Technical Report

Force Application (Objectives): Library and Analysis

John Kingston

Artificial Intelligence Applications Institute
University of Edinburgh
80 South Bridge
Edinburgh EH1 1HN
United Kingdom

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1 Introduction

This document analyses a list of CinC objectives, air objectives, and task objectives which have been used to support planning in recent military exercises. The list, which can be found in Appendices A to C, has been gathered and categorized by staff at Checkmate.

This document describes these objectives using the following template:

> ACHIEVE GOAL on `Center of Gravity` with (optional) constraint.

The goals, centers of gravity, and constraints are listed separately. Some observations are then made.

20 JANUARY 1996: This is the first draft of this document. It therefore includes a number of assumptions, and probably some misunderstandings, which ought to be verified by the expert planners. Please do not publish this document in any form until verification has been carried out. Verification is especially needed in the key areas of this document: the table of goals and their effects in table D.1, and the hierarchies of centers of gravity shown in appendix E. In these hierarchies, a number of unlabelled boxes exist; these indicate that the hierarchy is not expected to be complete unless at least one center of gravity is defined at this level of the hierarchy.

N.B. Where the task objectives named actual locations, the names have been changed.

2 Goals

A number of goals were identified, at three different levels. A sample is shown below; the full list can be found in Appendix D.1.

- CinC Objectives
  - National Infrastructure
    - Deny use;
    - Interrupt;
    - Obtain;
    - Permit use;
    - Sustain
- Air Objectives
  - National Infrastructure
    - Drive (i.e. compel to move);
    - Disrupt;
    - Attack;

    * Deploy.

- Task Objectives
  - National Infrastructure
    * Disrupt;
    * Destroy.

Observations

1. The goals imply different levels of effect against centers of gravity. For example, DENY USE appears to be a stronger effect than DISRUPT. A table has been prepared which shows suggested orderings of goals, from the least effect at the top to the greatest effect at the bottom. A sample can be seen in Table 1; the full table can be found in table 4.

Goal	**Definition**
Leadership	
Disrupt	Temporarily reduce effectiveness
Degrade	Permanently reduce effectiveness
Isolate	Reduce effectiveness to zero until further notice
Destroy	Permanently reduce effectiveness to zero
Key production	
Disrupt	Temporarily reduce production
Attrit	Permanently reduce production
Destroy	Permanently stop production
Infrastructure	
Disrupt	Reduce the flow
Interrupt	Temporarily stop the flow
Deny use	Stop the flow until further notice

Table 1: Goals, ordered by effect

2. The planners identify Blue (friendly) centers of gravity as well as YOC centers of gravity. This can be seen from the use of goals such as PERMIT and SUSTAIN as well as DENY USE and DISRUPT. It seems likely that, for every goal which can be performed against YOC centers of gravity, there is an equal and opposite goal to support Blue centers of gravity. Table 5 attempts to present a set of opposite goals for each goal identified in Table 4; that is, if the YOC forces tried to apply the goal named in the left hand column to a Blue centre of gravity, the goal in the right hand column provide the opposite effect. A sample of entries from table 5 is shown in table 2.

   This table provides the planners with alternatives to preventing disruption/destruction of Blue centers of gravity; it could also be used when Blue forces want to make use of centers of gravity (e.g. road networks) previously held by YOC forces.

Goal	**Opposite**
Leadership	
Disrupt	Put into order
Degrade	Improve
Isolate	Connect
Destroy	Create
Key production	
Disrupt	Put into order
Destroy	Build/Create
Infrastructure	
Disrupt	Put into order
Interrupt	Restart
Deny use	Permit use

Table 2: Goals and their opposites

3 Centers of Gravity

The centers of gravity which have been elicited from the sets of objectives have been categorized into hierarchies. These hierarchies are shown in appendix E; an example is shown in Figure 1. The aim of producing these hierarchies is to permit a near-exhaustive approach to identification of centers of gravity. By working from the top of a hierarchy downwards, planners can easily identify if they have considered all relevant categories of centers of gravity.

The 5 top level centers of gravity in these hierarchies are `Leadership`, `Key Production`, `National Infrastructure`, `National Population` and `Fielded Forces`. These correspond to Col. Warden's "5 rings" approach to identification of centers of gravity. The approach which has been taken to developing these hierarchies is top-down extrapolation; that is, if there are several centers of gravity at the same level of a hierarchy, and one of them is decomposed in a certain way, then the others are assumed to be decomposable in the same way. An example of this can be found in Figure 1, which shows centers of gravity connected with transportation. Since road, rail, inland waterways, coastal shipping and civil air transport are all transportation *networks*, then the hierarchy assumes that the key centers of gravity for all these types of transportation can be categorized as *nodes*, *choke points* or *segments*.

A key component of the hierarchies which contributes to the goal of identifying all relevant centers of gravity is the identification of *inter-hierarchy links*. These show where a center of gravity in a different hierarchy is relevant to a center of gravity in this hierarchy. The name of the related hierarchy is displayed in the bottom half of the CoG node. For example, Figure 6, which shows centers of gravity related to communication, includes "Couriers" as a center of gravity. Since communication by courier is dependent on a good transportation network, an inter-hierarchy link to "Transportation" is shown as the decomposition of the "Couriers" center of gravity.

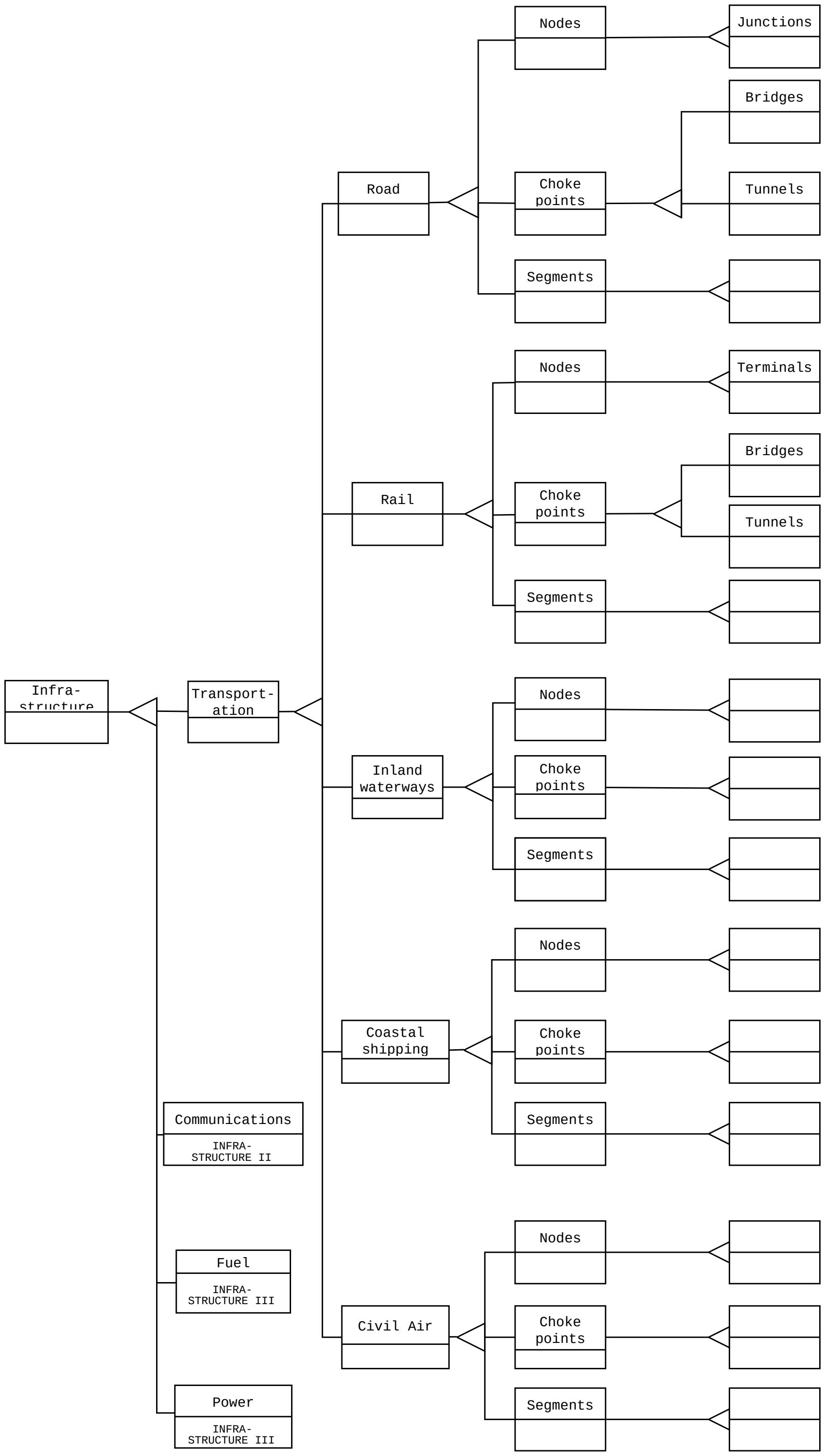

Figure 1: Centers of Gravity related to Transportation

Observations

1. The centers of gravity which are identified in the different types of objectives correlate fairly closely with the different levels of the hierarchies. Most of the centers of gravity identified in the CinC objectives appear in the third level of the hierarchy (e.g. `national roadways`; most centers of gravity identified in the air objectives appear in the fourth level of the hierarchy (e.g `choke points`); and most centers of gravity identified in the task objectives appear in the fifth level of the hierarchy (e.g. `bridges`).

2. While the planners do identify Blue Centers of Gravity as well as YOC Centers of Gravity, there is evidence that Blue Centers of Gravity are not considered in the same level of detail. The centers of gravity identified for Blue in the CinC objectives (e.g. "sustain `forces` for a minimum of 45 days") and in the air objectives (e.g. "deploy `forces`") belong to the first or second levels of the hierarchies of centers of gravity. In addition, the goals applied to these centers of gravity imply a higher level of abstraction; for example, sustaining a force implies supplying all the needs of that force, which implicitly requires a complete infrastructure to be established for that force (bringing in fuel, taking out casualties, etc). `Infrastructure` is one of Col. Warden's "5 rings", and can therefore be found at the top level of the hierarchy of centers of gravity. Similarly, deploying a force requires considerable attention to be paid to the transportation requirements of that force[1] including but not limited to military air transport; `transportation` is a 2nd level center of gravity.

   It would seem sensible (if time is available) for the planners to analyse Blue centers of gravity to the same level of detail as YOC centres of gravity (if possible), to the level of identifying likely targets for any YOC planners who might be conducting a similar exercise.

4 Constraints

Many CinC objectives and Air objectives, and some task objectives, have associated constraints. These constraints may be:

- geographical (e.g. "Destroy SAMs **beyond 100km of the DMZ**");
- temporal (e.g. "Sustain (Blue) forces **for a minimum of 45 days**");
- categorical (e.g. "Deny use of national roadways for the transport of **military equipment**");
- capability (e.g. "Deploy (Blue) forces **capable of deterring YOC aggression**").

A list of most of the identified constraints was prepared[2]. A selection of identified constraints is shown below. The full list can be seen in tables F and 6.

[1]This assumes that deploying a force refers to the movement of a force into the battleground, as opposed to allocating new units to the theatre.

[2]Those which were deemed to be linked to high level centers of gravity were eliminated.

Geographical	
US citizens	in the region
US forces	in the region
YOC aggression	against B/G
YOC forces	north of Desired Area
Temporal	
YOC economic centers	to slow the flow of military resources i.e. until the flow of military resources is sufficiently slow
Categorical	
YOC political control YOC military control	YOC armed forces
YOC political control YOC military control electricity petroleum products national television systems national radio systems national computer systems	YOC population
national roadways national railways national waterways	Transport of military equipment
national roadways national railways national waterways	Transport of goods

Table 3: Constraints: CinC Objectives Level

Observations

The constraints are diverse, but a few patterns can be seen:

- The distinction between **military** and **civilian** is frequently drawn. Typically, the goals specified will have stronger effects on the military than on the civilian population. For example, objectives exist to DENY USE of national roadways, railways and waterways for transporting military equipment, but only to DISRUPT the flow of goods. However, in some cases (e.g. disrupting communication networks), it is necessary to cause equal disruption to both the military and the civilian populations.
- Another distinction which appears to be important is the distinction between **weapons of mass destruction** and other weapons. This is reflected in the hierarchies of centers of gravity, where "special weapons" (i.e. nuclear/ biological/ chemical weapons and ballistic missiles) are treated separately from other weapons.
- In the higher level objectives, the majority of geographical constraints are concerned with fielded forces, and their locations in relation to battlegrounds and demilitarized zones. However, there are also some concerns related to the whole region, typically connected with evacuation of U.S. civilians and other non-combatants.

5 Summary

This document has analyzed CinC objectives, air objectives and task objectives, and has discerned a number of interesting patterns. These patterns have been reflected in tables of goals, and in hierarchies of centers of gravity. If these tables and hierarchies can be fully verified, they will provide useful domain knowledge for the expert task of identifying objectives, which is a key part of the planning process, and which is being modelled in detail in [the full document which AIAI are writing]. It is also possible that these tables and hierarchies may be of use to the planners in their current format.

A CinC's objectives

The code numbers at the beginning of each objective show which higher level objectives are addressed by the lower level objectives; for example, air objective B5.1 fulfils CinC objective B5.

This document describes these objectives using the following template:

ACHIEVE GOAL on `Center of Gravity` with optional constraint.

Some objectives are rephrased to enable them to fit this template. The goal and the Center of Gravity are highlighted by using SMALL CAPITALS and `teletype font` respectively.

A.1 Leadership

A1: ISOLATE and NEUTRALIZE `YOC political control` of armed forces

A2: ISOLATE and NEUTRALIZE `YOC political leadership` from the population

A3: *Ensure regional stability by reducing Yellowland Orangeland Cooperative (YOC).* This is a national or political objective which should really be considered at a higher level of command than the other CinC objectives. However, it has been rephrased to:

REDUCE `Yellowland Orangeland Cooperative (YOC)` to ensure regional stability

A4: *Provide for Stability of the Region.* This too is a national or political objective; it is too loosely defined for rephrasing to be possible.

A5: PROTECT the lives of `US citizens` and `forces` in the region. This is probably better categorized as a National Population objective.

A6: ISOLATE and NEUTRALIZE `YOC military control` of armed forces

A7: *Isolate and neutralize YOC military's effect on population.* For consistency with objective A6, this has been rephrased to:

ISOLATE and NEUTRALIZE `YOC military control` on population

A.2 Key Production

B1: *Separate YOC military structure from primary electrical sources.* In order to match objective B2, this has been rephrased to:

DENY USE of `electricity` to YOC military structure.

B2: *Deny use of primary electrical sources to YOC population.* Rephrased[3] to:

DENY USE of `electricity` to YOC population

B3: NEUTRALIZE `YOC petroleum production` supporting warfighting effort

B4: DENY USE of `petroleum products` to YOC population

B5: NEUTRALIZE `production of chemical products`

B6: *Prevent chemical products from becoming weapons of mass destruction.* This has been rephrased to:

DENY USE of `chemical products` for the manufacture of weapons of mass destruction.

B7: NEUTRALIZE `YOC special weapons capability` and `delivery means`

B8: *Defend against Weapons of Mass Destruction.* The current phrasing of this objective is identical to objective E7; it has therefore been removed from this section. Air objectives B8.1, B8.2 and B8.3 are renumbered to E7.1, E7.2 and E7.3.

[3]The term "electrical production", which appears in the Air Objectives (e.g. B2.1), is more general than "primary electrical sources". However, "electricity" is a more general term still, which is at the same level as "petroleum products".

A.3 National Infrastructure

C1: DENY USE of `national roadways` for transport of military equipment

C2: DENY USE of `national railways` for transport of military equipment

C3: DENY USE of `national waterways` for transport of military equipment

C4: DENY USE of `national communications nets` to transport military information

C5: INTERRUPT the flow of goods on `national roadways`

C6: INTERRUPT the flow of goods on `national railways`

C7: INTERRUPT the flow of goods on `national waterways`

C8: INTERRUPT the flow of information on `national communication networks`

C9: *Build sufficient combat power for future offensive operations.* This has been rephrased to:

OBTAIN sufficent `Blue Forces` for future offensive operations.

C10: *Ensure Freedom of Navigation.* This has been rephrased to:

PERMIT SAFE ACCESS to NATIONAL WATERWAYS for Blue shipping.

C11: SUSTAIN `(Blue) Forces` for Minimum of 45 Days

A.4 National Population

D1: DENY USE of `national television systems` to transmit military information

D2: DENY USE of `national radio systems` to transmit military information

D3: DENY USE of `national computer systems` to transmit military information

D4: DENY USE of `national television systems` to influence YOC population

D5: DENY USE of `national radio systems` to influence YOC population

D6: DENY USE of `national computer systems` to influence YOC population

D7: CONDUCT NEO of `US personnel` and `other volunteer Foreign Nationals`

D8: NEUTRALIZE `YOC economic centers` to slow the flow of military resources

D9: *Deny access to YOC economic centers.* This has been rephrased to:

DENY USE of *national transportation networks* leading to YOC economic centers.

In this form, it can be seen that this is an infrastructure objective rather than a national population objective.

D10: *Employ C2W methodologies.*

USE C2W methodologies to influence `YOC population`.

This is a high level objective; in order to match the level of detail of the other objectives, individual C2W methods should be specified.

A.5 Fielded Forces

E1: DETER `YOC aggression` against B/G

E2: DETER `Yellowland aggression`

E3: *Conduct Land, Sea and Air operations to restore the sovereignty of B/G.* Like A3, this is a national or political objective which should really be considered at a higher level of command than the other CinC objectives. However, it has been rephrased to:

RESTORE THE SOVEREIGNTY of `B/G` by fielding military forces.

E4: STOP `YOC forces` north of Desired Area

E5: DEFEND `B/G` from YOC Attack

E6: DEFEND `Greyland` from YOC Attack

E7: *Defend Against Weapons of Mass Destruction.* Rephrased to:

DEFEND `Blue forces` Against Weapons of Mass Destruction

E8: DISRUPT `YOC Special Forces Capability`

B Air Objectives

B.1 Leadership

A1.1: DISRUPT `YOC political control` of armed forces

A1.2: DESTROY `YOC political control` of armed forces

A1.3: DISRUPT and DEGRADE `YOC intelligence capability`

A1.4: ISOLATE `YOC National Command Authority`

A2.1: DISRUPT `YOC political control` of population

A2.5: DESTROY `YOC political control` of population

A6.1: DISRUPT `YOC military control` of armed forces

A6.2: DESTROY `YOC military control` of armed forces

A6.3: DISRUPT and DEGRADE `YOC intelligence capability`

A7.1: Disrupt `YOC military control` of population

A7.2: Destroy `YOC military control` of population

B.2 Key Production

B1.1: Disrupt `key electrical facilities` providing power to YOC military

forces B1.2: Destroy `electrical facilities` providing power to YOC military forces

B2.1: Disrupt `electrical production` to YOC

B2.2: Destroy `electrical production` to YOC

B3.1: Disrupt `petroleum production` providing fuel to YOC military forces

B3.2: Destroy `petroleum production` providing fuel to YOC military forces

B4.1: Disrupt `petroleum production` throughout YOC

B4.2: Destroy `petroleum production` throughout YOC

B5.1: Disrupt `chemical production` facilities

B5.2: Destroy `chemical production` facilities

B7.1: Destroy strategic targets (`pol-mil C2` and `NBC/TBM capability`)

B.3 National Infrastructure

C1.1: Drive YOC into `desired chokepoints` and `restricted LOCs`

C1.2: Disrupt movement of `YOC forward corps` and `committed 2nd echelon forces`

C2.1: Drive YOC into `desired chokepoints` and `restricted LOCs`

C2.2: Disrupt movement of `YOC forward corps` and `committed 2nd echelon forces`

C3.1: Drive YOC into `desired chokepoints` and `restricted LOCs`

C3.2: Disrupt movement of `YOC forward corps` and `committed 2nd echelon forces`

C3.3: *Attack critical naval targets.* Given that this supports CinC objective C3 (Deny use of national waterways for transport of military equipment), this has been rephrased to:

Attack `naval transport ships` which are capable of transporting military equipment on national waterways.

C4.1: Disrupt `command and control` of YOC Air/Land/Sea forces.

C4.2: Disrupt and Degrade `YOC intelligence capability`

C8.1: Disrupt `command and control` of YOC Air/Land/Sea forces

C8.2: Disrupt and Degrade `YOC intelligence capability`

C9.1: Deploy `(Blue) forces` capable of deterring YOC aggression

C9.2: Deploy `(Blue) forces` capable of supporting NEO

B.4 Fielded Forces

E4: *Disrupt YOC Ground Scheme of Maneuver.* Rephrased to: Disrupt Ground Scheme of Maneuver of `YOC mechanized land forces`

E7.1: Destroy strategic targets (`pol-mil C2` and `NBC/TBM capability`)

E7.2: Disrupt `YOC Weapons of Mass Destruction capability`

E7.3: Destroy `YOC Weapons of Mass Destruction capability`

C Task Objectives

These had not been sorted by Checkmate at the time of writing. Categorization has been performed by the author of this document. Where a task objective falls into one category but services an air objective in another category, it is categorized under the former. For example, *Destroy known NBC logistics support* is categorized under **National Infrastructure**, even though it supports the air objective *Disrupt YOC Weapons of Mass Destruction Capability*, which is categorized under **Key Production**.

C.1 Leadership

C.1.1 YOC forces

Destroy `key national headquarters`

Disrupt `YOC reconnaissance/surveillance capabilities`

Disable known `NBC C3 capability`

Disrupt `C3I` to frontline offensive units

Disrupt enemy `control of air operations` and `(control of) air defenses`

Destroy `key command centers`

Destroy `air defense C3I`

Disrupt `key command and control nodes`

Disrupt `TBM C2`

NEUTRALIZE `airborne C3 capability`

DISRUPT `key C3` nodes

DESTROY `key YOC LADS C2 facilities`

DESTROY `command centers` & `comm nodes` to disrupt YOC political and military direction of armed forces

DESTROY `army, corps, and division HQs` or ISOLATE `them` from subordinate units

Sever LOCs in support of GCC ground scheme of maneuver. Rephrased to: SEVER local `command centers` in support of GCC ground scheme of maneuver. Rephrased to:

DESTROY coastal surface surveillance `radar C2`

DESTROY key `YOC LADS C2 facilities`

DISRUPT `naval C3I`

DISRUPT `Political Leadership` of YOC Forces

DESTROY `Command and Control Facilities` in the forward area

DESTROY `key YOC LOC's` supporting forward troops

RENDER INEFFECTIVE `C2` from YOC leadership to ballistic missiles

C.1.2 Blue forces

PROVIDE `battle management/C3I capability`

PROVIDE `surveillance and reconnaissance` of region

DESTROY `YOC intelligence collection/dissemination capability`

EXPLOIT `CUWTF intel and targeting` when tasked by the B/G C3

C.2 Key Production

DESTROY known `NBC research facilities`

DESTROY known `NBC production facilities`

ATTRIT `military production capability`

DISRUPT `electrical power supply` to LADS and pol-mil C3I

DISRUPT/DESTROY military vehicles, armor, and artillery `assembly & repair facilities`

DISRUPT/DESTROY remaining `POL production` and `storage`

DISRUPT/DESTROY remaining `munitions and propellant production` and `storage`

DISRUPT `NBC production` and `storage capability`

DISRUPT `nuclear reactor & fuel/ore processing`

DESTROY `YOC mining capability`

DISRUPT `YOC Electrical Power Distribution` DESTROY `Naval Production Capability`

C.3 National Infrastructure

DISRUPT `YOC naval port operations`

DESTROY `logistics/maintenance/supply areas`

DISRUPT `SATCOM capability`

DESTROY known `NBC logistics support`

DESTROY known `NBC stockpiles` and `storage facilities`

DISRUPT `electrical power grid`

DESTROY key `naval communications nodes and EW/GCI`

DESTROY `railroad transportation terminals and facilities`

DESTROY `key bridges & tunnels`

DISRUPT `operations` along LOCS/chokepoints

DESTROY `POL storage/distribution facilities`

C.4 National Population

None given.

C.5 Fielded Forces

C.5.1 YOC forces

ATTRIT follow on `forces`

ATTRIT front line `forces`

ATTRIT enemy `fighter/bomber force`

DESTROY `key SAM sites`

DESTROY `SAM sites` threatening air operations throughout YOC

DISRUPT maneuver and momentum of `committed forces` with CAS

NEUTRALIZE `YOC 240/170mm artillery`

DESTROY `remaining mech & armor assets` of 2nd echelon forces and strategic reserves

DISRUPT `YOC SAM/AAA sites` along coastal corridors

DESTROY `Silkworm missile/sites` and `storage`

DISRUPT/DESTROY `SAM/AAA/GCI` affecting insertion corridors and drop zones

RENDER INEFFECTIVE `YOC target acquisition systems`

DESTROY `landmines`

DESTROY `key EW/GCI sites` supporting YOC defense assets

Destroy coastal surface surveillance radar sites and C2. Divided into two: DESTROY coastal surface surveillance `radar sites` is categorized here; destroying the radar's C2 is categorized under Leadership

Neutralize YOC capability to utilize its aircraft and airfields. This is a higher level objective, since "capability to utilize" might encompass fuel, pilots, repair facilities, etc.

DESTROY major `YOC surface and sub-surface combatants` and `SOF insertion platforms`

DISRUPT `YOC Ground Forces` With CAS

DESTROY `Tactical SAMs` in YOC

DESTROY `Strategic SAMs` in YOC

DESTROY `EW/GCI radars` within 100 Km of the border

DISRUPT `YOC Fighter/Bomber Operations`

DESTROY `Coastal Surveillance/Fire Control Radars`

DESTROY `YOC SAM/AAA sites`

DESTROY Silkworm `missiles/sites` and `storage`

DESTROY `key EW/GCI sites` supporting YOC defense assets

DISRUPT `YOC fighter capability`

DISRUPT/DESTROY `SAMs` on border, `AAA` near drop zones, and `EW/GCI` threatening CUWTF insertions

DISRUPT `YOC SAM/AAA sites along coastal corridors`

DISRUPT `YOC bomber capability`

DISRUPT maneuver and momentum of `committed forces` with CAS

Disrupt movement & maneuver into M-K corridor. Rephrased to: DISRUPT movement & maneuver of `forces` into M-K corridor

ATTRIT `forces` in Wonchor corridor

DISRUPT/DESTROY `240mm/170mm artillery` beyond the FSCL

DISRUPT `240mm/170mm artillery` inside the FSCL

DISRUPT `mechanized and armored formations` between FLOT and FSCL

DESTROY `YOC SOF infiltration aircraft`

DESTROY `major YOC surface and sub-surface combatants` and `SOF insertion platforms`

DESTROY `SAMs` beyond 100km of the DMZ

Assist in holding defense north of capital city by DESTROYING `YOC non-hardened artillery and vehicles`

ATTRIT `Naval Bases` and their Employment Capability

DESTROY enemy `OCA assets`

C.5.2 YOC supply, storage & repair facilities

DESTROY `TBM launchers, storage, and support`

DISRUPT `TBM shipment/transshipment`

DISRUPT `resupply` of naval POL, munitions, & spares

DESTROY `ammo storage`

DESTROY `naval ship repair` & `resupply facilities`

Disrupt naval surface craft bases, support facilities, and naval C3I. This objective has been divided into 3 objectives: DISRUPT `naval surface craft bases` and DISRUPT `support facilities` are categorized under **Fielded forces**, while disrupting naval C3I is categorized under **Leadership**.

DISRUPT `marshalling areas` and `sustainment capability` beyond the FSCL

DISRUPT `marshalling areas, supply, and corps C2 beyond FSCL`

C.5.3 Blue forces

Employ passive defensive measures. Rephrased to: ASSIGN and PROVIDE `military equipment` which is capable of passive defense.

PROVIDE `ground/naval point defense` for protection of Blue COGs from air & TBM attacks

CONDUCT CAS in support of the `Rear Area Security Forces`

Support B/G ground scheme of maneuver and deception plan through AI. Rephrased to: PROVIDE `AI` to support B/G ground scheme of maneuver and deception plan.

C.6 High level objectives

The following were listed as task objectives, but are more appropriately categorized as either CinC objectives or Air Objectives.

Disrupt YOC ability to employ weapons of mass destruction (WMD). This is almost identical to Air Objective B8.2, and it belongs at the Air Objectives level.

DISRUPT Employment of `Weapons of Mass Destruction` by YOC Forces

DISRUPT `military activity` in the area of the planned NEO

DESTROY `command centers and comm nodes` to disrupt YOC political direction of armed forces

C.7 Unclassified

DESTROY `RADRELs` – unknown abbreviation

EMPLOY `SIGINT collection assets` – unknown abbreviation

EMPLOY `HVAA assets`/Provide adequate HVAA protection – unknown abbreviation

D Goals

D.1 Goals identified

The goals identified are as follows:

- CinC Objectives
  - Leadership
    - Isolate;
    - Neutralize;
    - Protect
  - Key Production
    - Deny use;
    - Neutralize
  - National Infrastructure
    - Deny use;
    - Interrupt;
    - Obtain;
    - Permit use;
    - Sustain
  - National Population
    - Deny use;
    - Conduct NEO;
    - Neutralize;
    - Use
  - Fielded forces

    * Deter;
    * Defend;
    * Disrupt;
    * Stop

- Air Objectives
  - Leadership
    * Isolate;
    * Disrupt;
    * Degrade;
    * Destroy
  - Key production:
    * Disrupt;
    * Destroy
  - National Infrastructure
    * Drive (i.e. compel to move);
    * Disrupt;
    * Attack;
    * Deploy.
  - National Population
    * *Disrupt*[4]
  - Fielded forces
    * Disrupt;
    * Destroy

- Task Objectives
  - Leadership
    * Sever;
    * Disrupt;
    * Disable;
    * Neutralize;
    * Render ineffective;
    * Destroy;
    * Exploit;
    * Provide.
  - Key production:

[4]No air objectives are specified for national population. This goal is specified because NEUTRALIZE appears in the CinC objectives, and so an analogy can be drawn with the Leadership and Key Production objectives.

    * Disrupt;
    * Attrit;
    * Destroy
  - National Infrastructure
    * Disrupt;
    * Destroy
  - National Population No task objectives specified.
  - Fielded forces
    * Disrupt;
    * Attrit;
    * Neutralize;
    * Destroy;
    * Provide;
    * Conduct CAS.

D.2 Ordering and definitions of goals

Table 4 lists identified goals in a suggested order, from the least effect to the greatest. Definitions of each goals are also suggested in order to support the ordering.

D.3 Goals and suggested opposite goals

Table 5 lists goals, and suggests opposite goals. Note that these opposite goals are intended to be the positive antithesis of each destructive goal, as opposed to simply maintaining the status quo by preventing the desctructive goals from being achieved.

Goal	Definition
Leadership	
Disrupt	Temporarily reduce effectiveness
Degrade	Permanently reduce effectiveness
Isolate/Sever	Reduce effectiveness to zero until further notice
Neutralize/Disable/ Render ineffective	Reduce effectiveness to zero until further notice
Destroy	Permanently reduce effectiveness to zero
Key production	
Disrupt	Temporarily reduce production
Attrit	Permanently reduce production
Destroy	Permanently stop production
Infrastructure	
Disrupt	Reduce the flow
Destroy	Permanently stop the flow
National Population	
Disrupt	Temporarily reduce effectiveness
Fielded forces: location	
Deter	Make it dangerous (politically or militarily) for YOC forces to advance or attack
Defend	Reduce the effectiveness of YOC forces when attacking
Drive	Compel YOC forces to travel on certain routes
Stop	Prevent YOC forces from advancing
Expel	Compel YOC forces to retreat
Fielded forces: capability	
Disrupt	Temporarily reduce military capability of YOC force
Attrit	Permanently reduce military capability of YOC force
Neutralize	Temporarily reduce YOC force's military capability to zero
Destroy	Permanently reduce YOC force's military capability to zero

Table 4: Goals, ordered by effect

Goal	**Opposite**
Leadership	
Disrupt	Put into order
Degrade	Improve
Isolate	Connect
Neutralize	Restart
Destroy	Create
Key production	
Disrupt	Put into order
Destroy	Create
Infrastructure	
Disrupt	Put into order
Interrupt	Restart
Deny use	Permit use
Destroy	Create
National Population	
Disrupt	Put into order
Fielded forces: location	
Deter	Encourage
Defend	Attack
Drive	Open new routes
Stop	Advance
Expel	Hold position
Fielded forces: capability	
Disrupt	Put into order
Attrit	Build up
Neutralize	Restart
Destroy	Create

Table 5: Goals and their opposites

E Centers of Gravity

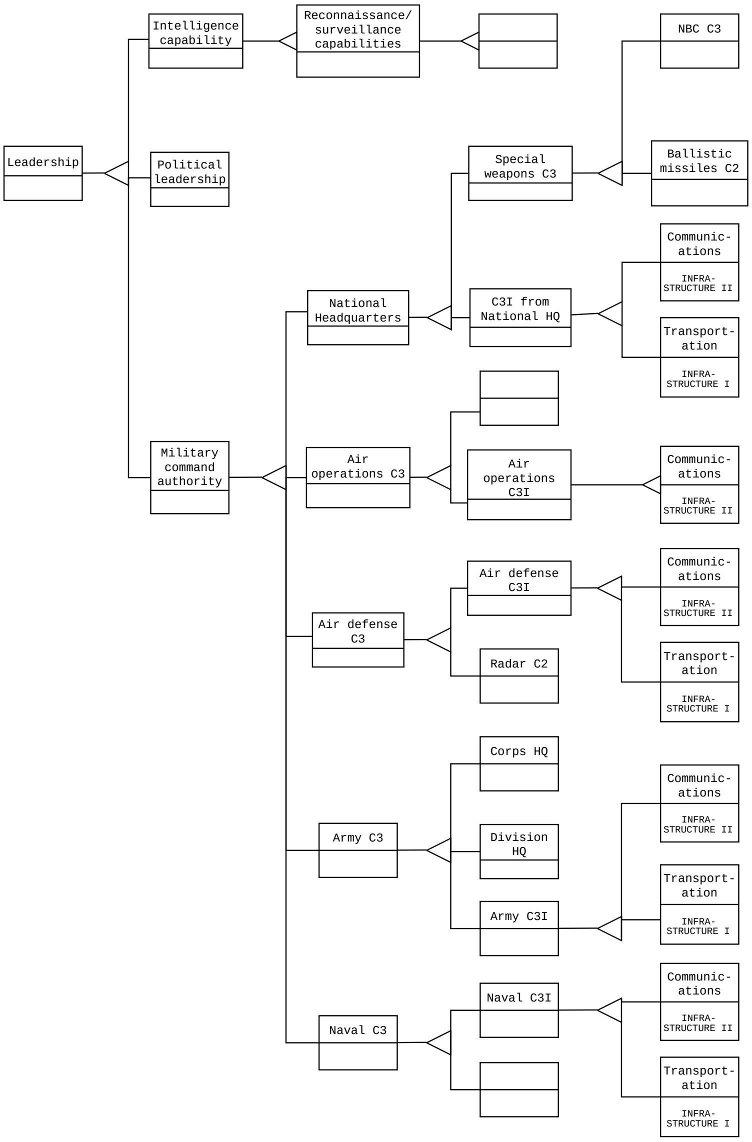

Figure 2: CoGS: Leadership

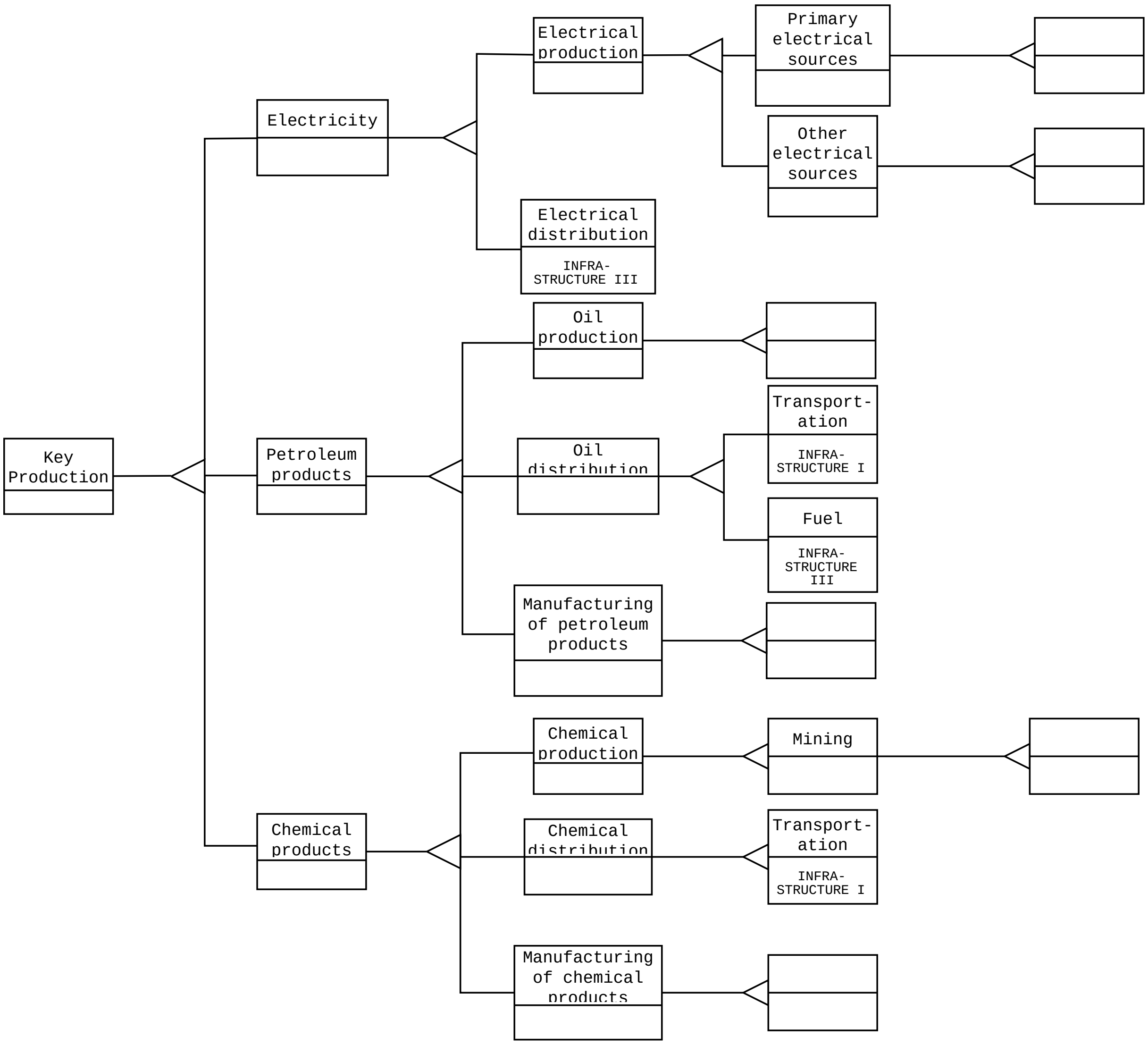

Figure 3: CoGS: Key Production 1: General

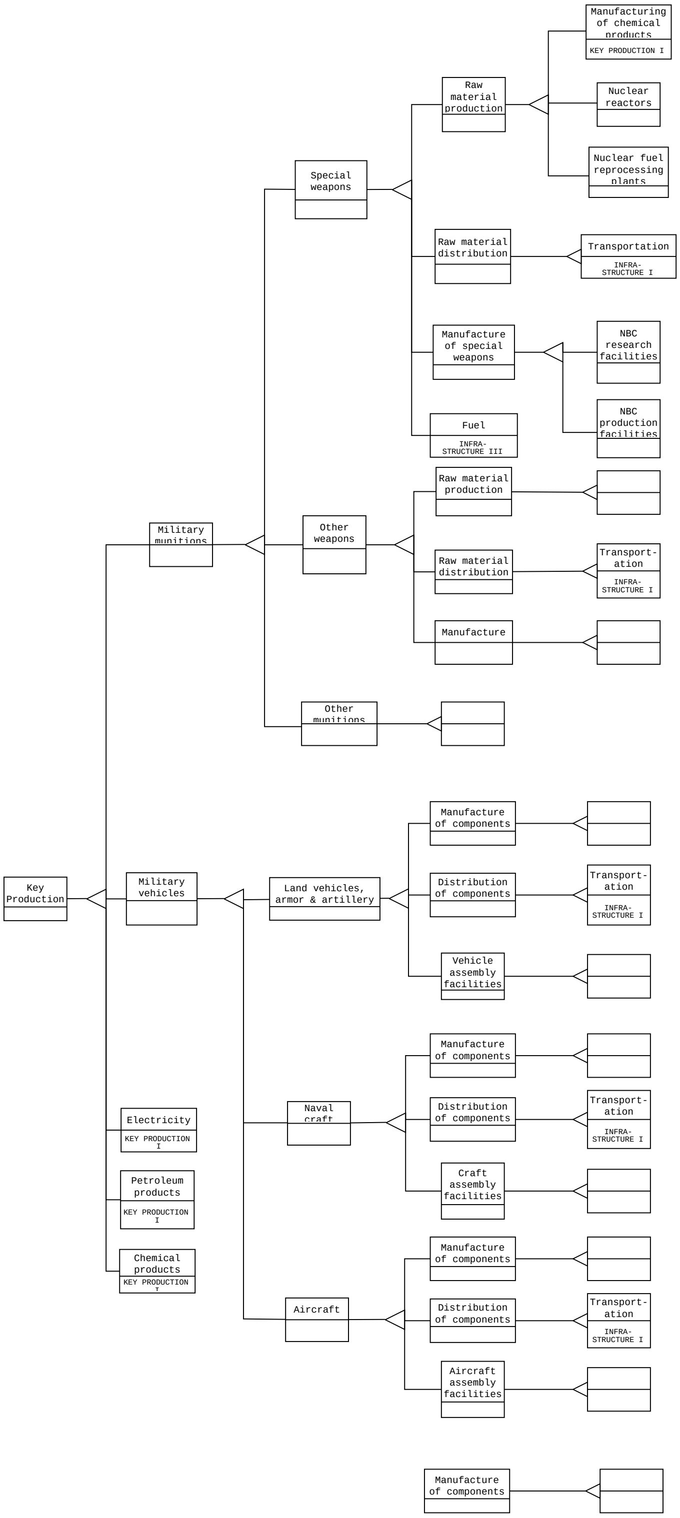

Figure 4: CoGS: Key Production 2: Military

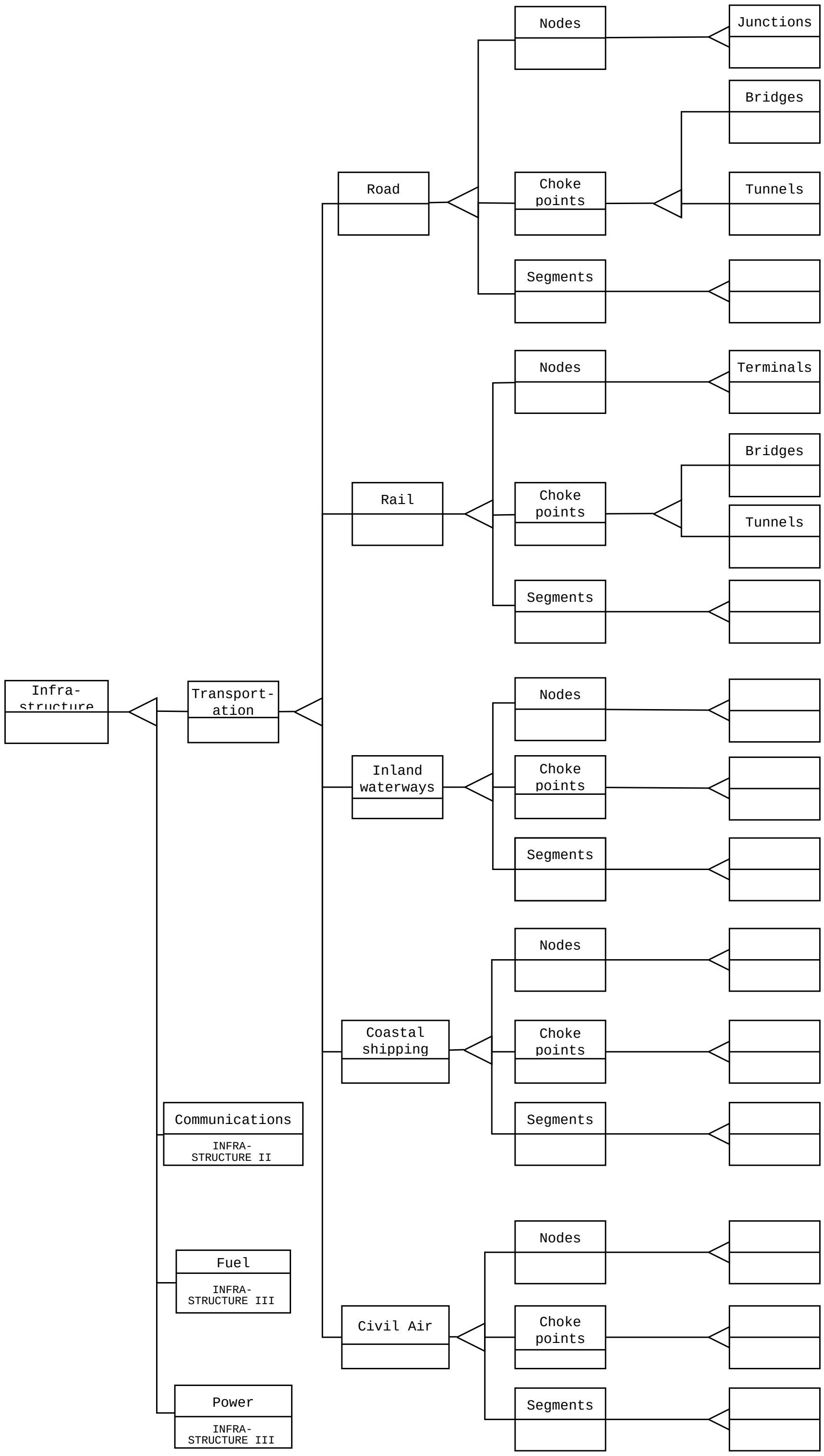

Figure 5: CoGS: National Infrastructure 1: Transportation

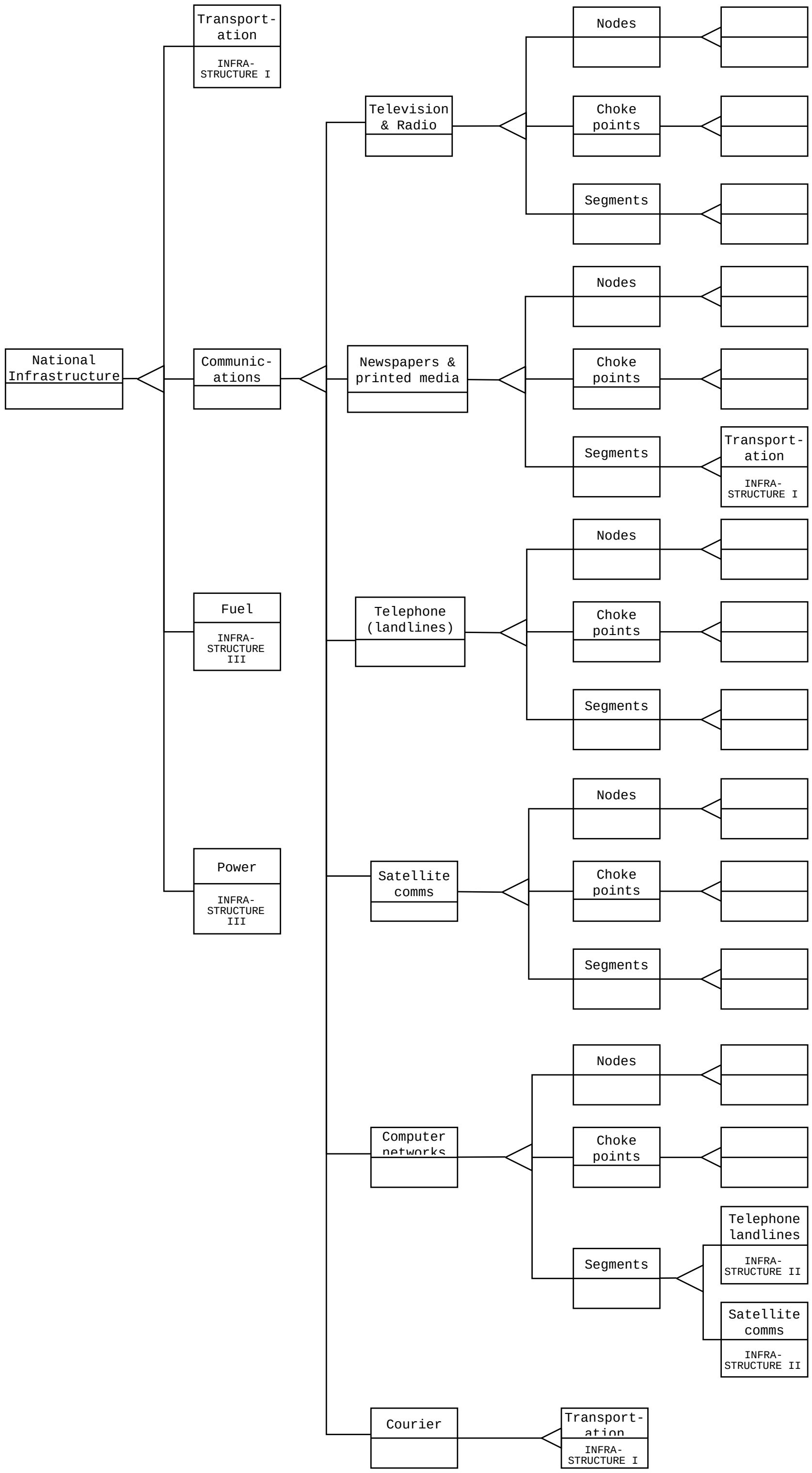

Figure 6: CoGS: National Infrastructure 2: Communications

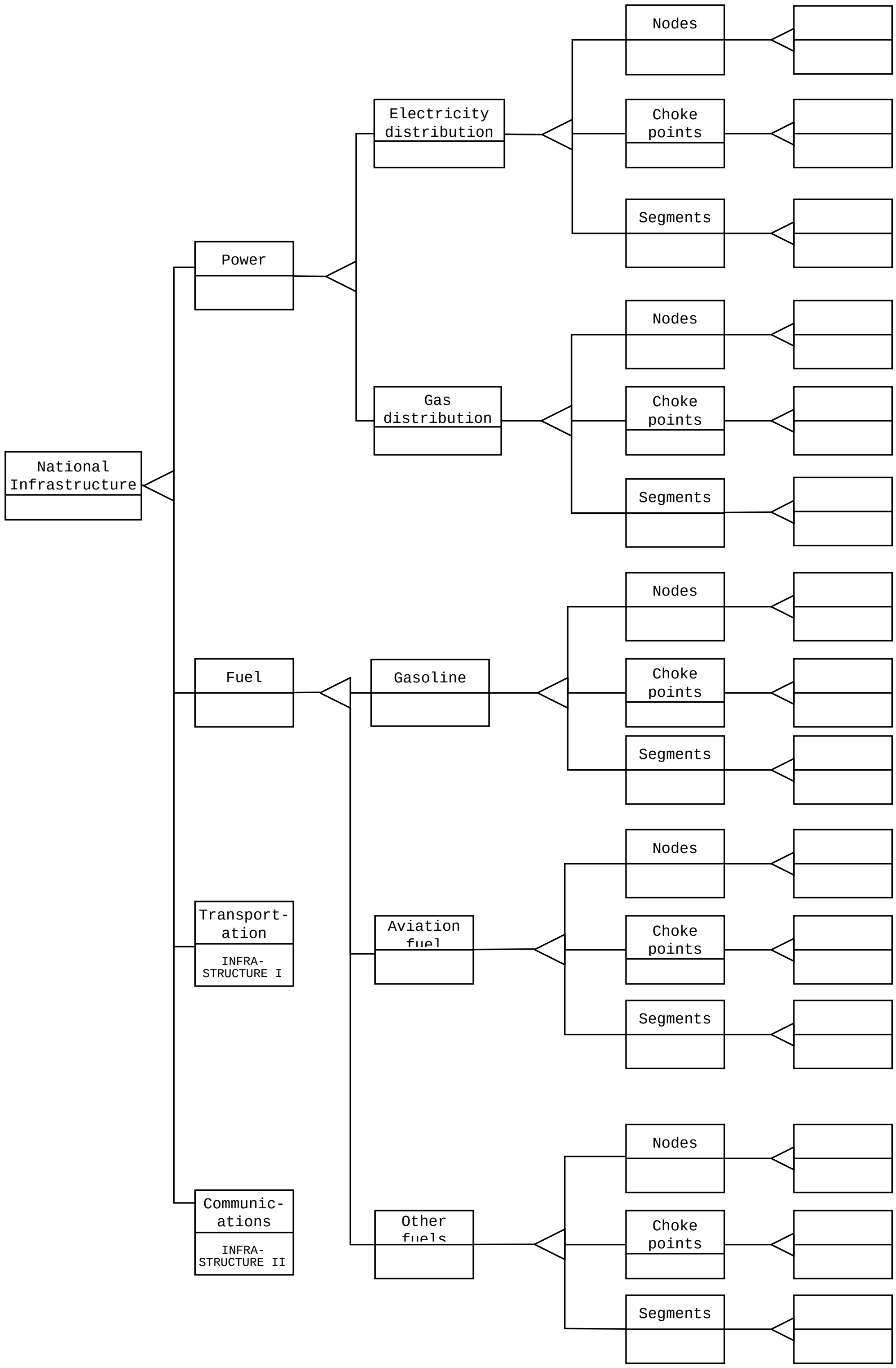

Figure 7: CoGS: National Infrastructure 3: Fuel & Power

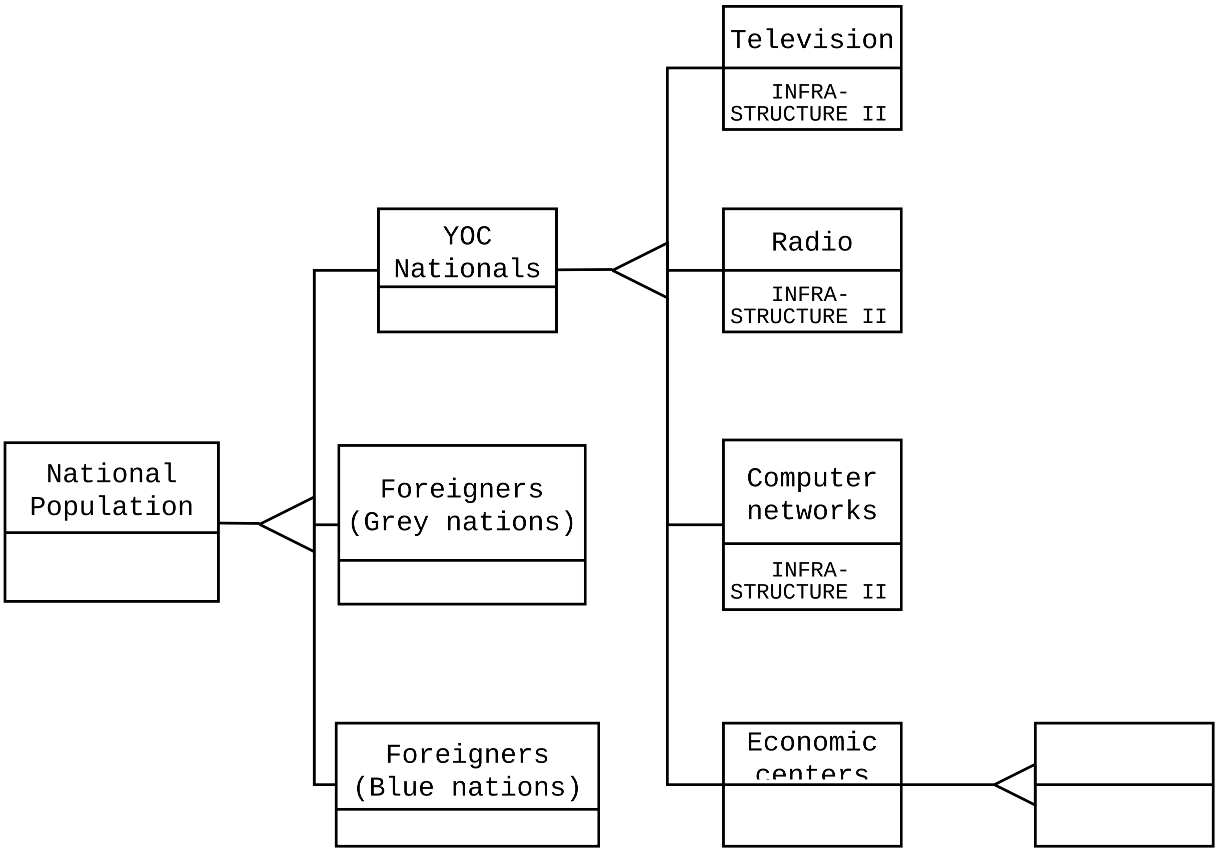

Figure 8: CoGS: National Population

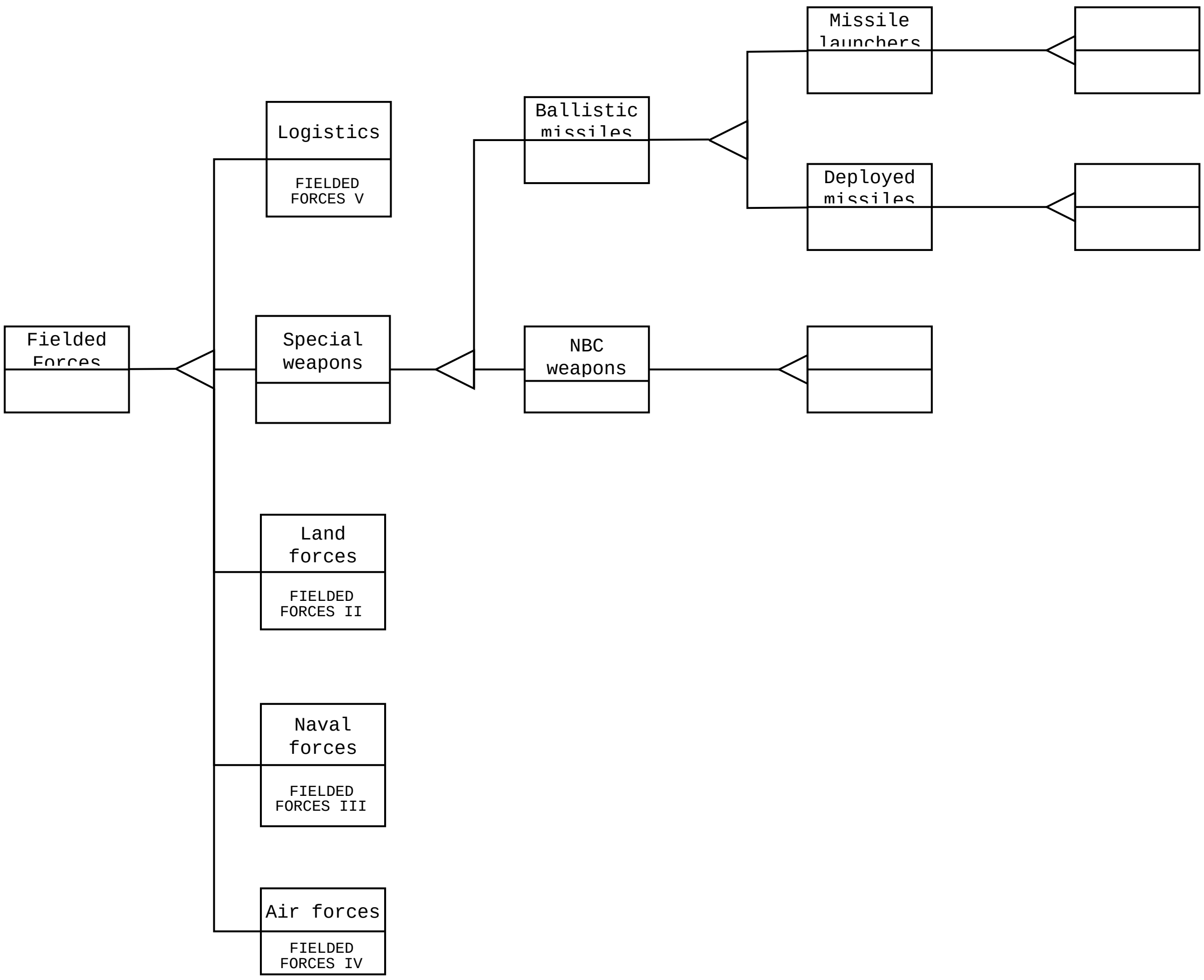

Figure 9: CoGS: Fielded Forces 1: Special Weapons

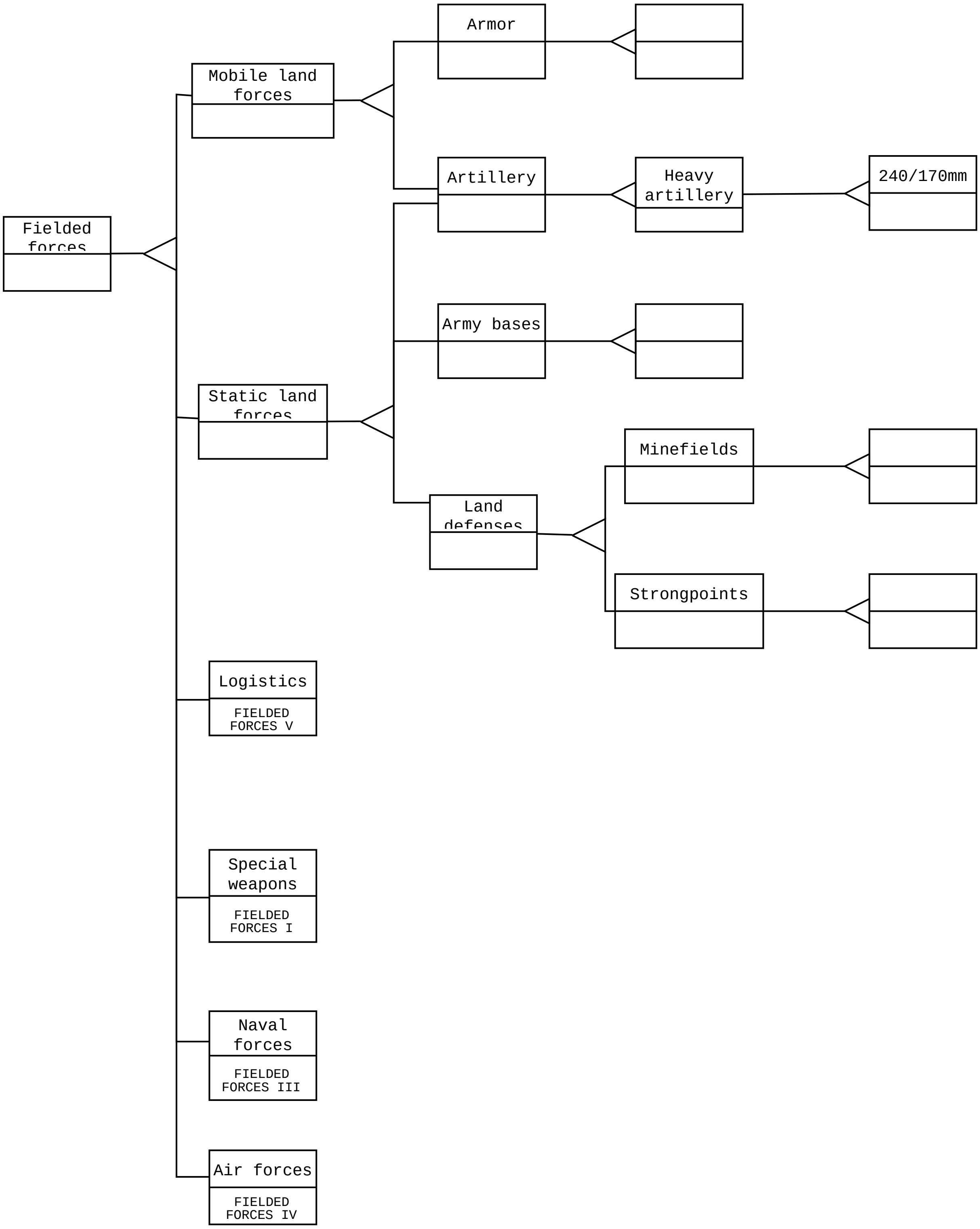

Figure 10: CoGS: Fielded Forces 2: Land forces

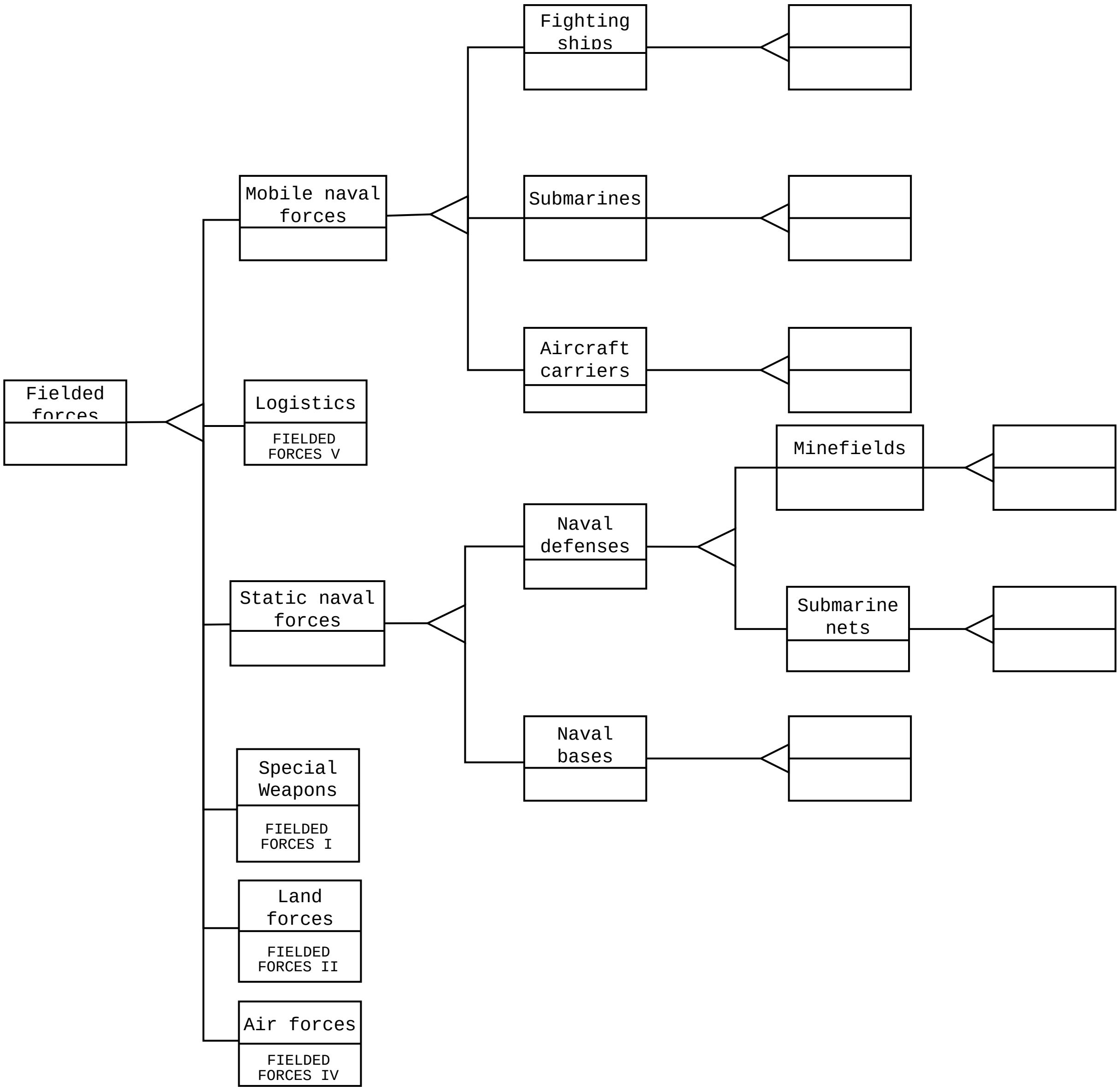

Figure 11: CoGS: Fielded Forces 3: Naval forces

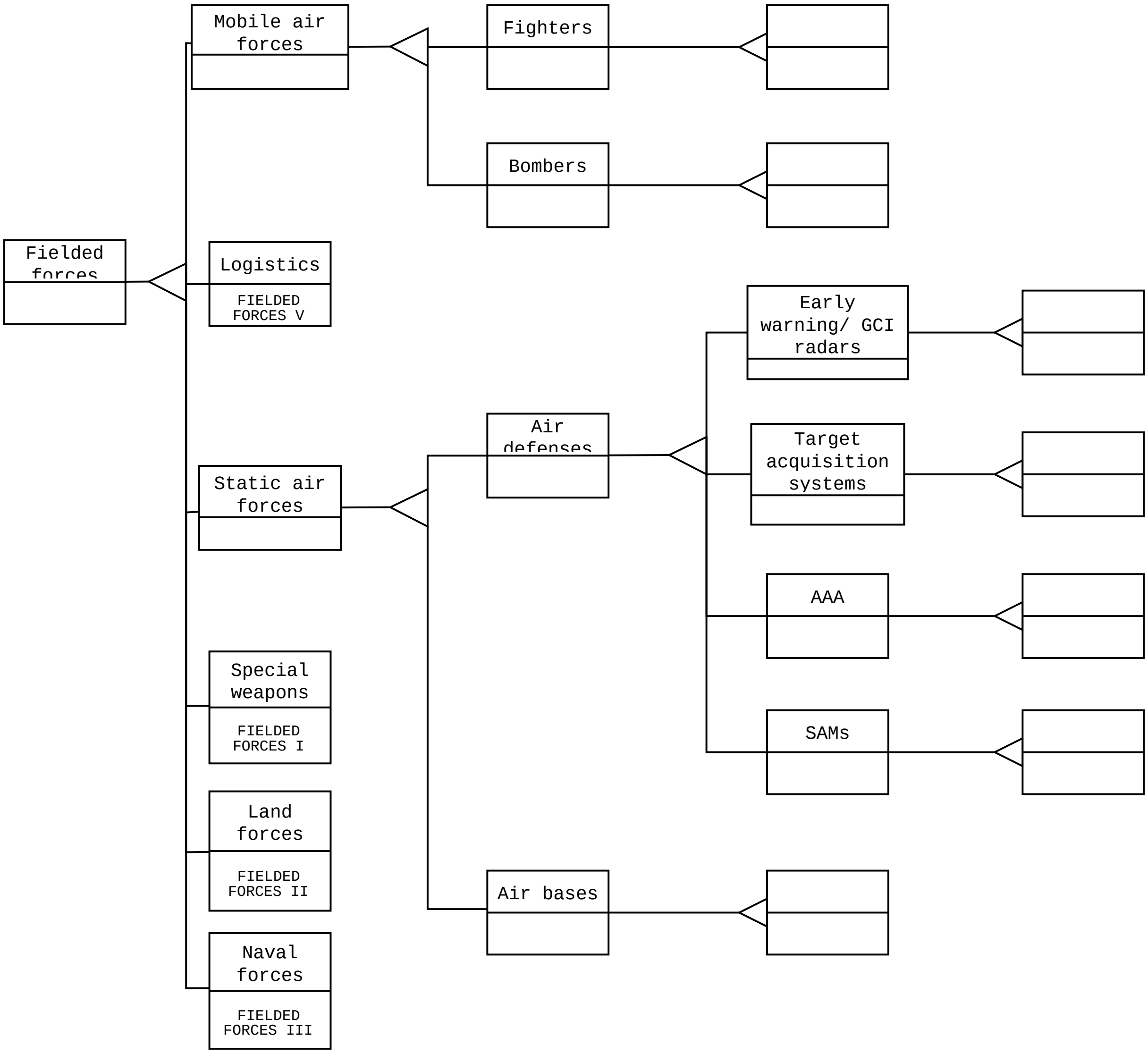

Figure 12: CoGS: Fielded Forces 4: Air forces

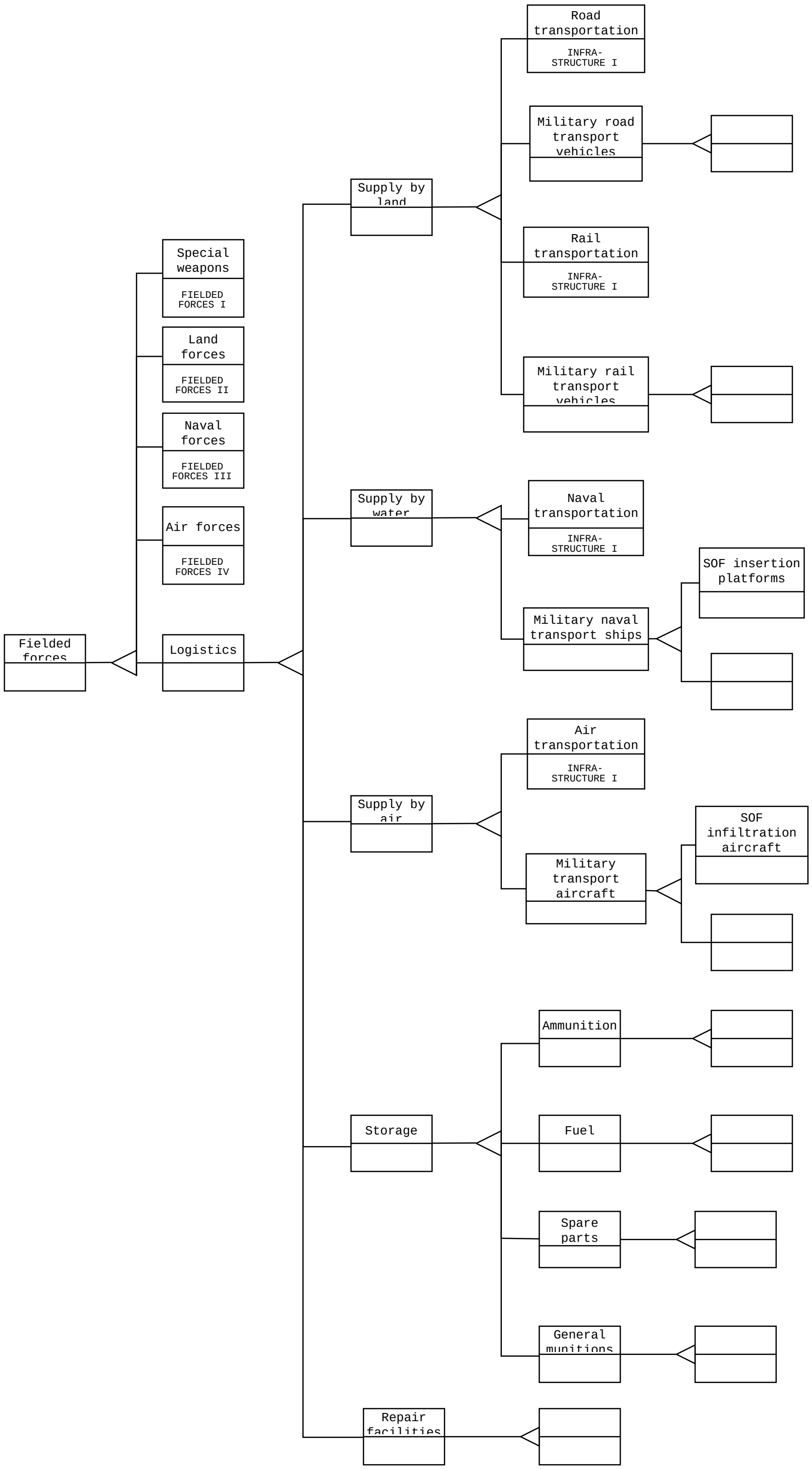

Figure 13: CoGS: Fielded Forces 5: Logistics

F Constraints

Geographical	
`US citizens`	in the region
`US forces`	in the region
`YOC aggression`	against B/G
`YOC forces`	north of Desired Area
`B/G`	(a geographical constraint is implicit in the CoG)
Temporal	
`YOC economic centers`	to slow the flow of military resources i.e. until the flow of military resources is sufficiently slow

Categorical

`YOC political control` `YOC military control`	YOC armed forces

`YOC political control`
`YOC military control`
`primary electrical sources`
`petroleum products`
`national television systems`
`national radio systems`
`national computer systems`
	YOC population

`national roadways`
`national railways`
`national waterways`
	Transport of military equipment

`national roadways`
`national railways`
`national waterways`
	Transport of goods

`national communications networks`
`national television systems`
`national radio systems`
`national computer systems`
	Transmit military information

`YOC petroleum production`	supporting warfighting effort
`chemical products`	for the manufacture of weapons of mass destruction.
`national waterways`	for Blue shipping.
`national transportation networks`	leading to YOC economic centers.
`Blue forces`	Against Weapons of Mass Destruction

Geographical	
Temporal	
Categorical	

`YOC political control`
`YOC military control`
`electrical facilities`
`petroleum production`
`chemical production?`
	YOC armed forces

`YOC political control`
`YOC military control`
`electrical production`
`petroleum production`
`chemical production`
	YOC population

`naval transport ships`	which are capable of transporting military equipment on national waterways.
`command and control`	YOC Air/Land/Sea forces
Capability	
`(Blue) forces`	capable of deterring YOC aggression
`(Blue) forces`	capable of supporting NEO

Table 6: Constraints: Air Objectives Level