SimEx Function Identification Framework

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1. Purpose and definitions

This framework ends in one simple output: the **Agreed Function List** — the functions of the disease response, identified with the state and agreed by it, each marked either for a simulation exercise or for another remedy. SimEx design starts from this list.

1.1 Key definitions

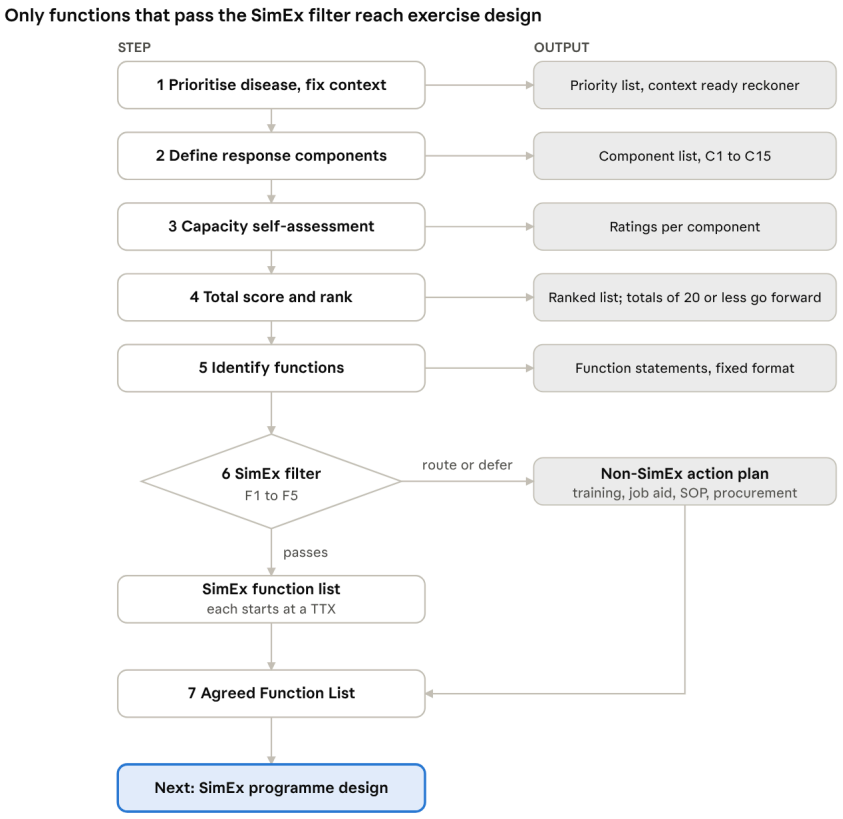
Term	Definition	Example (HPAI)
Disease response	Everything the system must do from first suspicion to declaration of freedom	Suspicion of HPAI to restocking
Component	A major block of the response, owned jointly by several roles	C1 Community detection and first reporting
Function	A single task with one owner, a trigger, an action and an output	Pashu sakhi reports unusual mortality to the block VO within 2 hours
Level	The administrative tier where a role sits	Village, block, district, state, national
Capacity dimension	One aspect of readiness that is rated	Awareness, skill, understanding, exposure, experience
Training intent	What the intervention must achieve for a function; set from the total score	Familiarise, upskill, test, validate
SimEx-worthy	A function that passes the SimEx filter (Step 6)	Hand-off of a suspicion report between levels

1.2 Principles

- **State-owned:** the state rates its own capacity and endorses every decision; the planning team facilitates.
- **Evidence over opinion:** every rating is anchored to a defined scale and, where possible, to the last real event.
- **Not everything is a SimEx:** functions that are better fixed by training, a job aid, procurement or an SOP change are routed there.
- **Traceable:** every function in the Agreed Function List can be traced back to a component, a rating and a filter decision.

2. Process chart

Seven steps run from disease selection to the Agreed Function List; the SimEx filter splits functions into those that go to a simulation exercise and those routed elsewhere.



Function identification process · 7 steps, 1 filter

A function that is partly a hands-on skill and partly a hand-off is split in two at Step 6 and each part is filtered again; deferred functions return to the filter once their resource or policy gap is fixed.

3. Step 1 — Prioritise diseases and prepare the context ready reckoner

Score up to 10 candidate diseases on five criteria using a 0–5 anchored scale, rank them into a priority list, and pick the top disease for this programme. Then prepare a 1–2 page context ready reckoner for the state.

3.1 Disease prioritisation scale (0–5)

Each criterion is scored 0–5 against the anchors below. Use the guiding question and the evidence column to settle each score; record the evidence used.

Criterion	Guiding question	Evidence to look at
Likelihood	How likely is an outbreak in the state in the next 2–3 years?	Past outbreaks, neighbouring states and countries, migratory routes, trade and animal movement
Impact	What are the livelihood, trade, food security and human health consequences?	Population at risk, mortality, zoonotic potential, market or export restrictions
Complexity of response	How many agencies and levels must act together?	National / state action plan, legal provisions
Time since last real response	How much institutional memory has decayed?	Date of the last outbreak response in the state
Policy push	Is there a new plan, SOP or programme to operationalise?	Recent notifications, central guidelines, funded programmes

Scoring anchors

Score	Likelihood	Impact	Complexity of response	Time since last real response	Policy push
0	Not present in the region; no route of entry	Negligible	No official response needed	Responded within the last 12 months	No plan or SOP
1	Exotic to India; remote risk	Minor, local production loss	Single agency, routine treatment	1–2 years ago	Old plan, no change expected
2	Present in India; not in the state for 10+ years; no high-risk pathway	Moderate loss in one species or area	Animal husbandry alone, several levels	3–4 years ago	Plan exists; revision under discussion
3	Reported in neighbouring states or countries in last 5 years, or a known pathway exists	Significant livelihood or market loss at district level	Animal husbandry + 1–2 other departments	5–7 years ago	Plan revised in last 3 years, partly rolled out
4	Reported in the state in last 5 years, sporadic	Major state-wide economic or trade impact, or limited zoonotic risk	Multi-department, with legal notification and movement control	8–10 years ago	New plan / SOP / programme in last 2 years, not yet operationalised
5	Endemic or seasonal in the state, or an active outbreak nearby now	Severe: high mortality, trade bans and serious public health risk	Multi-sector: culling or vaccination campaign, zoning, compensation, human health, police, national involvement	More than 10 years ago, or never	New mandate with a deadline (central directive, funded programme, audit)

Weights and priority score

Likelihood and impact matter most, so they carry more weight. Maximum score = 50.

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Priority\ score = 3L + 3I + 2C + 1T + 1P
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Priority score	Tier	Decision
35 – 50	Priority 1	Take up in this programme cycle
25 – 34	Priority 2	Next cycle
Under 25	Priority 3	Monitor; no exercise planned

Ties are broken by impact, then by likelihood. The state may move a disease up or down one tier with a recorded reason.

Ranking sheet (up to 10 diseases)

Rank	Disease	L (×3)	I (×3)	C (×2)	T (×1)	P (×1)	Score /50	Tier	Evidence notes
e.g.	HPAI (illustrative)	4	5	5	4	3	44	1	Migratory route; last response 9 years ago
1									
2									
3									
4									
5									
6									
7									
8									
9									

Rank	Disease	L (×3)	I (×3)	C (×2)	T (×1)	P (×1)	Score /50	Tier	Evidence notes
10									

How to run it: one planning team expert sits with the animal husbandry directorate (and health, for zoonotic candidates) for about 2 hours, agrees the candidate list, scores each disease together, and sorts by score. The output is the **disease priority list**, agreed with the department.

3.2 Context ready reckoner (1–2 pages)

For the selected disease, draft a short context document and hand it to the state before Step 3. Everyone who rates capacity reads it first, so all ratings refer to the same picture. Keep it to two pages, cite the version and date of every document used, and have the state nodal officer validate it.

Structure

#	Section	What to write	Format
0	Header	"[Disease] response context — ready reckoner for [State]"; version, date, prepared by, validated by	2 lines
1	Disease at a glance	Causative agent; species affected; how it spreads; incubation period; key signs; zoonotic or not; notifiable status; laboratory for confirmation	Two-column fact table
2	Governing documents	National action plan, state SOP, legal provisions (Act, notifications); issuing authority; version and date; the provisions that matter for response	Table: document · authority · version/date · key provisions
3	Production systems in scope	Backyard, commercial layer, broiler, duck flocks etc.; approximate population or units; key risk features; in scope yes/no	Table
4	Geographic scope	Whole state, or the priority districts, with the reason for each	Short list
5	Response stages	From first suspicion to closure, as described in the governing documents: stage · trigger · lead agency · key action	Numbered table
6	Agencies named	Every agency the documents name: agency · level · role in the response	Table
7	Contacts and repositories	Where the SOPs, forms, helplines, reporting portals and stockpiles are	Short list
8	Assumptions	Anything the assessment takes as given (e.g. "current SOP version will apply")	2–3 bullets

A blank version is in Templates (T1b).

4. Step 2 — Break the response into components

Split the response into 10–15 components that together cover every stage from detection to closure, with no overlap between them.

4.1 How to derive components

1. Walk through the governing action plan / SOP stage by stage.
2. List each distinct block of work a stage requires (detection, sampling, notification, control measures, cross-sector work, support functions).
3. Add the cross-cutting blocks that run throughout: coordination, logistics, communication, data.
4. Merge blocks that always involve the same people at the same time; split blocks that have different owners or triggers.

4.2 Standard component list (HPAI-type outbreak)

Code	Component	Response stage
C1	Community detection and first reporting	Detection
C2	Field investigation and clinical recognition	Detection
C3	Sample collection, packing, cold chain and dispatch	Confirmation
C4	Laboratory testing and result communication	Confirmation
C5	Outbreak declaration and legal notification	Declaration
C6	Zoning, movement control and check-posts	Containment
C7	Culling, disposal and disinfection	Containment
C8	Biosecurity and PPE	Cross-cutting
C9	Valuation and compensation	Containment
C10	Post-control surveillance, freedom and restocking	Recovery
C11	One Health coordination (human health)	Cross-cutting
C12	Risk communication, community engagement and media	Cross-cutting
C13	Logistics, stockpiles and finance	Cross-cutting
C14	Command, control and coordination	Cross-cutting
C15	Data management and upward reporting	Cross-cutting

For another disease, keep the stage structure and replace disease-specific components (e.g. vaccination and ring vaccination replace culling for foot-and-mouth disease).

5. Step 3 — Capacity self-assessment (1–5)

A planning team expert sits with the state department(s) and agrees a rating for every component on five dimensions, using fixed anchors so that a score always means the same thing.

5.1 The five dimensions

Dimension	Question the respondent answers
Awareness	Do the people responsible know this task exists and that it is theirs?
Understanding	Can they explain the steps, the trigger, and who else is involved?
Skill	Can they actually perform the task correctly?

Dimension	Question the respondent answers
Exposure	Have they seen it done (training, drill, demonstration, another state's event)?
Experience	Have they done it themselves in a real event?

5.2 Rating anchors

Score	Anchor	Description
1	Absent	Not aware the task exists; never seen it done
2	Aware	Knows the task exists; cannot list its steps
3	Understands	Can describe the steps and the people involved; has not practised
4	Practised	Has done it in a drill, exercise or real event, with support
5	Proficient	Has done it independently in a real event or full exercise in the last 3 years; can train others

5.3 Who rates

- The **state department(s) that own the response** do the rating. The animal husbandry directorate is always in the room; 2–3 departments are enough (e.g. animal husbandry, health, revenue / disaster management).
- Field levels (village, block, district) do **not** need to be assessed separately. The department rates on behalf of its whole system.
- If a component is owned by a department that is not present, mark it **not assessed** and raise it when the function list is agreed (Step 7).
- District officers can join if the state wishes; it is optional.

5.4 Method — one deliberation with the department

One planning team expert visits the state and runs a single 2–3 hour deliberation (one joint session, or one per department).

1. **One week before:** send the context ready reckoner and the rating sheet (T2).
2. **Opening (15 min):** walk through the ready reckoner and the 1–5 anchors with one worked example.
3. **Component by component (about 8–10 min each):** the department discusses and agrees one rating per dimension. The expert asks one probe: *"When was this last done for real?"* and notes the answer as evidence.
4. **Reality check:** if a rating does not match the evidence (e.g. 5 for experience with no outbreak in 10 years), the expert points it out and the department may revise it.
5. **Close (10 min):** read back the completed sheet; the senior officer present confirms it.

5.5 Output: capacity profile

One table for the state: rows = components; columns = the five dimension ratings and their total out of 25.

6. Step 4 — Score and rank the components

Add up each component's five ratings to get one total out of 25. That single number sets both the training intent and whether the component goes forward.

6.1 Total score

Total = Awareness + Understanding + Skill + Exposure + Experience (minimum 5, maximum 25)

Sort the components from lowest total to highest. The lowest totals are the weakest areas and are taken up first.

6.2 What the total decides

Total (out of 25)	Training intent	Goes forward to function identification?
5 – 10	Familiarise	Yes
11 – 15	Upskill	Yes
16 – 20	Test	Yes
21 – 25	Validate	Only if the state asks for it

If two components have the same total, the one whose failure would stop containment (for example, reporting or sampling) is placed first.

6.3 Worked example

Component	Awareness	Understanding	Skill	Exposure	Experience	Total /25	Training intent	Goes forward?
C9 Compensation	3	2	2	2	1	10	Familiarise	Yes
C1 Community reporting	3	3	2	2	2	12	Upskill	Yes
C5 Legal notification	4	3	2	2	1	12	Upskill	Yes
C3 Sampling and dispatch	4	3	3	3	2	15	Upskill	Yes
C14 Command and coordination	5	5	4	4	4	22	Validate	Only if the state asks

C1 and C5 tie at 12; C1 is placed first because a reporting failure stops containment.

7. Step 5 — Identify functions within each component

For every component that goes forward from Step 4, list each task as a function with one owner, one trigger, one observable action and one output. Use four sources together so that no function is missed.

7.1 Four sources of functions

Source	How to use it	What it catches
A. SOP / action plan walk-through	Desk review: extract every "shall / will / must" sentence with its actor	Functions the documents require
B. Role-mapping workshop	For each component, list every role at every level; ask "what does this role do here, when, and what comes out?"	Functions people actually perform, including unwritten ones
C. Hand-off tracing	Follow each item that moves (report, sample, result, order, stock) from origin to end; every hand-off creates a **send** function and a **receive-and-act** function	Gaps between levels and agencies
D. Past-event review	Read after-action reports, outbreak reports and inquiry notes from previous events	Functions that failed before

7.2 End-state cross-check

For every role in the component, confirm there is at least one function covering each of the following. A blank cell is a missing function.

End-state element	Function must cover
Role	The core action the role owns
Scope	Where the role hands over and stops
Knowledge	The technical judgement the role must make
Larger universe	Who the role must inform or coordinate with
Fallback	What the role does when the primary contact or resource fails
Repository	Where the role gets its SOP, form, contact list or supplies

7.3 Writing the function statement

Use one fixed format:

> **[Role] [action verb] [object] [to / with whom] [on trigger] [within time]**, producing **[output]**, as per **[reference]**.

Example: *Pashu sakhi reports unusual poultry mortality to the block VO on receiving a farmer's report, within 2 hours, producing a verbal report and a written message with the minimum dataset, as per the pashu sakhi job aid.*

7.4 Function attributes to record

ID (e.g. C1-F01) · component · role · level · trigger · action · output · time standard · hand-off to · fallback · reference · function type (decision, communication, technical, coordination, logistics) · training intent (inherited from the component; may be changed with reason).

7.5 Worked example — C1 Community detection and first reporting

ID	Role	Level	Trigger	Action and output	Hand-off to	Type
C1-F01	Farmer	Village	Unusual deaths or illness in flock	Informs pashu sakhi or nearest veterinary worker	Pashu sakhi	Communication
C1-F02	Pashu sakhi	Village	Farmer's report	Collects the minimum dataset by phone or visit	—	Technical
C1-F03	Pashu sakhi	Village	Farmer's report	Gives immediate advice to the farmer (confine, no sale or movement, carcass handling, hand hygiene)	—	Technical
C1-F04	Pashu sakhi	Village	Dataset collected	Reports to block VO verbally and in writing within set time	Block VO	Communication
C1-F05	Pashu sakhi	Village	Block VO not reachable within 30 min	Reports to fallback contact (livestock inspector, then district helpline)	Fallback	Communication
C1-F06	Block VO	Block	Report received	Acknowledges, logs and sets visit time; tells the pashu sakhi what to do meanwhile	Pashu sakhi	Decision
C1-F07	Pashu sakhi	Village	Instruction from block VO	Carries out village tasks (household listing, daily death reports, advice house to house)	Block VO	Technical

8. Step 6 — The SimEx filter and routing

Not every function warrants a SimEx. Each function is put through five questions; it goes into the SimEx programme only if it needs interaction or judgement, is rare in real life, and cannot be fixed more cheaply another way.

8.1 The five filter questions

#	Question	Answer that favours SimEx
F1	Does the function involve a hand-off between people, levels or agencies?	Yes
F2	Is it time-critical, or does it need judgement under uncertainty?	Yes
F3	Is it rarely performed in real life, so it cannot be learnt on the job?	Yes
F4	Can it be learnt equally well by reading, a lecture or a hands-on demonstration?	No
F5	Is the gap mainly caused by a missing resource, budget, authority or SOP?	No

8.2 Decision rule

SimEx = (F1 = Yes **or** F2 = Yes) **and** F3 = Yes **and** F4 = No **and** F5 = No.

Split = the function has a hands-on part that passes F4 (learnable by demonstration) and an interaction part that fails it. Split it into two functions and filter each again (e.g. triple packing of samples = skills station; dispatch and chain of custody = SimEx).

Route elsewhere = any other result:

Filter result	Route to	Owner of the action
F5 = Yes	Procurement, budget request, delegation of authority, SOP or notification revision	State directorate
F4 = Yes	Classroom training, video, job aid, reading pack	Training unit
F1 and F2 both No	Skills demonstration and supervised practice	District / block supervisors
F3 = No	On-the-job mentoring, supportive supervision	District / block supervisors

A function with F5 = Yes may still go into a SimEx **after** the resource or policy gap is fixed; record it as "deferred".

8.3 Starting modality — always a tabletop exercise

Every SimEx-worthy function starts at a **tabletop exercise (TTX)**, whatever its training intent. A TTX walks players through their roles, hand-offs, fallbacks and repositories in one sitting, so it covers familiarisation as well as upskilling; no separate orientation is needed. The training intent only decides what follows the TTX.

Training intent	Starting modality	Next step after the TTX
Familiarise	TTX	None; the TTX is enough
Upskill	TTX	Drill of the specific procedure
Test	TTX	Functional exercise
Validate	TTX	Full-scale exercise

8.4 Worked example — C1 functions

ID	F1	F2	F3	F4	F5	Decision	Route / modality
C1-F01 Farmer informs pashu sakhi	Yes	No	Yes	Yes	No	Route	Community awareness campaign
C1-F02 Collect minimum dataset	No	Yes	Yes	Yes	No	Route	Job-aid card + classroom practice
C1-F03 Immediate advice to farmer	No	Yes	Yes	Yes	No	Route	Job-aid card + role-play in training
C1-F04 Report to block VO	Yes	Yes	Yes	No	No	SimEx	TTX, then drill (unannounced call-down)
C1-F05 Use fallback contact	Yes	Yes	Yes	No	Yes	Deferred	Issue escalation contact list first, then TTX
C1-F06 Block VO acknowledges and instructs	Yes	Yes	Yes	No	No	SimEx	TTX
C1-F07 Village tasks on instruction	Yes	No	Yes	No	No	SimEx	TTX

9. Step 7 — Agreed Function List

The framework ends with one simple list: the functions identified for the disease and agreed by the state, each marked for SimEx or for another route.

9.1 Agreeing the list (one sitting, about 2 hours)

1. The planning team expert walks the department through the functions, component by component.
2. The department confirms, edits or drops each function, and adds any that are missing. It may also add or drop a component at this point.
3. Where the SOP gives no time standard, one is agreed on the spot.
4. The SimEx / route decision is confirmed for each function.

9.2 The Agreed Function List

ID	Function	Component	Role	SimEx or route
C1-F04	Pashu sakhi reports unusual mortality to the block VO within 2 hours, with the minimum dataset	C1	Pashu sakhi	SimEx — TTX, then drill
C1-F05	Pashu sakhi reports to the fallback contact if the block VO is not reachable in 30 minutes	C1	Pashu sakhi	Deferred — issue escalation list first
C1-F06	Block VO acknowledges the report and instructs the pashu sakhi	C1	Block VO	SimEx — TTX
C1-F02	Pashu sakhi collects the minimum dataset from the farmer	C1	Pashu sakhi	Route — job aid + training
…				

The SimEx functions go into SimEx programme design; the routed and deferred functions go to the department for follow-up.

9.3 Before moving to SimEx design

- [ ] Every component taken forward has at least one function
- [ ] Every function is written in the fixed format (Section 7.3)
- [ ] Every hand-off has a send and a receive function

- [ ] Every role has fallback and repository functions
- [ ] Every function has a SimEx or route decision

10. Roles, responsibilities and indicative timeline

The full function identification cycle takes about 10–11 weeks for one disease in one state.

10.1 Roles

Role	Responsibilities
Competent authority (Director / Secretary, Animal Husbandry)	Approves disease choice; chairs concurrence; agrees the Agreed Function List
State nodal officer	Single point of contact; mobilises districts and allied departments; tracks the non-SimEx action plan
Planning team lead	Owns the method; runs Steps 1, 2 and 4–7; drafts all outputs
Assessor (planning team expert)	Leads the Step 3 deliberation with the state department(s); applies the anchors; records evidence
Subject experts	Check components and functions against the governing documents; set time standards
District nodal officers	Optional: join Step 3; provide past-event evidence
Data analyst	Compiles ratings, computes scores, produces the capacity profile and the function lists

10.2 Indicative timeline

Week	Step	Key output
1	Step 1 — disease prioritisation and context ready reckoner	Disease priority list, context ready reckoner
2	Step 2 — components	Component list, assessment forms
3–5	Step 3 — deliberation with state department(s)	Capacity profile with evidence
6	Step 4 — scoring and ranking	Ranked list
7–8	Step 5 — function identification (desk review, role-mapping workshop)	Draft function list
9	Step 6 — SimEx filter	Filter decisions
10–11	Step 7 — agree the function list with the state	Agreed Function List

11. Step-by-step checklists

Tick each item before moving to the next step.

Step 1 — Disease selection

- [ ] Up to 10 candidate diseases listed
- [ ] Each scored 0–5 on the five criteria with evidence noted
- [ ] Weighted scores calculated and diseases ranked into tiers

- [ ] Disease priority list agreed with the department
- [ ] Governing documents collected (latest versions, dates noted)
- [ ] Context ready reckoner (1–2 pages) drafted
- [ ] Ready reckoner validated by the state nodal officer

Step 2 — Components

- [ ] Action plan walked through stage by stage
- [ ] 10–15 components listed with codes
- [ ] Blocks merged or split by owner and trigger
- [ ] Rating sheet prepared from the component list

Step 3 — Self-assessment

- [ ] Participating department(s) confirmed (animal husbandry + 1–2 others)
- [ ] Ready reckoner and rating sheet sent one week before
- [ ] Deliberation held; one agreed rating per dimension per component
- [ ] "Not assessed" marked for components whose owner was absent
- [ ] "Last time done for real" recorded as evidence
- [ ] Completed sheet read back and confirmed

Step 4 — Scoring and ranking

- [ ] Total out of 25 added up for every component
- [ ] Components sorted lowest total first
- [ ] Training intent and "goes forward" read off the table for each

Step 5 — Function identification

- [ ] SOP walk-through done (source A)
- [ ] Role-mapping workshop held (source B)
- [ ] Hand-offs traced for reports, samples, results, orders, stock (source C)
- [ ] Past-event reports reviewed (source D)
- [ ] Function statements written in the fixed format
- [ ] End-state cross-check done for every role

Step 6 — SimEx filter

- [ ] F1–F5 answered for every function
- [ ] Decision rule applied: SimEx / split / route / deferred
- [ ] Split functions re-filtered
- [ ] Every SimEx function starts at a TTX; next step after the TTX set from its intent
- [ ] Route, owner and due date set for every non-SimEx function

Step 7 — Agreed Function List

- [ ] Functions walked through with the department, component by component
- [ ] Functions confirmed, edited, dropped or added as the state decided
- [ ] Missing time standards agreed
- [ ] SimEx or route confirmed for every function
- [ ] Agreed Function List shared with the state

12. Templates

T1a. Disease ranking sheet

Rank	Disease	L 0–5 (×3)	I 0–5 (×3)	C 0–5 (×2)	T 0–5 (×1)	P 0–5 (×1)	Score /50	Tier	Evidence notes

T1b. Context ready reckoner (blank, max 2 pages)

[Disease] response context — ready reckoner for [State] · Version: Date: Prepared by: Validated by:

1. Disease at a glance

Item	Detail
Causative agent	
Species affected	
How it spreads	
Incubation period	
Key signs	
Zoonotic?	
Notifiable status	
Confirmatory laboratory	

2. Governing documents

Document	Issuing authority	Version / date	Key provisions for response

3. Production systems in scope

System	Approx. population / units	Key risk features	In scope?

4. Geographic scope: whole state / priority districts (list with reason)

5. Response stages (as per governing documents)

#	Stage	Trigger	Lead agency	Key action
1	First suspicion			
…	Closure			

6. Agencies named

Agency	Level	Role in response

7. Contacts and repositories: SOPs · forms · helplines · reporting portal · stockpiles

8. Assumptions:

T2. Capacity rating sheet (one per deliberation)

Department(s): Date: Assessor: Confirmed by:

Component	Awareness	Understanding	Skill	Exposure	Experience	Last time done for real
C1						
C2						
…						

T3. Ranking sheet

Rank	Component	Total /25	Training intent	Goes forward?

T4. Function working sheet

ID	Component	Role	Level	Trigger	Action	Output	Time standard	Hand-off to	Fallback	Reference	Type	Criticality	Intent	F1	F2	F3	F4

T5. End-state cross-check (one per role)

Role:	Function ID(s)	Gap?
Core action (role)		
Hand-over point (scope)		
Technical judgement (knowledge)		
Who to inform / coordinate with (larger universe)		
Fallback		
Repository		

T6. Agreed Function List

Disease: State: Date agreed:

ID	Function	Component	Role	SimEx or route