's Planetary and Global Health Program in partnership with Health Care Without Harm Southeast Asia. The course combines synchronous and asynchronous modules delivered over several weeks and is open to clinicians, public health practitioners, hospital leaders, and students, with faculty drawn from regional and international climate–health experts (SLMC, 2022).
- **Frontline health workers:** A recent Training of Trainers (ToT)initiative implemented through the *ClimateCare Champions Program*, in collaboration with the Global Consortium on Climate and Health Education (GCCHE), achieved district-wide coverage across all 51 primary health centres in *Ananthapuramu* District, Andhra Pradesh, India (CCCP, n.d.). The programme trained master trainers who cascaded climate–health competencies to frontline health workers, demonstrating how supervisory cascade models can rapidly embed applied climate–health skills within routine district health system operations.

Source: Developed by Authors.

Source: Authors' compilation from the mentioned sources.

4. Recommendations

We propose actions at three complementary levels to ensure that climate–health competencies move from training design to sustained system integration: (1) operational strategies to implement cadre-specific climate–health competencies; (2) monitoring, evaluation, and learning (MEL) systems to strengthen accountability and adaptation; and (3) policy and governance reforms required to institutionalise competencies and sustain them at scale (Appendix 2).

4.1 Operational Strategies for Implementing Cadre-Specific Competencies

To translate competencies into functional capacity, countries should prioritise cost-effective, scalable, and system-embedded delivery models rather than creating parallel training architectures. The following operational pathways are particularly important.

- **Digital and blended models for foundational competencies:** Introductory competencies such as climate–health literacy, recognition of climate-sensitive diseases, risk communication, and preparedness can be delivered through national or sub-national public digital platforms and blended learning approaches tailored to different cadres. Self-paced modules, quizzes, and case-based learning allow for rapid multilingual dissemination at low marginal cost while supporting conceptual understanding, especially among formally trained cadres such as physicians, nurses, and medical students.
- **In-person and blended model for applied and community-facing climate–health competencies**: Cadres such as community health workers, frontline staff, and local administrators require participatory approaches that emphasise practical application, interpersonal communication, and contextual problem-solving.

  Face-to-face modalities and first-hand exercises are especially important in settings where learning is mediated through traditional communication channels or where digital access and formal academic exposure may be limited. Evidence from a Knowledge, Attitudes and Practices (KAP) survey in India supports this differen-

tiation: Newspapers and television remain key information sources for older or less formally trained health workers, while social media is more prominent among younger cadres such as students and nurses (Sambath et al., 2022).

- **Embedding climate–health content within existing in-service trainings**: Rather than creating standalone climate–health trainings, KSTCP competencies should be integrated into routine programmatic trainings such as disease surveillance refreshers, disaster preparedness drills, WASH and vector control trainings, maternal and child health updates, and hospital quality improvement programmes. Nepal's NHTC approach represents early integration of climate–health content into existing training structures (see Box 1).
- **Peer-led and supervisory cascade models**[2]: Applied competencies such as household risk assessment, referral protocols, and community risk communication require continuous practice and feedback rather than one-off classroom instruction. To this end, delivery models incorporating supervisory checklists, peer demonstrations and on-the-job coaching are well-suited. Within large, decentralised health systems in South and Southeast Asia, existing public health training institutes and supervisory structures are ready-made platforms for implementing train-the-trainer (cascade) models to institutionalise climate–health competencies across the health workforce. State Institutes of Health and Family Welfare in India, Nepal's National Health Training Centre, and Sri Lanka's public health training units can serve as national ToT hubs, developing certified climate–health master trainers who then cascade training to district programme managers, facility supervisors, and community health workers.
- **Integration into continuing professional development (CPD) and licensing requirements:** Linking selected competencies to CPD credits, promotion criteria, licensing renewal, and facility accreditation standards creates strong institutional incentives for uptake and sustained practice (GCHA, n.d.; ASPHER, 2021). By embedding climate–health competencies within mandatory professional development and regulatory frameworks, health workers are more likely to prioritise and maintain these skills as part of routine service delivery rather than viewing them as optional or project-based activities.

  In the Philippines[3], ongoing medical curriculum reforms and CPD requirements provide formal entry points for recognising climate–health competencies within pre-service education, residency training, and professional recertification processes. Similarly, Sri Lanka's CPD frameworks[4] for medical officers and public health staff can integrate climate-informed clinical decision-making, disaster preparedness, and health system resilience competencies, thereby supporting long-term institutionalisation and accountability.

4.2 Monitoring, Evaluation, and Learning Systems

Robust Monitoring, Evaluation, and Learning (MEL) systems are essential to ensure that training translates into measurable improvements in workforce readiness. Establishing indicators aligned with competency domains provides a foundation for tracking progress. Mixed-methods approaches, including pre- and post-training assessments, competency checklists, simulation-based observation, and documentation of applied skills, can help identify gaps and refine training design (Perreault-Carranza et al., 2024; Simon et al., 2023; Valois et al., 2016; Wheat et al., 2023).

Institutionalised feedback loops are equally important. Digital learning platforms, supervisory review systems, and communities of practice can enable health workers and trainers to provide structured feedback on curriculum relevance and delivery quality, supporting continuous adaptation. However, two systemic challenges must be addressed: limited longitudinal evidence on the sustained impact of competency-building

[2] Peer-led models rely on trained members of the same professional cadre to act as facilitators, mentors, or champions for their colleagues. Rather than using only external trainers, selected frontline workers, clinicians, or managers are prepared as peer facilitators who then provide on-the-job coaching, case discussions, and skills reinforcement within their own facilities or communities. Supervisory cascade models are hierarchical training and mentoring structures in which competencies are transferred systematically from higher to lower levels of the health system. National or regional master trainers train district- or facility-level supervisors, who in turn mentor frontline providers and community health workers through routine supervision, performance feedback, and structured learning sessions.

[3] CPD Act 2016, Philippines.

[4] Sri Lanka has developed a National Continuous Professional Development Programme for Healthcare Staff.

initiatives, and persistent data-quality constraints within HRH information systems in many countries. Strengthening routine data systems and integrating competency monitoring frameworks into existing reporting structures will improve comparability across cadres and geographic areas while reducing reporting burdens. However, we acknowledge that this will require institutional strengthening, including interoperable data platforms, clearer reporting protocols, and stronger coordination across different levels of the health system.

4.3 Policy, Governance and System-Level Reforms

Training alone is not enough to make climate–health competencies part of everyday health practice. Whether these competencies are actually taken up, scaled, and sustained depends on how they are built into policies, financing systems, regulations, and learning structures within the health system. The recommendations below therefore focus on the core system conditions needed to make climate–health competencies routine, durable, and accountable across the health workforce. Appendix 2 consolidates these mechanisms by mapping priority actions across cadres, system levers, responsible institutions, financing channels, and expected medium-term outputs, providing a practical policy roadmap for implementation.

- **Institutionalise climate–health competencies through national policies and governance mechanisms**

  Governments should formally integrate climate–health competencies into human resources for health strategies, public health legislation, and national adaptation plans. This includes mandating climate–health content in pre-service and in-service curricula, establishing national competency standards aligned with the KSTCP framework, and embedding climate-related skills into job descriptions, performance appraisal systems, and professional licensing requirements.

- **Secure sustainable financing for climate–health workforce development**

  Dedicated budget lines within national health budgets and climate adaptation programmes are essential to reduce dependence on short-term donor funding and support broader climate–health system strengthening, including workforce development, service preparedness and institutional capacity building (Rao & Tomar, 2026). Strengthening HRH information systems to track competency acquisition, workforce readiness, and climate-related service needs is also necessary to support evidence-based planning and monitoring.

  Climate finance instruments, including the Green Climate Fund and other multilateral adaptation facilities, should be systematically mobilised to supplement domestic resources, particularly in fiscally constrained settings (Rao & Tomar, 2026). These mechanisms can support large-scale training roll-out, development of regional training hubs, and investments in digital learning platforms.

- **Invest in national learning systems, research, and adaptive implementation**

  LMIC governments and partners should prioritise rigorous evaluation of climate–health training interventions to generate evidence on effectiveness, cost-efficiency, and impacts on service delivery and preparedness—areas where evidence is currently lacking. Research agendas should focus on cadre-specific competency requirements, workplace-based and experiential learning models, and multidisciplinary training approaches to support more targeted and efficient workforce planning. Strengthening national learning systems through integration of monitoring, evaluation, and feedback mechanisms into HRH strategies will enable continuous programme refinement, support scalable implementation, and institutionalise collaboration among governments, academia, NGOs, and regional bodies.

- **Strengthen regional cooperation and shared learning networks**

  Regional organisations and technical networks can play a central role in harmonising competency frameworks, facilitating joint training initiatives, and promoting cross-country peer learning. Collaborative platforms can support regional research, pooled access to specialised expertise, and dissemination of best training practices in areas such as environmental epide-

miology, climate modelling, and resilient health facility design. Regional centres of excellence can expand access to high-quality training while reducing duplication and improving efficiency. WHO, UNDP, and other regional and international partners are already advancing such collaborative architectures. Existing initiatives like the Alliance for Transformative Action on Climate and Health (ATACH) by the World Health Organisation, Regional Hub for Climate Change and Health (REACH), Global Heat Health Information Network (GHHIN) in South and Southeast Asia, and The Asian Collective for Health Systems (TACHS) can help in strengthening regional cooperation on these issues.

5. Conclusion

This brief offers a structured starting point for aligning climate–health commitments with workforce development efforts. By linking the functions outlined in climate–health policies, including health national adaptation plans, to the distinct roles of community health workers, clinicians, and public health professionals, the KSTCP framework helps clarify what role-specific capacity may be required in practice. Countries may use this approach to examine where expectations and workforce preparation are misaligned, to prioritise cadres or functions requiring attention, or to guide the integration of climate–health content into ongoing HRH reforms. The recommended pathways are designed to be adaptable rather than prescriptive, allowing countries to prioritise and sequence actions in line with available resources, institutional capacity, and ongoing reforms.

Countries at an earlier stage may need to focus on foundational actions such as establishing governance mechanisms, developing competency frameworks, mobilising resources, and strengthening basic training and data systems. Those with emerging capacities may prioritise scaling cadre-specific implementation, embedding competencies within routine workforce and surveillance systems, strengthening monitoring, evaluation, and learning systems, and improving intersectoral coordination. Countries with more advanced systems may focus on institutionalising competencies across health professions, sustaining adaptive learning, and strengthening regional collaboration and long-term system resilience.

References

Americares launches climate resilience toolkit with Philippines Department of Health. (2025). *Americares*. https://www.americares.org/news/2025-0722-americares-launches-climate-resilience-toolkit-with-philippines-department-of-health/?utm

Association of Schools of Public Health in the European Region. (2021, October 25). *ASPHER climate and health competencies for public health professionals in Europe*. https://www.aspher.org/download/882/25-10-2021-final_aspher-climate-and-health-competencies-for-public-health-professionalsin-europe.pdf

Balachandra, A. (n.d.). *Can earlier training for India's frontline health workers help combat rising heat risk?* Climate Resilience for All. https://www.climateresilience.org/can-earlier-training-for-india-frontline-health-workers-help-combat-rising-heat-risk

Bangladesh advances climate-health resilience through community systems strengthening. (n.d.). *ATACH WHO Hosted Network*. https://www.atachcommunity.com/atach-community/news/bangladesh-advances-climate-health-resilience-through-community-systems-strengthening/

Climate Change Commission. (2025). *CCC highlights role of Barangay health workers in climate response*. https://climate.gov.ph/news/990?utm

Certificate course on climate change and human health. (2024). *Climate Change & Health Promotion Unit*. https://cchpu-mohfw.gov.bd/certificate-course/

Climate and health campaign and advocacy training. (2023). *Health Care Without Harm*. https://asia.noharm.org/news/climate-and-health-campaign-and-advocacy-training-selangor-malaysia?utm

Climate Care Champions Program: Mobilizing community health workers for climate-ready communities. (n.d.). *Columbia University Mailman School of Public Health*. https://www.publichealth.columbia.edu/research/programs/global-consortium-climate-health-education/community-capacity-building/climate-care-champions-program#:~:text=Building%20on%20the%20success%20of,images%20from%20the%20FLW%20trainings

Domantay, J. A. A., Leochico, C. F. D., Salvador, P. A. G. S., Ciriaco, V. M., Abad, P. R., Capistrano, V. E., Cruz, G. M., Darang, L. C., Del Rosario, D. M., Gadgad, J. A., Pagalanan, J., Palaylay, A., Perez, F. J., & Torres, C. P. (2021). Knowledge and attitudes of future physicians in the Cordillera region of the Philippines towards climate change: A pre-pandemic cross-sectional study. *The Journal of Climate Change and Health*, *4*, 100063. https://doi.org/10.1016/j.joclim.2021.100063

Dunne, H., Rizan, C., Jones, A., Bhutta, M. F., Taylor, T., Barna, S., Taylor, C. J., & Okorie, M. (2022). Effectiveness of an online module: Climate-change and sustainability in clinical practice. *BMC Medical Education*, *22*(1), 682. https://doi.org/10.1186/s12909-022-03734-8

Enhancing health workforce capacity for climate action in Nepal. (n.d.). *ATACH WHO Hosted Network*. https://www.atachcommunity.com/our-impact/case-studies/enhancing-health-workforce-capacity-for-climate-action-in-nepal/

Gore, S. (2023). Salute to ASHAs for their crucial role in "Clean Air, Clean Indore" campaign. *Clean Air Catalyst*. https://www.cleanaircatalyst.org/news/salute-ashas-crucial-role-clean-air-clean-indore-campaign?utm

iGOT. (n.d.). Karmayogi Bharat. https://igotkarmayogi.gov.in/

Katzman, J. G., Herring, D., Schramm, P., Tomedi, L., Maury, J.-M., Kalishman, S., Kazhe-Dominguez, B., Liu, J., Martin, C., & Arora, S. (2021). Climate change and human health ECHO: Global telementoring for health professionals. *Journal of Medical Education and Curricular Development*, *8*, 23821205211061019. https://doi.org/10.1177/23821205211061019

Katzman, J. G., Tomedi, L. E., Herring, D., Jones, H., Groves, R., Norsworthy, K., Martin, C., Liu, J., Kazhe-Dominguez, B., & Arora, S. (2022). Educating community health professionals about the health-related effects of climate change through ECHO telementoring. *Journal of Primary Care & Community Health*, *13*, 21501319221102033. https://doi.org/10.1177/21501319221102033

KEMKES. (n.d.). *E-learning portal, Ministry of Health, Government of Indonesia*. https://lms.kemkes.go.id/

Ministry of Health, Sri Lanka. (n.d.). *National continuous professional development*. https://www.health.gov.lk/moh-page/national-continuous-professional-development/?

National guideline on heat-related illness. (2024*). Planning and Research, Directorate General of Health Services (DGHS), Government of Bangladesh*. https://heathealth.info/wp-content/uploads/National-Guideline-on-Heat-Related-Illness_FINAL.pdf

New dates for the "Climate-Smart Healthcare in Developing Countries" certificate course. (2022). *St. Luke's Medical Center College of Medicine*. https://slmc-cm.edu.ph/news-and-events/new-dates-for-the-climate-smart-healthcare-in-developing-countries-certificate-course/?utm

Online learning management system. (n.d.). *E-LMS, Ministry of Health, Government of Sri Lanka.* http://elearn.health.gov.lk/

Perreault-Carranza, T., Ni, V., Savoie, J., Saucier, J., Frenette, J., & Jbilou, J. (2024). Core competencies of the public health workforce in climate change and extreme weather events preparedness, response, and recovery: A scoping review. *International Journal of Environmental Research and Public Health, 21(9)*, 1233.

Rao, N., & Tomar, P. (2026). *Climate–health governance in South and Southeast Asia* (CSEP Discussion Paper No. 36). Centre for Social and Economic Progress. https://csep.org/discussion-note/climate-health-governance-in-south-and-southeast-asia/

Republic of the Philippines. (2016, July 21). *Republic Act No. 10912: Continuing Professional Development Act of 2016.* Supreme Court E-Library. https://elibrary.judiciary.gov.ph/thebookshelf/showdocs/2/70325

Sambath, V., Narayan, S., Kumar, P., Kumar, P., & Pradyumna, A. (2022). Knowledge, attitudes and practices related to climate change and its health aspects among the healthcare workforce in India – A cross-sectional study. *The Journal of Climate Change and Health*, *6*, 100147. https://doi.org/10.1016/j.joclim.2022.100147

Simon, J., Parisi, S., Wabnitz, K., Simmenroth, A., & Schwienhorst-Stich, E. M. (2023. Ten characteristics of high-quality planetary health education—Results from a qualitative study with educators, students as educators and study deans at medical schools in Germany. *Front Public Health, 11.* https://www.frontiersin.org/articles/10.3389/fpubh.2023.1143751/full

Sorensen, C., Hamacher, N., Campbell, H., Henry, P., Peart, K., De Freitas, L., & Hospedales, J. (2023). Climate and health capacity building for health professionals in the Caribbean: A pilot course. *Frontiers in Public Health*, *11*, 1077306. https://doi.org/10.3389/fpubh.2023.1077306

State Action Plan on Climate Change and Human Health for all states of India. (n.d.). *National Centre for Disease Control, Ministry of Health and Family Welfare, Government of India*. https://ncdc.mohfw.gov.in/centre-for-environmental-occupational-health-climate-change-health/

The Climate Change Commission and the Philippine College of Physicians team up to protect health from climate change. (2019). *Climate Change Commission*. https://climate.gov.ph/news/105

Tomar, P., & Rao, N. (2026). Tailoring climate–health competencies for diverse health cadres: Findings from a scoping review. *The Journal of Climate Change and Health*, *29*, 100675. https://doi.org/10.1016/j.joclim.2026.100675

Wheat, S., Katzman, J., Herring, D., Tomedi, L., Sood, N., & Sorensen, C. (2023). Climate-health tele-education as a force multiplier: A train-the-trainer ECHO course series. *The Journal of Climate Change and Health*, *14*, 100282. https://doi.org/10.1016/j.joclim.2023.100282

Valois, P., Blouin, P., Ouellet, C., Renaud, J. S., Bélanger, D., & Gosselin, P. (2016). The health impacts of climate change: A continuing medical education needs assessment framework. *The Journal of Continuing Education in the Health Professions*; *36*(3), 218–225.

Wheat, S., Katzman, J., Herring, D., Tomedi, L., Sood, N., & Sorensen, C. (2023). Climate-health tele-education as a force multiplier: A train-the-trainer ECHO course series. *The Journal of Climate Change and Health, 14,* Article 100282. https://doi.org/10.1016/j.joclim.2023.100282

World Health Organization. (n.d.). *Health workforce.* https://www.who.int/health-topics/health-workforce?

Appendices

Appendix 1: Climate–Health Competencies for Various Cadres Aligned With Health System and Required Programmatic Functions

Cadre	Core Climate–Health Competencies	Associated Health System / Programmatic Functions
Clinicians	**Specialised management of climate-sensitive illnesses**	Accurate diagnosis, triage, and management of heat illness, respiratory exacerbations linked to air pollution, vector-borne infections, dehydration, and other climate-linked conditions within routine outpatient and inpatient care.
	Climate-smart healthcare practices	Integration of low-carbon, resource-efficient, and sustainable clinical practices into everyday care delivery, including rational use of diagnostics and therapeutics, waste reduction, energy- and water-efficient practices, and adaptation of clinical workflows during climate stressors.
	Climate-informed emergency preparedness and response	Facility-level preparedness, triage, and surge management during extreme events; crisis communication; continuity of essential clinical services during heatwaves, floods, cyclones, and disease outbreaks, etc.
	Climate–health communication, community engagement, and advocacy	Patient counselling on climate-related health risks; participation in community outreach; coordination with local authorities; advocacy for protective measures and resources, leveraging clinicians' trusted social position
Public health professionals	**Analytical and strategic planning skills for climate–health risks**	Climate–health risk assessments; vulnerability mapping; interpretation of climate, epidemiological, and environmental data; use of surveillance and early warning data for planning; scenario modelling, prioritisation, and monitoring and evaluation.
	Intersectoral coordination and governance	Coordination with disaster management, water and sanitation, environment, agriculture, and urban planning sectors; convening multisectoral platforms; data sharing; joint budgeting; alignment with National Adaptation Plans, Nationally Determined Contributions, and Health National Adaptation Plans.
	Curriculum and training system management	Curriculum review and reform; development of training standards and accreditation requirements; training-of-trainers systems; partnerships with academic institutions; career pathways for climate–health roles.
	Operational resilience and resource mobilisation	Budgeting for climate risks; mobilisation of domestic and external financing; procurement planning (e.g., cooling, oral rehydration solutions stockpiles); facility resilience measures; logistics and surge planning during extreme events.

Cadre	Core Climate–Health Competencies	Associated Health System / Programmatic Functions
Community Health Workers (CHWs)	**Household-level climate–health risk identification**	Identification of household risks such as mosquito breeding sites, unsafe water storage, heat-trapping housing, poor ventilation, nutritional risks after climate shocks, and unsafe fuel use.
	Early detection of climate-sensitive illness	Recognition and reporting of fever clusters, diarrhoeal disease following floods, heat stress among vulnerable groups, and worsening respiratory symptoms linked to pollution or wildfire smoke.
	Climate-sensitive behaviour change support	Counselling households on heat avoidance, hydration, water safety, food storage during power outages, vector control, and smoke reduction using locally appropriate strategies.
	Risk communication, intersectoral coordination and social mobilisation	Translation of early warnings (heat, flood, cyclone) into actionable household guidance; coordination with local government, WASH, disaster response, and other frontline workers; group education sessions (water safety, oral rehydration solutions, heat avoidance, hygiene); addressing misinformation; use of local languages and culturally appropriate methods.
	Community surveillance and reporting	Detection of unusual disease patterns and vector density; reporting into surveillance and early warning systems; flagging supply shortages at community and facility levels.
	Emergency preparedness and local response support	Support for evacuation and shelter identification; participation in mock drills; facilitation of WASH support post-disaster; coordination with relevant community and non-health sector actors; dissemination of real-time alerts through door-to-door or digital channels.

Source: Developed by authors.

Appendix 2: Suggested Policy Recommendations, Levers, and Suggested Actions for Climate–Health Workforce Development in South and Southeast Asia

Policy Priority	Cadre	System Lever	Suggested Action	Lead Institutions	Financing Mechanism	Suggested 12–36 Month Outputs	Early Examples (Wherever Available)
Institutionalise climate–health competencies	All cadres	HRH strategy & public health law	Amend HRH strategy and public health legislation to establish mandatory national climate–health competency standards aligned to KSTCP	MoH; Parliament; Civil Service Commission	HRH budgets	National climate–health competency standards approved	NAPs/HNAPs in Bangladesh, Nepal, Sri Lanka, etc., integrate climate–health workforce and governance priorities. Countries now need to refine these plans to explicitly define required climate–health competencies for all cadres.
	All cadres	Pre-service accreditation & curricula	Revise accreditation standards and curricula in medical, nursing, and public health schools to require climate–health competencies	MoH; Ministry of Education; Accreditation Councils	Education budgets	All medical, nursing, and public health schools are compliant with the mandatory national climate–health curriculum and accreditation standards	Medical schools in Europe and the US are embedding core climate–health curricula for clinicians and nurses.
	CHWs	Certification & supervision	Integrate training related to climate surveillance, heat illness, WASH, vector control and risk communication into CHW certification and supervision	MoH; Local Government	HRH & adaptation budgets	Climate Service Package (with disease-specific surveillance and response functions) mainstreamed into the CHW training programme	Barangay health workers in Philippines recognised for local climate action roles in flood and heat early-warning. It can further build on this by integrating required competencies into training and certification, providing operational tools, and tracking performance to strengthen community resilience.
	Clinicians	Licensing, CPD & clinical guidelines	Mandate climate–health CPD for license renewal and revise national clinical guidelines	Professional Councils; MoH	CPD fees; HRH budgets	Climate–health CPD mandated	We did not come across any example where CPD systems specifically mandate climate–health trainings. In the Caribbean, PAHO/WHO offers a *Climate Change and Health Course for Health Professionals* that awards CPD style credits on climate–health topics, which can be counted toward professional development, even if not mandatory.

Policy Priority	Cadre	System Lever	Suggested Action	Lead Institutions	Financing Mechanism	Suggested 12–36 Month Outputs	Early Examples (Wherever Available)
	Public Health Managers	Civil service regulations	Integrate relevant climate–health competencies into job classifications, recruitment, and promotion criteria	Civil Service Commission; MoH	HRH budgets	Revised civil service regulations issued	
Secure sustainable financing	All cadres	Health National Adaptation Plan (HNAP)	Cost and approve a climate–health workforce development programme within the HNAP	MoH, Ministry of Environment; Ministry of Finance	National health budget; climate adaptation funds	Climate–health workforce programme costed and approved within the HNAP	Several countries like Sri Lanka and Nepal have already estimated the required budget for climate–health adaptation within HNAP/NAP. A further assessment of investments required specifically for workforce training needs to be carried out across countries.
	CHWs	Programme budgeting	Cost and fund climate functions within the national CHW programme budgets / specific programme for climate and health	MoH; Ministry of Finance	Health & climate budgets	Dedicated CHW climate budget line created and funded	
	Clinicians	Facility financing & accreditation	Finance resilient facility operations and disaster preparedness training; embed resilience standards into hospital accreditation	MoH; Hospital Boards	Health & climate finance	Budget codes created and funded for hospital flood protection, heat-wave surge staffing, etc.; facility resilience standards adopted	
	Public Health Managers	Adaptation finance programming	Include surveillance, modelling and planning competencies in national climate adaptation project proposals submitted to GCF and multilateral facilities	MoH; Environment Ministry	GCF & multilateral funds	At least one approved climate adaptation project financing public health planning, surveillance, and modelling capacity	

Policy Priority	Cadre	System Lever	Suggested Action	Lead Institutions	Financing Mechanism	Suggested 12–36 Month Outputs	Early Examples (Wherever Available)
Invest in national learning, research & adaptive systems	CHWs	HRHIS & community surveillance; Incentivise CHW capacity-building	Integrate CHW climate indicators into HRHIS and community early-warning systems; Formal recognition and engagement with community and civil society platforms for local adaptive learning	MoH; Statistics Office	HRH budgets	Village-level flood, heat, and vector surveillance indicators integrated into HRHIS and disaster early-warning dashboards; monetary/non-monetary CHW incentives for completion of climate–health trainings	Several pilots exist in Nepal, Lao, and Bangladesh on developing early-warning systems for climate-sensitive diseases, which can be integrated with HRHIS.
	Clinicians	Facility quality & surge monitoring	Monitor climate-sensitive service readiness and disaster surge capacity	MoH; Hospital Boards	Health budgets	Hospital flood contingency, heat-wave surge capacity and dengue/cholera outbreak readiness indicators integrated into national quality monitoring systems	
	Public Health Managers	National learning systems & research	Fund national evaluations and cadre-specific research; institutionalise learning loops	MoH; Related Research Councils	HRH & research budgets	Annual climate–health workforce readiness evaluation published; routine needs assessment for climate-responsive service delivery	
Strengthen regional cooperation	All cadres	Regional training platforms & centres of excellence	Access pooled regional training platforms and centres of excellence for specialised competencies	MoH; Regional Bodies	Pooled regional funds	Formal membership in regional pooled flood, heat and outbreak training platforms and centres of excellence	Platforms by international organisations such as the World Bank, WHO, and UNDP, and initiatives like Mekong Basin Disease Surveillance.

Source: Developed by authors.

Note: WASH = Water, Sanitation, and Hygiene; HRHIS = Human Resource for Health Information System; GCF = Green Climate Fund; MoH = Ministry of Health; NAP = National Adaptation Plan; HRH = Human Resources for Health; WHO =World Health Organisation ; UNDP =United Nations Development Programme ; CPD=Continuing Professional Development ; PAHO = Pan American Health Organisation ; CHW = Community Health Workers ; HNAP =Health National Adaptation Plan

About the authors

Priyanka Tomar is a Research Associate in the Health and Human Development vertical at the Centre for Social and Economic Progress (CSEP). She is a public health researcher with a regional focus on South and Southeast Asia and brings over eight years of experience in policy-oriented research on health systems and human development.

Prior to joining CSEP, she served as an Assistant Professor of Economics at Hidayatullah National Law University, Raipur. She previously worked in the Health vertical at the Indian Council for Research on International Economic Relations (ICRIER), New Delhi, where she contributed to research on health system reforms, the G20 health agenda, food safety regulations, disease prevention, traditional medicine, and migration-related health issues.

She has co-authored several publications on development and public health policy, particularly in the Asian and G20 contexts. Priyanka holds a Master's degree in Economics from the Gokhale Institute of Politics and Economics, Pune, and a Bachelor's degree in Economics from the University of Delhi.

Neethi V. Rao is a Visiting Fellow in the Health and Human Development team at CSEP. She is a health policy and systems researcher with interests in health systems governance and intersectoral public policy at the intersections of environment and health. Her research and practice have involved providing technical support in strategic planning, policy design, implementation, and evaluation including impact assessments for governments and international development agencies. She also develops and delivers online and in-person training programs on participatory governance, good health research practice and promoting evidence-informed policy. She worked with the health systems governance team at the World Health Organization, supporting research and advocacy towards a World Health Assembly Resolution proposal on social participation for 2024. She is also Adjunct Faculty at the Institute of Public Health, Bengaluru.

The Centre for Social and Economic Progress (CSEP) conducts in-depth, policy-relevant research and provides evidence-based recommendations to the challenges facing India and the world. It draws on the expertise of its researchers, extensive interactions with policymakers as well as convening power to enhance the impact of research. CSEP is based in New Delhi and registered as a company limited by shares and not for profit, under Section 8 of the Companies Act, 1956.

All content reflects the individual views of the author(s). CSEP does not hold an institutional view on any subject.

Copyright © 2026
Centre for Social and Economic Progress (CSEP)
CSEP Research Foundation
6, Dr. Jose P. Rizal Marg, Chanakyapuri, New Delhi - 110021, India

Centre for Social and Economic Progress
@CSEP_Org
www.csep.org

Independence | Integrity | Impact