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IMPACT

SHIELD toolkit for dengue defence:

structured by 5-S target areas



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How to use the SHIELD toolkit?

The SHIELD toolkit for dengue defence is a decision-making resource for national and subnational leaders working to strengthen dengue prevention and control. This version supports decision-makers seeking to address specific weaknesses or fill pressing implementation gaps in their dengue response.

It organises **key action points** under five essential “5-S” target areas—each reflecting a core function in dengue prevention:

TARGET AREA	ACTIONS INVOLVED
 Stewardship	Setting national or subnational priorities; establishing policies or laws; aligning national and local strategies; co-ordinating across sectors
 Surveillance	Collecting real-time data , predicting outbreaks; new diagnostics; creating digital platforms; integrating surveillance systems; assessing community knowledge
 Science	Developing or implementing new tools, technologies, or interventions through research (including user nudges or novel reporting systems); adapting programmes based on evidence (and evaluation)
 Skills	Strengthening the synergies between the health system and other systems; training formal health-sector workers; delivering health-care services; strengthening or creating laboratory capacity; improving clinical outbreak response
 Support	Engaging and empowering communities—through conducting awareness campaigns; establishing and training volunteer networks; creating supportive local infrastructure

This structure helps users focus directly on where action is most needed—whether to improve data systems, strengthen laboratory capacity or scale up frontline response.

Toolkit Structure

Each **key action item** is mapped to:

- A target area – the operational function it most directly supports
- A strategic domain – the broader goal it advances
- An objective – the result it seeks to achieve
- A capacity requirement – what is needed to act (e.g., training, funding, infrastructure)
- Stakeholders, including:
 1. Primary stakeholders – those with direct responsibility
 2. Secondary stakeholders – those contributing support or coordination

Actions are grouped by the most relevant target area (though they can support more than one target area).

Who is it for?

This format ensures short-term priorities in certain target areas are linked to long-term system strengthening and is best suited to:

- Programme managers addressing operational gaps
- Local governments implementing national strategy
- Donors aligning funds to high-need functions
- Planners targeting weaknesses in frontline delivery, surveillance or skills

By focusing on a specific target area—such as skills, science or support—users can identify the most important target areas for immediate action. At the same time, each action reinforces a broader strategic domain, supporting coherence and national alignment.

The result is a targeted, actionable roadmap that connects immediate needs to system-wide goals.

The Toolkit



Target area: Stewardship

Strategic domains:

- Strategic Domain I: Secure political will to put dengue on the national agenda
- Strategic Domain II: Harmonise and build integrated prevention systems
- Strategic Domain III: Inform actions with data and digital tools
- Domain IV: Expand sustainable and diversified financing
- Strategic Domain V: Leverage community power for resilient dengue prevention
- Strategic Domain VI: Drive impact through partnerships across sectors

Key action items	Strategic domain	Objectives	What is needed? Capacity requirement	Who leads it? (Key primary stakeholders)	Who supports it? (Key secondary stakeholder)	Does your country have it? Yes/No
Integrate dengue into health plans	I.	Making dengue everyone's business	Capacity to revise policies & laws	Health ministry, parliament	Public health agency, regional agencies	
Create dengue unit with ring-fenced funds			Budget lines for dengue	Health ministry, public health agency	Finance ministry, development partners	
Align ministry budgets & shared KPIs			Joint planning and budgeting platforms	Finance ministry, planning ministry	Health ministry, line ministries	
Launch political advocacy and communication strategy			Communications expertise for government engagement	Health ministry, planning ministry	Line ministries*, development partners	
Develop long-term implementation plans with multi-year budgets for continuity	II.	Build resilience into routine	Strategic planning and policy continuity systems	Health ministry, local government	Finance ministry	
Pursue global and philanthropic funding aligned with national dengue goals			Grant writing and donor co-ordination	Health ministry, donor unit	Finance ministry, donors	
Align national strategies with donor priorities and reporting requirements			Bring external partners on board for long-term impact	Health ministry, donor unit	Planning ministry, donors	
Create co-financing partnerships with private sector	III.	Attract private capital	PPP legal, technical and engagement capacity	Health ministry, finance ministry	Private companies, insurers, employers, universities, development partners	

Abbreviations: KPIs = key performance indicators; PPP = public-private partnership
 *Line ministries include: Environment, Education, Urban Development, Tourism, Finance etc.



**Target area:
Stewardship**

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Key action items	Strategic domain	Objectives	What is needed? Capacity requirement	Who leads it? (Key primary stakeholders)	Who supports it? (Key secondary stakeholder)	Does your country have it? Yes/No
Design value propositions to attract private investment	IV.	Attract private capital	Market analysis and incentive design	Health ministry, industry or trade ministry	Finance ministry, business associations	
Align financing with SDG and UHC goals		Position dengue within broader development agendas	Health finance strategy and co-budgeting capacity	Health ministry, planning ministry	Education, urban and local government ministries, donors	
Set direction and align local with national goals	V.	Making decentralisation work	Co-ordination tools (frameworks, memorandums of understanding, guidelines)	Health ministry, cabinet secretariat	Local government, local public health authorities	
Tailor local actions to epidemiological trends			Local data use and implementation capacity	Local government	Health ministry, national public health agency, academia	
Support local implementation with funding aligned to national goals			Capacity for performance-based financing	Finance ministry, health ministry	Cabinet secretariat, local government	
Engage all sectors for strategic alignment		Breaking silos: working across sectors and borders	Leadership and co-ordination across sectors	Health ministry, cabinet secretariat	Line ministries, planning ministry	
Establish cross-sector dengue task-force			Cross-sector training and communication systems	Health ministry, cabinet secretariat	Line ministries	
Hold regular task force meetings			Data-sharing and reporting systems	Health ministry, national public health agency	Line ministries	
Facilitate regional dengue collaboration			The untapped potential of regional cooperation	Capacity for cross-border data and surveillance	Health ministry, national public health agency	Regional agencies, foreign ministry
Foster structured collaboration with private sector for research and implementation			Private sector partnerships for reach and result	Partnership frameworks for joint delivery	Health ministry, local government	Academia, WHO, pharma and tech, construction, insurers, philanthropies

Abbreviations: WHO = World Health Organisation; pharma = pharmaceuticals; SDG = Sustainable Development Goals; UHC = Universal Health Coverage

*Line ministries include: Environment, Education, Urban Development, Tourism, Finance etc.



**Target area:
Surveillance**

Strategic domains:

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- Strategic Domain V: Leverage community power for resilient dengue prevention
- Strategic Domain VI: Drive impact through partnerships across sectors

Key action items	Strategic domain	Objectives	What is needed? Capacity requirement	Who leads it? (Key primary stakeholders)	Who supports it? (Key secondary stakeholder)	Does your country have it? Yes/No
Use data for decisions and evaluations	I.	Accountability that drives action	Analytics and independent reviews	Health ministry, public health agency	Parliament, regional agencies, local health authorities, hospitals	
Maintain year-round surveillance			Surveillance systems and legal support	Health ministry, public health agency	Parliament, local health authorities, hospitals	
Deploy tailored packages in hotspots	III.	Let data shape the response	Operational planning and logistics	Local government, health authorities	Public health agency	
Deploy integrated data platforms and mobile tools to monitor risks and predict outbreaks		Detect faster, act smarter	Digital platforms, infrastructure and modelling expertise	Health ministry, public health agency	Meteorology agencies, universities, tech firms, development partners	
Establish co-ordination mechanisms for timely data sharing to support outbreak forecasting and response		Reporting tools, co-ordination structures, data governance	Public health agency, local health authorities, hospitals	Digital health units, health informatics teams		
Unify clinical, epidemiological, and lab data for surveillance		Build the backbone of detection	Integrated databases and skilled IT staff	Health ministry, public health agency	Local health authorities, hospitals, digital health units	
Assess community knowledge, attitudes, and behaviours through surveys and feedback tools	IV.	Teach it, track it, turn the tide	Behavioural research and feedback tools	Health ministry, local government, public health agency, local health authorities	Universities, NGOs, civil society, development partners	

Abbreviations: tech = technology; IT = information technology; NGOs = non-governmental organisations



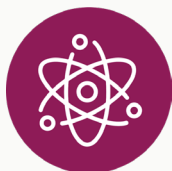
**Target area:
Science**

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Key action items	Strategic domain	Objectives	What is needed? Capacity requirement	Who leads it? (Key primary stakeholders)	Who supports it? (Key secondary stakeholder)	Does your country have it? Yes/No
Invest in research and development	I.	Moving from reaction to readiness	Research funding and innovation links	Science ministry, health ministry	Universities, biotech firms	
Evaluate existing prevention efforts and update national strategy			Monitoring and evaluation systems for strategy updates	Health ministry, public health agency	Universities, development partners	
Use surveillance data to review progress and publish performance		Accountability that drives action	Tools for transparency and reporting	Health ministry, public health agency	Civil society, development partners	
Combine traditional and innovative tools	II.	Integrate and sustain: layered prevention strategies that work	Capacity to scale tools; Reliable supply chains	Health ministry, public health agency	Local government, universities, biotech firms	
Update actions using data and feedback	III.	Let data shape the response	Real-time systems and adaptive tools	Local government, health authorities	Universities, civil society, biotech firms	
Scale up reliable rapid diagnostics		Build the backbone of detection	Field trials and validation studies	Health ministry, public health agency	Universities, diagnostic firms	
Set national diagnostic validation process		Regulatory and evaluation systems	Health ministry, regulatory authority	Universities, diagnostic firms		
Launch apps or hotlines to enable public reporting		Put communities in control	Digital infrastructure, tools and community engagement	Health ministry, local government, local health authorities	Tech firms, universities, civil society	
Establish feedback systems to alert communities and frontline responders		Two-way comms systems and trained responders	Health ministry, public health agency, local health authorities	Universities, tech firms, media, health workers		

Abbreviations: biotechs = biotechnology firms; Tech = technology; apps = applications



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Science**

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Key action items	Strategic domain	Objectives	What is needed? Capacity requirement	Who leads it? (Key primary stakeholders)	Who supports it? (Key secondary stakeholder)	Does your country have it? Yes/No
Build investment case for innovative dengue tools using cost and impact data	III.	Show the value of prevention	Health economics and policy analysis capacity	Health ministry, health economics units	Finance ministry, planning ministry, universities, regional partners	
Pilot innovative financing models (eg, social-impact bonds*)	IV.	Scale what works with innovative financing models	Expertise in impact investing and pooled procurement	Health ministry, finance ministry	Development partners, investors, insurers, universities	
Deploy digital tools and apps for behaviour change	V.	Design for trust, deliver through local channels	Digital tools and user-centred design	Health ministry, digital health units, tech partners	Health workers, civil society groups	

* Social-impact bonds = An outcome-based financing mechanism in which private investors fund social programmes upfront. If the programmes meet or exceed agreed-upon targets, the investors are repaid (often with a return) by the commissioning body. If the programmes fail to achieve sufficient results, investors bear some or all of the financial loss. Source: Social Impact Bond. OECD. https://www.oecd.org/els/emp/Social_Impact_Bonds.pdf



Target area: Skills

Strategic domains:

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Key action items	Strategic domain	Objectives	What is needed? Capacity requirement	Who leads it? (Key primary stakeholders)	Who supports it? (Key secondary stakeholder)	Does your country have it? Yes/No
Build field research and entomology skills	I.	Moving from reaction to readiness	Training in operational research	Health ministry, public health agency	Universities, education ministry	
Embed dengue into climate and sanitation efforts	II.	Integrate and sustain: layered prevention strategies that work	Cross-sector co-ordination frameworks	Local government, environment ministry	Health ministry	
Plan long-term adoption into local systems			Strategic budget planning and national guidelines	Health ministry, local health authority	Finance ministry, planning ministry, environment ministry	
Build local workforce capacity for surveillance and outbreak response		Power the frontline workforce	Field epidemiology and outbreak training	Public health agency, health ministry	Universities, local health authorities, regional partners	
Develop targeted strategies and career pathways to retain skilled health workers			HR systems and career pathways	Ministry of Health, local government, HR authority	Training institutes, donors	
Institutionalise local dengue roles in existing public health structures			Build resilience into routine	HR policy and planning	Health ministry, local government	Health authorities, HR authority
Include dengue in cross-sector funding proposals (climate, health security, GAVI, etc)	IV.	Position dengue within broader development agendas	Proposal development and cross-sector coordination	Health ministry, finance ministry	Environment and urban ministries, UN agencies, donors	
Use schools and workplaces as training hubs	V.	Design for trust, deliver through local channels	Community-based education systems	Public health agency, local government, local health authorities, schools, community groups, employers	Education ministry, labour ministry, media	

Abbreviations: HR = human resources; GAVI = Global Alliance for Vaccines and Immunisation; UN = United Nations



**Target area:
Support**

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Key action items	Strategic domain	Objectives	What is needed? Capacity requirement	Who leads it? (Key primary stakeholders)	Who supports it? (Key secondary stakeholder)	Does your country have it? Yes/No
Train and mobilise local health workers and health volunteers	III.	Power the frontline workforce	Co-ordinated training platforms	Health ministry, local government	Training institutes, civil society	
Leverage existing funds for messaging and mobilisation	IV.	Position dengue within broader development agendas	Budget tracking and risk communication capacity	Health ministry, finance ministry	NGOs, community health groups, development partners	
Run targeted awareness campaigns in schools and communities	V.	Teach it, track it, turn the tide	Public campaign design, school health education	Health ministry, local government, local health authorities	Education ministry, schools, community groups, media, employers	
Train community leaders to promote dengue prevention			Community training and standard messaging	Health ministry, local government, public health agency, local health authorities	Universities, NGOs, civil society	
Counter misinformation with trusted channels			Crisis communication and media engagement	Technology ministry, tech and media companies	Local health authorities, community groups, influencers, health ministry	
Engage trusted public figures to amplify dengue prevention messages and promote positive behaviours			Strategic communication partnerships	Health ministry, local government, local health authorities	Media, community groups	
Adapt messages to local culture and context			Design for trust, deliver through local channels	Culturally sensitive communication capacity	Health ministry, local health authorities	Universities, behavioural scientists, community and civil society

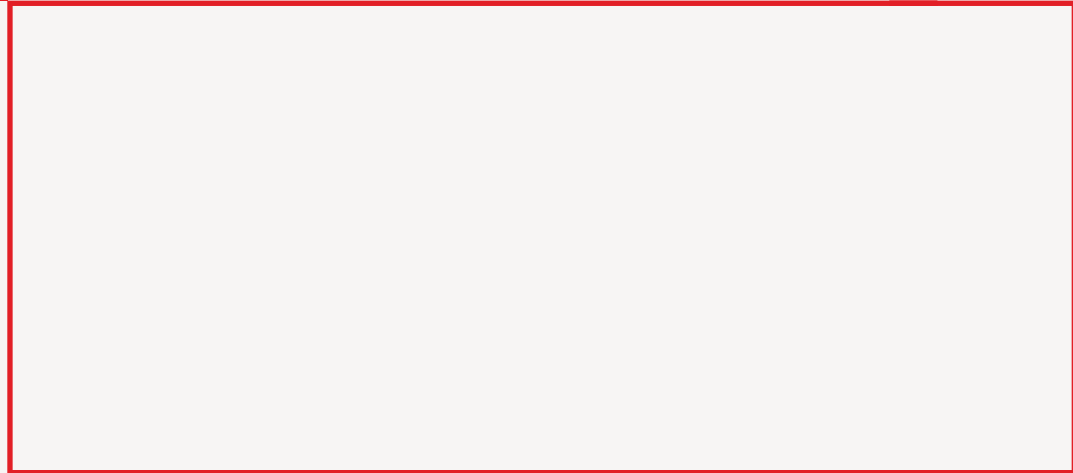


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Co-ordinate top-down and community efforts	V.	Make communities are part of the solution	Local co-ordination and monitoring systems	Local government, local health authorities, health ministry	Health workers, civil society groups	
Promote local champions and success stories			Recognition and social mobilisation strategies	Local government, local health authorities, health ministry	Media, civil society, schools, religious institutions	
Establish partnerships for implementation of community-fit solutions	VI.	Let data shape the response	Local partnership management	Local government, health authorities	Community groups	



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