VaxPlan

End-User Guide

A role-by-role manual for the VaxPlan GIS microplanning platform.

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A practical, role-by-role manual for the VaxPlan GIS microplanning platform. Use the table of contents to jump to your role.

Audience: Ministry of Health staff at every level — facility clerks, facility in-charges, district managers, provincial coordinators, national administrators, and tenant onboarding leads.

Version: This document is kept in lockstep with the running application. If a screen looks different in your environment, your tenant administrator may have customised the labels (for example "Province" !' "Region") — the workflows below are unchanged.

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1. What VaxPlan does

VaxPlan is a multi-country microplanning system used by Ministries of Health to plan, run, and track routine immunisation and supplementary immunisation activities (SIAs).

Core workflows it covers:

- **Microplanning:** facility-level quarterly plans that combine catchment population, vaccine schedules, and outreach intent into a list of executable sessions.
- **Session execution:** scheduling, running, and closing out vaccination sessions (fixed-site, outreach, mobile).
- **Coverage analytics:** by antigen, by dose, by month, by location, with under-immunised and zero-dose surfacing.
- **Stock and supply:** vaccine requirements, wastage thresholds, cold-chain stock balances, and reconciliation.
- **Supervision:** scheduled supervisory visits with rolled-up reporting to district and province.
- **Mapping:** every facility, village, settlement, and session plotted on Leaflet maps with admin boundary overlays (GeoBoundaries + custom GeoJSON uploads).

Multitenant SaaS: each Ministry of Health is a separate tenant with its own data, users, and SSO. Every account belongs to exactly one country and can only ever access that country. The single exception is a **Super Admin**, who can access and switch between all countries from the header.

See the full feature list. For a complete, plain-language catalogue of everything VaxPlan can do today, open **Standards Alignment** from the sidebar and select the **Features** tab. It groups every feature by area (dashboards, microplanning, vaccines & stock, maps & GIS, supervision, users & access, offline & sync, security, and more), and the filter box lets you jump straight to anything.

Where the data lives: Everything is stored in PostgreSQL on a tenant-isolated schema. Facility and village reference data is loaded once during onboarding and then maintained by national administrators. Day-to-day operational data (sessions, coverage, stock) is written by facility staff.

2. Roles at a glance

Role	What they can do	Where they work
Facility clerk	Authors microplans and sessions, captures session results, manages stock balances.	Their own facility only.
Facility in-charge	Same as clerk, plus signs off (submits) the microplan and session results.	Their own facility only.
District manager	Reviews and approves microplans from facilities in the district, runs supervision visits, reads coverage.	Their district.
Provincial coordinator	Approves district-level plans, sees	

rolled-up coverage, escalates issues.

Their province.

Manages users, facilities, vaccine schedule, labels, boundaries, and the country dashboard.

Their own country only.

	Onboards new countries, configures SSO, provisions national admins, and is the only role that can access and switch between all countries (and promote other Super Admins).

All countries.

Microplan authoring (creating new microplans and session plans) is **reserved for facility staff** (clerk and in-charge), so accountability stays with the people who actually run the sessions. National admins can also author when setting up or correcting a country's data. District managers and provincial coordinators are reviewers and approvers only — they cannot author plans on a facility's behalf.

3. Signing in

VaxPlan supports two sign-in modes:

1. **Email and password** (used during onboarding and colleague testing).
2. **Tenant SSO** — once your Ministry of Health is fully onboarded, you sign in with your own organisational identity (OIDC or SAML — for example Microsoft Entra, Google Workspace, Okta).

To sign in:

1. Open the VaxPlan URL provided by your administrator (each tenant has either a subdomain or a path-based URL).
2. Click **Sign in**.
3. If you're redirected to your identity provider, complete the login there.

On first login, your home tenant is set automatically from your email domain (if your administrator has configured a domain mapping) or from the signup invite you accepted. You'll land on your home tenant's dashboard.

If you signed up but no role has been granted yet, you'll see a "pending approval" message. Your district or national administrator needs to confirm your role before you can use the system. They will receive an inbox notification automatically.

Password & email sign-in:

- **Change your own password.** Click your name in the top-right corner and choose **Change password**. Enter your current password (leave it blank if you've never set one), then your new password twice. Passwords must be at least 8 characters.
- **Forgot your password?** On the sign-in screen click **Forgot password?** and enter your email. Your administrator is notified so they can set a new one for you, which they'll share with you securely.
- **Administrators** can set or reset passwords for users — see section 8.

4. The home screen and switching country

The header has three constant elements:

- **Country switcher (top-left)** — this appears **only for a Super Admin**. It shows the current country and a dropdown to switch between all countries. Switching changes which country's data you're working in. Every other account is permanently locked to its own country and never sees this switcher.
- **Navigation sidebar (collapsible)** — your modules. Items that your role can't access are hidden, so the menu adapts to who you are.
- **Profile menu (top-right)** — language, theme (light/dark), and sign-out.

Country isolation rule: every account — including a national admin — can only ever access its own country. There is no way to view or edit another country's data. Only a Super Admin can move between countries; when a Super Admin switches, they act fully within whichever country they have selected. A Super Admin can also grant Super Admin to another user from that user's edit screen (Users ’ open a user ’ Super Admin access).

What you can see within your country. VaxPlan also scopes data by your place in the hierarchy. A facility clerk or in-charge sees only their **own facility's** facilities, villages, population, microplans, sessions, and reports. A district manager sees their district; a provincial coordinator sees their province; a national admin sees the whole country. You won't see — or be able to open — a record that belongs to a facility outside your area, even with a direct link. This keeps each facility's data private to the people responsible for it.

5. Facility staff — your daily workflow

This is the most important section for clerks and in-charges. Read it end-to-end the first time, then return to specific subsections as needed. There is also a separate one-page card, `QUICKSTART_FACILITY.md`, you can print and pin next to your workstation.

5.1 Build a routine microplan

A **microplan** is your facility's quarterly plan. It declares:

- which villages your facility serves this quarter,
- the target population (under-1s and pregnant women by default — configurable per tenant),
- the antigens you will offer,
- the outreach sessions you intend to run (fixed-site sessions are automatic).

Steps:

1. From the sidebar, open **Microplans ’ Routine**.
2. Click **New microplan**. The wizard opens.

Step 1 — Scope. Pick the quarter and year. Your facility is pre-filled from your profile and cannot be changed.

Step 2 — Catchment. Tick the villages the facility will serve this quarter. The list is your facility's assigned villages from the registry. If a community is missing you can add it yourself — see **5.8 Manage your communities** below — then return to the wizard.

Step 3 — Population. Confirm the target denominators. Three data sources feed this:

- **Registered population** (from your registry),
- **Modelled estimate** (another population source, useful for remote villages without a recent census), and
- **Manual override** (with a justification note). Pick the source per village; the wizard sums everything and shows you the totals.

4. **Step 4 — Vaccine schedule.** The default schedule is your tenant's. Untick antigens that don't apply (for example, if your facility doesn't carry HPV).
5. **Step 5 — Outreach intent.** Declare how many outreach sessions per village you expect to run. The system creates one session plan per (village × month × declared count). You can edit individual sessions later.
6. **Step 6 — Review and submit.** Check the totals, then **Save as draft** (you can keep editing) or **Submit for approval** (your district manager sees it in their queue).

Tip. You can save a draft at any step. Drafts are private to you until you submit.

5.2 Plan a session

Once a microplan is approved, its sessions appear on the **Sessions** page. Each session is created automatically from the microplan's outreach intent. You can also add ad-hoc sessions for defaulter follow-up.

To edit a session:

1. Open **Sessions** from the sidebar.
2. Use the **Province ? District ? Facility** cascade filter at the top to find your sessions. The row count below changes as you filter.
3. Click a session name. The edit dialog opens.
4. Fill in:
   - **Scheduled date** — the day you'll run it.
   - **Site type** — fixed, outreach, or mobile.
   - **Villages served** (for outreach) — pick from the facility's catchment.
   - **Cold-chain plan** — vaccine carrier, ice packs, expected vaccines.
5. Click **Save**.

If GPS coordinates are missing for the village, the system warns you when you save and offers a "Capture GPS now" link to record them from your phone in the field.

Tip — plan from the calendar. On **All sessions**, pick a day and click **Plan a session on this day**. This opens the New Session form (not the microplan wizard) with the date already filled in; pick the parent microplan and the form inherits its facility, quarter, year, and target population.

Add itinerary days. Inside a session, use **Add Vaccination Session Itinerary Day** to plan each outreach day. Each day needs a **lead vaccinator**, a **date at least 7 days ahead**, a **target population**, and at least one **community** (tick from the list or quick-add from the map). The **Calculated Vaccine Supplies** panel estimates realistic doses per antigen — target × doses-per-child × wastage — so ~50 children yields tens of doses, not thousands. If a day won't save, the error names the field that needs fixing.

5.3 Run a session in the field

The session execution screen is designed for use **offline**, on a phone or tablet, while you're at the village.

1. From **Sessions**, tap your session for today.
2. Tap **Start session**. The screen switches to capture mode.
3. For each child or pregnant woman vaccinated:
   - Tap **Add client** (or scan their card if you've enabled barcode scanning).
   - Pick the antigens administered. The system auto-picks the next due dose based on the schedule.
   - Confirm.
4. The session totals update live. Stock balances on the device decrement automatically.

You can capture an entire day's session with no connectivity. The device queues every entry into an **offline outbox** (see 5.7).

5.4 Mark a session done

After you've finished vaccinating:

1. Tap **Mark session done**.
2. Confirm the per-antigen counts. The system pre-fills these from your capture; you can adjust if your physical tally differs.
3. Add session notes (issues, no-shows, supply problems).
4. Tap **Submit**.

What happens behind the scenes:

- Per-antigen counts are validated against your tenant's vaccine schedule. Known codes are stored under their canonical name (so `opv-1` and `OPV-1` are treated the same).
- Unknown codes — usually from older offline entries — are stored in a separate bucket so they still count toward totals but don't pollute per-antigen rollups. You'll see a warning if any were found, and your national admin can review them in the audit log.
- Stock movements are recorded.
- The session is locked. Reopening requires district approval.

5.5 Coverage and the under-immunised list

Coverage is shown on the **Coverage** page. You'll see:

- Coverage by antigen, this quarter and year-to-date.
- A heatmap of villages by coverage percentage.
- An **under-immunised list** of children who have started but not completed a vaccine series (for example, OPV-1 done but OPV-2 missing past the due date).

Acting on the under-immunised list:

- Click a child to see their full vaccination history.
- Click **Create defaulter follow-up session** to spin up a new outreach session targeting that child's village. The session is tagged so it shows up under the **Defaulter follow-up only** filter on the Sessions page.

5.6 Stock, wastage, and supply

The **Stock** page tracks vaccine balances at your facility:

- **On hand** by antigen and lot, with expiry dates.
- **Receipts** — when supply arrives from the district, enter the delivery note.
- **Issues** — automatic when you mark a session done, manual if you give vaccines to another facility.
- **Wastage** — auto-computed from session counts vs. opened vials, with a per-antigen wastage threshold. Vials wasted above threshold trigger an alert visible to your in-charge and district manager.

The **monthly stock summary** is your end-of-month return: review, adjust if you find a discrepancy on physical count, and submit.

5.7 Offline mode and sync

VaxPlan works without an internet connection. Here's what you need to know:

- The first time you sign in, the app **caches your reference data** (facilities, villages, vaccine schedule, microplans) into an on-device IndexedDB.
- When you create or update something offline (a session result, a stock movement, a new defaulter session), it goes into an **outbox**. The header shows a small cloud/sync badge with the number of pending items.
- **"Sync now" is built into the header.** The sync badge is always visible. Whenever you're online, tap it to push your outbox and pull the latest server data immediately — whether you have items queued or just want a refresh. While you're offline it shows your status and pending count, and syncs as soon as you're back online.
- When connectivity returns, the outbox **syncs automatically in the background** — even if you've closed the tab or locked the phone, on devices that support background sync (most Android browsers). On devices that don't (for example iPhones), it syncs the next time you open the app.

Live updates across devices. While you're online, VaxPlan keeps a lightweight live connection open. If a colleague — or you on another device — changes something for your facility, your screen refreshes within a few seconds, with no manual reload. If that live connection drops, the app quietly falls back to periodic checks.

If a sync entry is rejected (for example, a session was already closed on the server), the system shows the rejection inline and asks you to resolve it.

Best practice. Sync at the end of each session day, when you're back in cellular range. Don't let the outbox grow longer than a week's worth of entries.

5.8 Manage your communities

You can add and edit the communities (villages) your facility serves — you don't need to wait for your national admin.

To add a community:

1. Open **Facilities** from the sidebar and switch to the **Communities** tab.
2. Click **Add Community**.
3. **Facility:** If you're facility staff, the facility is pinned to your own facility and can't be changed. District staff can pick any facility in their district; coordinators and admins get a searchable **Province !’ District !’ Facility** picker.
4. Fill in the community **name** and any other details.
5. **Set the location.** Either drop a **single pin** for the centre of the community, or switch to **Draw Polygon Mode** and click points on the map to trace the community's **catchment boundary**. Boundaries are saved and shown on the map everywhere in the app, and can be reused later.
6. Click **Save**.

Note. Facility and district staff can add and edit **communities**, but only provincial coordinators and national admins can add a new **health facility**. The **Add Facility** button is hidden for staff who aren't allowed to use it.

Catchment overlap and harmonization. If the boundary you draw overlaps another community's catchment, VaxPlan shows a **Catchment overlap detected** panel after you save. It lists each overlapping community, the other facility, and how much they overlap. To resolve a clash, click **Request harmonization** next to a community: VaxPlan records the conflict and emails that community's facility in-charge so the two facilities can agree on who covers the shared area.

6. District managers — review and oversight

You sit between facilities and the province. Your day-to-day:

- **Approval queue.** Open **Approvals**. You'll see microplans submitted by facilities in your district. For each, you can:
  - **Approve** — the plan locks and its sessions go live.
  - **Request changes** — the plan returns to the facility with your note.
  - **Reject** — for plans that should be rebuilt from scratch.
- **Coverage rollup.** The **Coverage** page shows you the whole district at a glance. Drill down by facility or village.
- **Supervision visits.** Schedule visits to facilities; see §13.
- **Stock alerts.** You'll receive a weekly digest of facilities with stockouts, wastage above threshold, or upcoming expiries.
- **Cross-facility intelligence.** The **Map** view shows every session in your district pinned by status (planned, conducted, overdue, cancelled). Use it to spot uneven coverage by location.

You **cannot** author microplans for a facility — that responsibility stays with facility staff. You can, however, edit catchment assignments (which villages belong to which facility) if you spot a boundary issue.

7. Provincial coordinators — approvals and visibility

Your role mirrors the district manager's, scoped to the province:

- District-level **plan approvals**: when a district manager signs off on aggregated district-level outreach plans (for SIAs, mostly), they come to you next.
- **Province-wide coverage** dashboards.
- **Cross-district comparison** — see which districts are on track and which are slipping.
- **Resource allocation** — request stock reallocations between districts using the **Supply request** workflow.

You also have access to the **National admin** read-only views (you cannot edit users or facilities, but you can see them).

8. National administrators

National admins are the power users for your country. Your modules:

- **Users.** Invite users, assign roles, suspend or reactivate accounts. You can also bulk-import users from a CSV. When creating a user you can set an **initial password** so they can sign in right away, and you can **reset any user's password** later from the user's edit screen (open a user !**Reset Password**). Passwords must be at least 8 characters — share them with the user securely. (Only national admins and Super Admins see these password controls. A national admin can only manage users in **their own country**; a Super Admin can manage users in whichever country they're working in.)
- **Facilities.** The registry of all facilities. Import from CSV (a template is downloadable), edit GPS coordinates, merge duplicates, or retire facilities.
- **Villages and catchments.** The same for villages. The **catchment matrix** lets you assign villages to facilities.
- **Vaccine schedule.** Your tenant's authoritative schedule. Adding an antigen here makes it available in microplans nationwide.
- **Labels.** Customise the administrative level labels (e.g. "Province" !’ "Region" for South Sudan).
- **Boundaries.** See §10.
- **Country dashboard.** Top-line KPIs for the country, including coverage by antigen, dropout rates, stock health, and supervision compliance.
- **Approvals (escalations).** Anything a district or province rejected escalates to you.
- **Audit log.** Every change to sensitive data is logged with who, when, and what.
- **Site activity.** A panel on your country dashboard shows who is online right now and where they are signed in from, a live map pinning those users, visits today and over the last two weeks, your busiest pages, and a breakdown of login locations. Users stay counted as online while their tab is open — the app sends a quiet heartbeat — so someone reading a single page without clicking around still shows up. When a user allows location access in their browser, the map uses their device's real GPS position; otherwise it falls back to a

only to the nearest large city. Platform super admins can tap any online person for full detail — email, IP address, device, and exact coordinates. It is visible only to national and platform administrators.

National admins can also configure **scheduled jobs** — population refresh from WorldPop, stock-alert digests, and supervision digests all run on schedules you can tune in **Settings !’ Schedules**.

9. Tenant onboarding (new Ministry of Health)

This section is for the VaxPlan **Super Admin** onboarding a new country. Onboarding a new country is **restricted to Super Admins** — country administrators (national admins) manage only their own country and cannot add new countries. The **Country Onboarding** screen (sidebar !’Administration !’ Country Onboarding) is hidden from everyone except Super Admins, and it carries a built-in step-by-step guide that mirrors the steps below.

1. **Create the tenant.** Use **Settings !’ Tenants !’ New** and pick:
   - Country name and ISO-3 code.
   - Default time zone.
   - Default admin level labels (e.g. Province/District/Facility, or Region/State/Health Area).
   - Default vaccine schedule (clone from a sibling country if you have one, then edit).
2. **Configure SSO.** Add the OIDC or SAML configuration for the ministry's identity provider. Test the connection before going live.
3. **Map email domains.** Adding `@health.gov.xx` makes anyone who signs in from that domain land on this tenant by default.
4. **Provision the first national admin.** They will receive an invite email and be able to onboard everyone else.
5. **Load reference data.**
   - Admin boundaries — use the **Boundary Manager** (§10).
   - Facilities — import via CSV.
   - Villages and catchments — import via CSV.
   - Population — either ingest a WorldPop raster (national admin can do this on demand) or rely on registered population.
   - Where you only have an open facility list with province (but not district) labels, VaxPlan can fill in districts automatically by matching each facility's GPS coordinates against GeoBoundaries ADM2 polygons. See `docs/COUNTRY_ONBOARDING.md` for the repeatable prep-and-seed scripts (used to onboard South Africa).
6. **Set the approval workflow.** Decide whether plans need 1, 2, or 3 levels of approval (facility !’ district !’ province !’ national).
7. **Go live.** The national admin sends out user invites and training links.

9b. Local Development Database & Restore

VaxPlan includes a compressed database dump `local_dump.sql.zip` in the root of the project. This dump contains all available development data, including pre-seeded mock health facilities, routine/campaign microplans, volunteer/CHV profiles, spatial boundary definitions, performance indexes, indicators, and multi-tenant profiles (e.g., Zambia and South Africa).

To set up your local development database with this data:

1. **Unzip the Database Dump**: Unzip the compressed archive to extract the raw SQL dump file:

```
unzip local_dump.sql.zip
```

2. **Restore to PostgreSQL**: Make sure you have a local PostgreSQL database named `vaxplan` running, then restore the dump using `psql`:

```
psql -U postgres -d vaxplan -f local_dump.sql
```

Note: If your local database has different credentials, adjust the username (`-U`) and database name (`-d`) accordingly.

3. **Verify Restored Schema**: Run the dev server (`npm run dev`) and test the landing page to verify that all country tenants (Zambia, South Africa, etc.) are listed and accessible with pre-configured demo credentials.

10. Map and boundary management

Every map in VaxPlan (Sessions, Coverage, Settlement intelligence, Microplans) draws boundaries on top of OpenStreetMap tiles.

Boundary disclaimer. The credit at the bottom-right of every map carries a short notice that boundaries are approximate, for planning and reference only, and do not imply endorsement — and that disputed areas are not authoritatively depicted. The full statement, including how disputed regions are handled, is in the **Acknowledgements** on the Data Sources page (§16).

Boundaries come from two sources:

- **GeoBoundaries API** — public, covers 200+ countries, available for admin levels 0 to 2 or 3 depending on the country.
- **Custom GeoJSON upload** — your own files, for levels GeoBoundaries doesn't cover (e.g. South Sudan Payam) or for your authoritative national geometry.

To fetch from GeoBoundaries:

1. Open **Settings !’ Boundary Manager**.
2. Pick **Fetch from GeoBoundaries API**.
3. Pick country and admin level. Level names are pre-filled (you can edit them).
4. Click **Fetch Boundaries**. Large countries (Nigeria, DRC, Ethiopia) take 30 to 60 seconds.

To upload custom GeoJSON:

1. In Boundary Manager, click **Upload Custom GeoJSON**.
2. **ISO-3 country code** (3 letters, e.g. `SSD`, `ZMB`, `PNG`).
3. Pick the admin level and edit the level label if needed.
4. Choose the file (`.geojson` or `.json`). Files up to 50 MB are accepted.
5. Click **Upload & Store**.

GADM users. GADM ships shapefiles, not GeoJSON. Convert with the free mapshaper.org website (drag in the `.shp`, `.shx`, `.dbf` files, export as GeoJSON).

11. Settlement intelligence and zero-dose targeting

For countries where village-level registration is patchy (parts of South Sudan, PNG highlands, Sahel), VaxPlan offers a **settlement intelligence** layer. It overlays:

WorldPop-derived populated cells (250m or 1km).
Building footprints (OpenStreetMap) and detected zero-dose clusters.
5 km service-coverage gaps and suggested outreach sites.

The population heatmap is read in **real people**, not an abstract density figure. Each coloured cell shows the estimated number of people living in that small grid cell (about 100 m × 100 m, roughly one hectare), and the legend is labelled in people. When you **click any point on the map**, the popup gives you a real headcount — the estimated number of people living within 1 km of that point, worked out by adding up the people in every nearby grid cell — so you can plan an outreach session straight from the number without converting density yourself.

The **zero-dose map** uses this data to highlight settlements with no recorded vaccinations. Click a hotspot to:
See the settlement's estimated population.
Create an outreach session targeting the hotspot.

Geospatial Insights (real travel time and nearby assets). On any zero-dose cluster card or settlement record, click the **Insights** (compass) button to open the Geospatial Insights panel. It shows:

- **Travel time to the nearest facility and the nearest outreach site**, calculated on the real road network (OpenStreetMap routing) — each with both a **driving** and a **walking** estimate, the road distance, and a badge noting whether it's a true road route or a straight-line estimate (used automatically if routing is briefly unavailable, so the panel always answers). Existing outreach sites are often closer to a remote cluster than a fixed facility, so the panel shows whichever is relevant — or both, clearly labelled.
- **The route drawn on the map.** While the Insights panel is open, the map highlights the inspected point and draws a line to each destination — the actual road geometry when a route is available (or a dashed straight line when it falls back to an estimate) — and marks the nearest facility and outreach site, so you can judge terrain and direction at a glance. The map fits the view around the route automatically.
- **Community assets within 3 km** — schools, places of worship, markets, water points, transport nodes, pharmacies / drug stores, universities and colleges, government offices, transport & logistics features (airstrips, helipads, ferry terminals, river crossings, bridges, fuel stations, taxi ranks), and vulnerable-population sites (refugee/IDP camps and mining sites) pulled live from OpenStreetMap, each with its distance and a clearly coloured icon. These show what services already exist near a cluster, which helps you pick an outreach venue. If a remote cluster has nothing mapped nearby, the panel says so.

Outreach Site Suitability Score (0–100). Every unserved cluster gets a single, easy-to-read score that answers one question: *how good a candidate is this place for a new outreach session?* A higher score means a stronger case. The score combines six things, each shown as its own bar so you can see exactly why a cluster scored the way it did:

Population size — more unserved people means more impact.
Likely zero-dose children — the core equity target; clusters with more estimated never-vaccinated children score higher.
Distance from the nearest facility — the farther, the bigger the access gap a new site would fill.
Existing-outreach gap — how far the cluster is from any outreach site you already run (so you don't double up).
Road access / travel time — a site a team can actually reach scores higher.
Nearby landmark / venue — a school, place of worship or market makes a natural place to hold the session.

The list view scores every cluster quickly using the data already on hand (so anything still being measured is clearly marked **est.**). When you open **Insights** on a cluster, the score is **refined live** using the real road-network travel time and the landmarks actually found nearby, and the panel also shows the estimated number of under-5 children and likely zero-dose children there.

Ranked "Unserved Population Clusters" list. The left panel lists every pending unserved cluster, ranked by suitability score by default. Use the **Sort** dropdown to re-order by suitability, population, zero-dose children, distance to facility, outreach gap or travel time — whatever matters most for your plan. Each row shows the score, the factor breakdown and the key numbers, with three actions: **Locate** (centre the map on it), **Insights** (open the refined breakdown and routes) and — for facility staff who can author plans — **Plan session** (jump straight to Session Planning, pre-filled for that cluster). This is a planning view only: it never changes any data and only shows clusters for your country.

Ranked clusters on the map. Turn on the **Ranked Clusters** layer in the Map Layers Control panel to plot the same scored clusters from the left panel directly on the map. Each pin is colour-graded by suitability band — **green** for high, **amber** for medium, **grey** for low — so you can judge geography and clustering at a glance alongside the facility and zero-dose layers. Click a pin to see its score, population, likely zero-dose children, distance to the nearest facility and outreach gap, with the same **Locate**, **Insights** and (for facility staff) **Plan session** actions as the list. Like the list, it's a planning view only and shows clusters for your country.

Travel-time zones — travel-time zones around every health facility **and every active outreach site** (outreach posts are often closer to a remote cluster than a fixed facility, so they give a fuller picture of real-world access), with a **Walking / Driving / Cycling** toggle in the Map Layers Control panel. Walking shows about 1, 2, and 3 hours on foot; Driving shows about 30, 60, and 90 minutes by vehicle (useful for planning vehicle-based outreach and supply runs); Cycling shows about 30, 60, and 90 minutes by bicycle or motorbike (useful for outreach teams that travel by two-wheeler). When road routing is available these follow the real road and path network (so a settlement across a river or behind a ridge correctly shows as far), giving a far more trustworthy picture than plain circles. If routing is briefly unavailable, the layer falls back to simple dashed rings so you always see something — see at a glance which clusters fall outside a reasonable walking, driving, or cycling distance. On a busy map the zones can overlap a lot, so a second toggle lets you show only **Facilities**, only **Outreach** sites, or **Both** — focus on one access question at a time. (Both the road-network zones and the fallback rings respect the choice.)

Community assets — plots schools, water points, pharmacies, universities and colleges, government offices, transport & logistics features, vulnerable-population sites, and other assets found within 5 km of the current map centre, each with its own coloured icon. Pan or click **Locate** on a cluster, then turn this layer on to scan what's around it.

Map Layers Control (toggle them in the **Map Layers Control** panel, top-right of the map):

Travel times and community assets come from open data and are a planning aid, not a survey. Always confirm on the ground.

This module is most useful for the **district manager**, **provincial coordinator**, and **national admin** roles

quarterly microplanning calendars.

12. Settings, customisation, and labels

National admins can adjust the look and feel of the app for their country:

- **Admin level labels.** Each tenant can rename the four hierarchy levels. The default is Country / Province / District / Facility. Common alternatives:
  - South Sudan: Country / State / County / Payam.
  - PNG: Country / Province / District / Local-Level Government.
  - Zambia: Country / Province / District / Constituency.
- **Branding.** Upload your ministry logo; it appears on the header and on all PDF exports.
- **Languages.** Choose the default language for users in your tenant. English, French, and Portuguese are bundled; ask the VaxPlan team for additions.
- **Vaccine schedule.** Add antigens and doses; mark which are routine vs. campaign.
- **Wastage thresholds.** Per antigen, what percentage of doses wasted triggers an alert.

13. Supervision visits

Supervision is a first-class workflow:

1. **Schedule visits.** Open **Supervision !’ Schedule Visit**, pick a facility, a date, and a supervisor. You can also choose which **checklist** to use — the built-in WHO checklist, or any custom checklist your national admin has built (see below).
2. **Visit checklist.** When the supervisor arrives, they open the visit on their phone. A **progress bar** at the top shows how many questions are answered and the **live score** updates as they go. A **Visit location** card confirms where the visit happened using a smart **Province !’ District !’ Health Facility** picker plus an **interactive map** — tap the map to drop a pin, drag it to fine-tune, or tap **Use my location** to place it from the device's GPS. They then answer the checklist questions. Questions can be Yes/No, True/False, short text, a number, single- or multiple-choice, a 1–5 rating, a date, a **GPS location** (picked the same way, on a map), or a **photo** taken on the device. Some questions are **follow-ups** that only appear after a particular answer (for example, an "If No, why?" box that shows up only when the previous question is answered "No"). Other questions are **repeatable** — tap **Add another** to record one entry per vaccinator, session, or child, and remove an entry you don't need.
3. **Score.** The visit score is the average of the scored questions — Yes/No and True/False answers, plus any ratings the checklist author chose to count. Every repeated entry counts, so the entries are averaged together automatically. N/A and hidden follow-ups are ignored.
4. **Findings and actions.** Record findings and follow-up actions, and set the next visit date.

The **Supervision digest** (a weekly summary) rolls up overdue visits to the district and provincial dashboards.

Custom supervision checklists (national admins)

National admins can build their own checklists so every facility in the country uses the same questions:

1. Open **Supervision !’ Manage Checklists**.
2. Click **New checklist**, give it a name, and add questions. For each question pick a type (Yes/No, True/False, short text, number, single choice, multiple choice, rating, date, GPS location, or photo), and add options for choice questions.
3. Make any question highly configurable:
   - **Follow-up:** under any question, click **Add a follow-up question**. The new question appears indented beneath it, and you choose which answer reveals it (e.g. show it only when the question is answered "No", or whenever it has any answer). Any question can have follow-ups — including the first one — and you can **Detach** a follow-up to make it a normal question again.
   - **Repeat:** turn on "Allow multiple entries" so supervisors can add as many entries as needed during a visit. You can name each entry (e.g. "Vaccinator") and cap how many are allowed.
   - **Scoring:** choose whether each Yes/No or True/False question counts toward the score, and opt a rating in so it counts too.
4. Mark a checklist **Active** to make it available when scheduling visits. Anyone in the country can then pick it; only national admins can create, edit, or delete the checklists themselves.

14. Reports and exports

Most tables in VaxPlan have an **Export** button that produces an Excel workbook with the currently filtered rows.

For more formal outputs, use **Reports !’ Generate**:

- **Quarterly microplan return** (PDF, per facility).
- **District coverage report** (PDF, per district per month).
- **Stock and wastage report** (Excel, per facility per month).
- **Supervision report** (PDF, per visit).

All reports honour the geo filters you've selected on the page.

14b. Indicator reference manual & Knowledge Mastery

To support health planners and managers in interpreting vaccination progress correctly, VaxPlan includes an interactive, tenant-specific **Indicator Reference Manual** accessible from the Analytics sidebar group.

Structure of the Manual

The manual organizes standard indicators (including WHO, Gavi, and UNICEF reporting metrics) by category and subcategory:

- **Core Metrics**: Numerators, Denominators, and detailed formulas (e.g. `Coverage Rate (%) = (Vaccinated Count / Target Population) * 100`).
- **Granular Data Sources**: Data sources are explicitly split into separate fields for the Numerator (e.g., client logbooks) and Denominator (e.g., WorldPop or census estimates).
- **Calculation Examples**: Every metric includes a concrete, plain-language example showing how values are calculated (e.g., Penta1-Penta3 dropout calculations).

- **Clickable Guidelines**: Reference guidelines are clickable pills that open the official WHO or Gavi documentation directly in a new tab.

Knowledge Mastery Gamification

Planners can build their expertise using the built-in **Mastery Tracker**:

- Toggling **Mark as Mastered** on any indicator adds it to your personal learning register (saved locally on your device).
- Progresses through four mastery ranks in the dashboard header:
  - **EPI Novice** ([illegible] metrics mastered)
  - **EPI Practitioner** ([illegible] metrics mastered)
  - **EPI Specialist** ([illegible] metrics mastered)
  - **EPI Mastery Legend** (ALL [illegible] metrics mastered)

15. Troubleshooting

I can't see my facility's sessions on the Sessions page. Check the Province / District / Facility filter at the top of the page — if any are set, only matching sessions are shown. Clear them to see everything you're allowed to see.

The map is blank. Either you don't have boundaries loaded for the level you're viewing (ask a national admin), or your browser blocked location/tile fetches. Try a different browser or hard-refresh.

"413 Request Entity Too Large" when uploading a boundary. That used to happen for files over 100 KB. Files up to 50 MB are now accepted. If you see this on a smaller file, the file may not be valid GeoJSON; try opening it in geojson.io to validate.

"GeoBoundaries has no ADM3 boundary" error. GeoBoundaries doesn't publish every admin level for every country. For South Sudan, only ADM0-ADM2 are upstream — for Payam you need to upload a custom GeoJSON (OCHA HDX is a good source).

My country code is rejected with "must contain exactly 3 characters". Use the ISO 3166-1 alpha-3 code (e.g. `SSD` for South Sudan, `ZMB` for Zambia, `PNG` for Papua New Guinea, `KEN` for Kenya). The 2-letter alpha-2 codes (`SS`, `ZM`) are not accepted.

I marked a session done but it shows zero coverage. The per-antigen counts may use unknown codes (older offline outbox entries). Open the session, check the "unmapped antigens" warning, and ask your national admin to standardise the codes via the audit log workflow.

Sync failed for some outbox entries. Tap the cloud icon to see which ones. Most failures are because the underlying session was closed or deleted on the server. Reopen the entry, resolve the conflict, and retry.

I'm logged in but I see "pending approval". A national or district admin needs to confirm your role. Contact your administrator; they will see the request in their inbox.

16. Data sources and acknowledgements

VaxPlan has a built-in **Data Sources** page that lists where the platform's maps, administrative boundaries, population figures, and facility data come from, along with the open-source projects it is built on.

- Open it from the sidebar (**Data Sources**, near Settings and Help), from the **External Resources** card on the Help page, or by tapping the small **Data sources** link in the credit at the bottom-right corner of any map.
- The page is also **public**: anyone can view it at `/data-sources` without signing in, and there is a link to it in the footer of the public landing page. The per-country population sources block is only shown to signed-in users; signed-out visitors see the general source list and acknowledgements.
- Sources are grouped by category: Maps & Basemaps, Administrative Boundaries, Population & Demographics, Health Facilities & Health Information Systems, Immunization Guidance & Standards, and Software / Fonts / Icons. Each entry shows a short description, its licence where relevant, and a link to the original source.
- If your country has population sources configured, they appear at the top of the page so you can see exactly which datasets feed your catchment and vaccine-needs calculations.
- The **Acknowledgements** section credits the data providers and open projects, and is a reminder that each dataset remains the property of its original owner and should be cited accordingly.
- The Acknowledgements also carry the **map boundary disclaimer** and a note on **disputed regions**: boundaries shown are for reference only and do not imply endorsement, and disputed or contested areas are not authoritatively depicted. The same short notice appears in the credit on every map.

17. Glossary

- **Antigen** — A vaccine type (BCG, OPV, Penta, MCV1, etc.).
- **Catchment** — The set of villages a facility serves.
- **Coverage** — Percentage of the target population that received a given dose, in a given period.
- **Defaulter** — A child who started but did not complete a vaccine series on time.
- **Denominator** — The target population used to calculate coverage.
- **Dropout** — The percentage of children who received an earlier dose but did not receive a later one (e.g. Penta1 !' Penta3).
- **Fixed-site session** — A vaccination session held at the facility.
- **Microplan** — A facility's quarterly plan combining catchment, denominator, schedule, and intended outreach.
- **Outreach session** — A session held away from the facility, usually in a village.
- **SIA** — Supplementary Immunisation Activity (a campaign — for example a measles SIA).
- **Tenant** — A Ministry of Health (one country) on the VaxPlan platform. Each tenant has isolated data.
- **WorldPop** — An open population dataset providing population estimates on a 100m or 1km grid.
- **Zero-dose child** — A child of vaccination age who has received no doses of any vaccine.

If you spot an error in this guide or want a topic added, ask your national admin to file an issue with the VaxPlan team. The guide is versioned alongside the application code.