

CPAF v6 — User Manual

A complete guide to the interface: every panel, control, input, and output. CPAF is a research instrument for structured reasoning about policy — it reports reliability and ranges, not point forecasts. Read every number as "how the system tends to behave," never as a prediction for a specific cluster in a specific year.

1. Before you start

CPAF simulates how policy plays out in a craft economy over time, coupling seven analytical dimensions into one model. You choose a case and a set of policies; the model runs month by month and shows you where the system heads — into a poverty trap, a fragile transition, or self-sustaining growth — and why. Nothing you do can break it; experiment freely, and use **Reset** to start over.

The model runs entirely in your browser. For the smoothest experience, open it from a hosted link (or a local server) rather than double-clicking the file, so all features load.

2. Quick start in five steps

1. **Pick a case** from the dropdown at the top — *Chikankari (Lucknow)* or *Cheriyal (Warangal)*.
2. **Load a starting scenario** from the right panel — try **Integrated** to see a full portfolio, or **No Policy** to watch the unaided trap.
3. **Press ► Run**. The clock advances; the charts and the causal-loop diagram update live. Use the **Speed** slider to go faster or slower.
4. **Watch the summary bar** at the top — the system state (TRAP / TRANSITION / GROWTH), current income, and any alert.
5. **Read the outcome, then export**. Open **Admin → Export** for a printable Executive Brief, Technical Report, or Policy Interaction Analysis. Press **↺ Reset** to try a different mix.

3. The interface at a glance

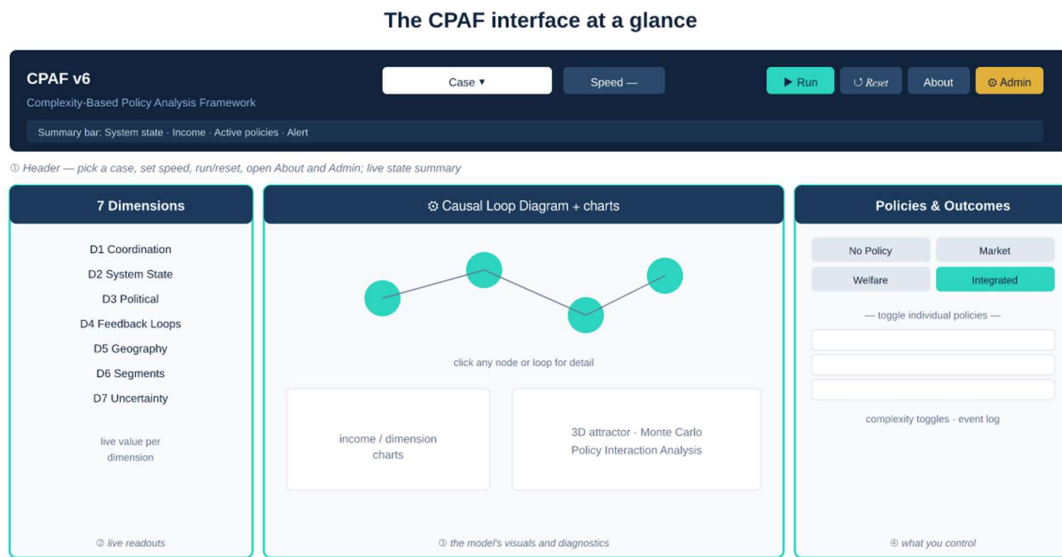


Figure A: The CPAF interface — header, and three working panels, with the Admin panel opening over them. (summarised for clarity purposes)

The screen has four parts: a **header** across the top, and three panels beneath it — **7 Dimensions** on the left (live readouts), the **Causal Loop Diagram and charts** in the centre (the model's visuals and diagnostics), and **Policies & Outcomes** on the right (what you control). The **Admin panel** opens as an overlay for deeper configuration.

4. The header bar

Control	What it does
Case dropdown	Selects the craft case — Chikankari (high-extraction, a distributional trap) or Cheriya (low-extraction, a connective failure). Switching cases reloads the model at that case's documented starting values.
Speed slider	Sets how fast the clock advances while running. It changes only the playback speed, not the model.
Month / Year	The simulation clock — how far into the run you are.
▶ Run / Pause	Starts and pauses the simulation.
⌛ Reset	Returns the model to the start of the run for the current case, clearing the trajectory.
i About	Opens the provenance-and-method note: what the model is, how its parameters are grounded, and how it was validated.
⚙ Admin	Opens the Admin panel (Section 8).
Summary bar	A live one-line status: the system state , current income , number of active policies , and an alert when something needs attention.

5. Left panel — the 7 Dimensions

This panel shows a live readout for each of the seven coupled dimensions, so you can watch the whole system at once rather than a single number.

Dimension	Readout	Meaning
D1 Graph Theory	Coordination	the artisan co-op and inter-ministry delivery coherence
D2 Attractor	System State	which basin the case is in — TRAP, TRANSITION, or GROWTH
D3 NPF	Political	the prevailing narrative / political-feasibility position
D4 System Dynamics	Feedback Loops	which reinforcing and balancing loops are active
D5 Spatial	Geography	the urban / peri-urban / rural reach modifier
D6 ABM	Segments	the artisan segments and their differential outcomes
D7 Monte Carlo	Uncertainty	the spread across replicated runs

6. Centre panel — diagrams, charts, and diagnostics

This is where the model shows its working.

Causal Loop Diagram (D4). The heart of the view: the stocks (income, skills, market access, the co-op, middlemen, heritage) and the reinforcing and balancing loops that connect them. **Click any node or loop** to open a detail popup explaining what it is, its equation, its source, and its role. The colour of a loop indicates its polarity (reinforcing or balancing).

Policy → Node matrix. A compact grid showing which policies act on which parts of the system — useful for seeing at a glance where a portfolio concentrates its force.

Charts. Live time-series of the run: **Income**, the **Dimensions** together, **Population & Gini** (inequality), **Middlemen** power, **Heritage**, **Income by Gender** (a reporting overlay only — it does not drive the model), and **Spatial** reach. These update every timestep while running.

3D Attractor. A spatial view of the system's dynamics with three modes: **Trajectory** (the path the run traces through the state space), **Resilience** (the landscape of basins, showing how deep the trap is), and **Bifurcation** ► (an explainer of the tipping point — the co-op × channel AND-gate that separates trap from growth). **Reset** recentres the view; **Rotate** toggles automatic rotation.

Monte Carlo. Press **Run MC** to replicate the current configuration many times under the model's noise and see the distribution of outcomes — the honest "how reliable is this?" view, rather than one run.

Agent-Based (ABM) chart. Shows the artisan segments and how differently a policy reaches each.

Policy Interaction Analysis. The structural diagnostic: it identifies the load-bearing backbone of a portfolio, flags redundant instruments, and shows what breaks escape if removed. This is the model's most directly *policy* output.

7. Right panel — Policies & Outcomes

This is what you control.

Scenario buttons. One-click starting portfolios: **No Policy** (the unaided baseline), **Market** (market-linkage instruments), **Welfare** (subsidy/protection instruments), and **Integrated** (a coordinated multi-instrument portfolio). They are starting points — you can adjust freely afterwards.

Individual policy toggles. Below the scenarios, each policy can be switched on or off individually. **Click a policy's name** to open its detail popup (ministry, budget, coverage, and the mechanism it works through). Umbrella schemes activate their child programmes automatically.

Decision insights. A running commentary on what the current mix is doing well or poorly.

Active shocks. Appears when a stochastic shock (a monsoon-type disruption) is in effect, showing what hit and its severity.

Gating toggles. Two switches that change the rules of the game: **coordination gating** (whether structural policies require a minimum coordination to activate) and **political gating** (whether the political-feasibility window blocks policies against the prevailing narrative — on by default). Turning political gating off lets any policy activate regardless of coalition, which is useful for "what if it were feasible?" exploration.

Complexity panel. Toggles for the complexity features (policy ramp-up and fatigue, demand saturation, stochastic shocks, and so on), so you can turn the engineered complexity on and off and see its effect.

Event log. A timestamped record of everything that happens — state changes, policy activations, shocks, couplings firing. Use the **filter buttons** (All, State, Policy, Complexity, Coupling, Shock, NPF, MC, Sim) to focus, and the  button to export the log.

8. The Admin panel

Opened with  **Admin**, this overlay is for configuration and deeper inspection. It has six tabs:

Tab	Purpose
 Policies	View and edit the policy catalogue — each instrument's ministry, budget, coverage, effects, and prerequisites.
 Case Studies	Inspect and adjust each case's starting values (population, income, skills, market access, middleman power, and so on).
 Data	The underlying data view for the current run.
 Calibration	The model's thresholds and equation parameters, read live — including the anchored income lines (poverty ₹2,000, viability ₹4,122). Every value is visible and adjustable.
 Complexity	The complexity-layer settings — shock frequency, ramp-up and fatigue, coupling, and the tension parameters.
 Export	Generates the reports (Section 9).

Everything in Admin is adjustable, which is the point: the outputs are only as strong as the parameter choices, and the panel makes those choices transparent rather than hidden.

9. Reports and export

From **Admin** → **Export** you can generate three printable HTML reports, each opening in a new view you can save or print:

-  **Executive Brief** — the one-page decision summary: final state, replicated median income and escape reliability, coordination, inequality, key risks, and findings. Written for a non-technical reader.
-  **Technical Report** — the detailed single-run record: the full configuration table, every stock's start-to-end change, thresholds, and methods.
-  **Policy Interaction Analysis** — the structural diagnostic: the load-bearing backbone, redundant instruments, and the delivery-coherence read.

The **event log** exports separately from the right panel ().

10. Reading the outputs correctly

A few rules keep interpretation honest:

- **State, not just income.** The regime label (TRAP / TRANSITION / GROWTH) matters as much as the rupee figure. Escape requires income to hold above the growth line for a sustained period, so a brief crossing is not an escape.
- **The three documented lines.** Destitution $\approx$ ₹1,450, poverty / TRAP ₹2,000, viability / GROWTH ₹4,122 — anchored to World Bank poverty lines and India's HCES survey.
- **Reliability and range, not one run.** Any single run carries noise and is a draw. The Monte Carlo view and the reports report the *share* of runs that escape and the *range* of timing — trust those, not one run's number.
- **Two coordination streams.** "Coordination" is really two things: the **artisan co-op** (a lever the cluster policies build) and **delivery coherence, C_eff** (the multiplier on every policy). More policies do not automatically weaken delivery.

11. Detail popups

Much of the model's explanation is one click away. **Clicking a stock or loop** in the causal-loop diagram opens a popup with its description, equation, unit, and source. **Clicking a policy** opens its ministry, budget, coverage, and mechanism. **Bifurcation** ► opens the tipping-point explainer, and  **About** opens the provenance-and-method note. These are the model teaching you how it works as you use it.

12. Inputs and outputs at a glance

You provide (inputs)	The model returns (outputs)
The case (Chikankari / Cheriya)	The regime and its trajectory (TRAP / TRANSITION / GROWTH)
The policy portfolio (scenarios + toggles)	Income level and change, over time
Gating and complexity settings	Escape reliability and timing (via Monte Carlo)
Run speed and duration	Coordination (co-op) and delivery coherence (C_eff)
Admin parameter edits (optional)	Inequality (Gini), middleman power, heritage, segments

You provide (inputs)	The model returns (outputs)
	The structural backbone and redundant instruments
	Printable Executive, Technical, and Policy reports

13. Notes

Reproducibility. The model is stochastic but seeded: a given configuration reproduces the same run, which is what makes comparisons fair. Reset before a clean comparison.

It is a reasoning instrument, not a forecaster. Roughly 61% of its parameters are declared assumptions; it is built to show *which kind* of problem a case faces and *which kind* of lever fits, not to predict a specific number. Use it to reason, and read every figure as reliability and range.

Based on : Abboudi, B. (2026). CPAF v6 — a complexity-based policy analysis framework. Jindal School of Government and Public Policy, O.P. Jindal Global University.