

Gary Grigsby's WORLD AT WAR : Global Glory

GGWAWGG, a mod for GGWAW:AWD.
version 2.00

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1. Preface

Global Glory, aka GGWAWGG, aka “Gog” is a mod for Gary Grigsby’s World at War: A World Divided™.

The primary purpose of the mod is to apply a slightly greater emphasis on oil and its contribution to the course of the war. Supporting rule changes are also implemented for transports to more accurately reflect the difficulties both Axis and Allies had in moving troops around North Africa and other obscure corners of the globe. Several political events are added or changed to enhance realism, variability and/or playability, including surrender events for Russia, Australia and India. Finally, there are also various little adjustments, such as to War Readiness and frozen strategic movement, allowing for the WA and USSR to better prepare defensively without necessarily declaring war.

The GGWAWGG scenario has a start date of Summer 1939 and is denoted *GGWAWGG’39* in the scenario list.

A derivative 1942 scenario *GGWAWGG’42* is also provided, but the primary purpose of that scenario is just to make it easier to play with the setup and rules when everyone is at war and the Axis is at the height of its power. This 1942 scenario is not described in detail nor thoroughly balanced (the initial setup is a simple copy of AWD’42 with GGWAWGG infrastructure and political events added).

A quick note on the name Global Glory - the primary reason for its existence is the symmetry of the acronym GGWAWGG.

1.1. Caveats for play

The AI is not optimized for the changes made in the mod, and may play extremely poorly.

1.2. Change History

version	date	notes
1.00	2007-01-06	initial version.
2.00	2007-04-28	Updated to exploit new modding capabilities of the GGWAW:AWD v1.011 patch. Too many changes to enumerate.

1.3. AWD Compatibility

GG Version 2.00 requires the executable game engine from GGWAW:AWD version 1.011 (GG may work with later AWD engine versions, but certainly will not work with earlier versions).

1.4. Acknowledgments

Every idea that bounces around discussions in the forums adds to this mod, so it is impossible to give credit to everyone who may have somehow contributed. But special mention for the following (Matrix usernames): *Lebatron* (Uncommon Valor, Franco's Alliance, and many suggestions), *Uncle_Joe* (ever observant and attentive), *JanSorensen* (many contributions to AWD itself, plus the port benefit concepts applied herein), and *Christian_Brown* (who first played a version of GGAWWGG). And of course 2by3 who provided the great game engine in the first place, not to mention the latitude to make some code changes for mod-ability.

Prior to public distribution of v2.00, playtest and suggestions were also provided by *rjh*, *Dobeln*, and *Charles Lamb*.

2. Introduction

2.1. Oil

The emphasis on oil has been attained in two basic ways: slightly increasing resources in the Middle East (Iraq and Persia), and placing factories in some zero population regions to represent oil refining capabilities (TransJordan, Borneo, Sumatra). Balance requires that certain adjustments are then made elsewhere.

It is emphasized that the oil refining capabilities that have been added are historical, based on [1]. Oil flowed from Kirkuk (Iraq) to Haifa (TransJordan) for processing, where it fueled the British in the Eastern Mediterranean. Palestine had refining capacity for 40,000 daily barrels of crude. The DEI had processing capacity for 170,000 daily barrels of crude. These refineries were sabotaged by the Dutch as they retreated, repaired by the Japanese, and used to fuel Japanese naval vessels directly when it became impossible, due to lack of shipping, to bring the oil to the fleet. The naval fleets *went to the oil*, rather than the oil going to the fleets.

A look at the historical oil production of the Middle East shows production levels that might be considered low by today's expectations. It should be noted that it was known the oil reserves existed; there was a very real fear of Axis control of Middle Eastern oil reserves, but the reserves had not been fully exploited. See [2], which is written contemporary to the conflict (in fact, despite the copyright date 1942, the contents imply it was written prior to the initiation of Operation Barbarosa): "Germany and Italy, in order to supplement their fast diminishing stocks of lubricants and high octane aviation gasoline, will endeavor to acquire possession of the Iraq and possibly Iranian and Russian oil fields."

In fact, the British poured concrete down Middle Eastern wells to hinder exploitation by the Germans. The strategic significance of the Middle Eastern oil was not so much the supply to the Allies (the USA provided almost all of the Allied fuel), but rather the *potential* to supply the Axis. There is no way to model this dichotomy very well in the game, but the importance in this mod is emphasized by giving more resources to the region than were historically *exploited* in real life.

However, the Mid-East resources implemented in GGAWWGG do not appear to be overdone. The 8 resources in Grozny and Caucasus in AWD represent mostly oil production. But the tables below (Appendices) show that average Persian oil production (223,000) was more than 1/3 of

average Russian oil production (605,000 *over the whole of Russia*) for most of the conflict. Similarly, in AWD Rumania has 4 resources representing mostly (but not entirely) oil production. The historical average oil production (110,000, though it would be somewhat higher without Allied bombing) was not all that much higher than Iraqi peak production (~90,000 before the wells were capped and after they were restored). Considering that the Germans would have put more effort into exploiting Iraqi oil than the British did, extra resources in Iraq do not seem excessive.

One final note on USA oil production. It was huge. It fueled everything except the local theaters that could fuel themselves. But there is the comment in [1] that no more than 25% of US oil production ever went directly to the war effort. Much of the oil stayed domestic, and people continued to drive their private automobiles. This situation is probably unique in the world, since the production of most other combatant nations and captured territories most likely went directly to the war effort.

2.2. The Mediterranean and East Africa

The Italian deployment in the Mediterranean in AWD provides an excessive amount of shipping capability. In reality, getting troops and supplies to North Africa was a huge problem for the Italians. An additional factor to consider is that the Italians had a huge numerical advantage over the British (about 500,000 troops facing 50,000), but an awful deficit in quality. Similarly, the Italians had about 200,000 troops in East Africa, which were eventually defeated by a British force of about 100,000.

This mod has attempted to redress the most critical issue of transportation capacity in two ways: reducing the starting Italian transports, and modifying transport rules. The transport rules now impose a transport capacity penalty for adjacent enemy land regions (in this case, Malta) and bonus for adjacent friendly ports. With this change, Malta is truly the key to large scale shipping to North Africa.

Replacing the lost value of Italian transports are additional Italian militia in Tobruk and Italian East Africa. With the militia in Tobruk, the British will need units in Egypt to prevent an immediate Italian advance, but at the same time the Italians will find it requires some time and commitment before they can easily move further east along North Africa. The Italian force in Italian East Africa truly hinders British shipping, as was a dominant British concern in the region. But without a source of supplies, there is little that this force can do offensively.

With the new value to TransJordan (a factory) and Iraq (resources), and the additional starting militia it is hoped that the Axis will still have adequate motivation and capability to attempt a drive East in North Africa, without the bonus of unrealistic starting shipping capabilities.

2.3. Other General Considerations

As has been noted, shipping to North Africa is really far too easy in AWD. In reality, this is true of many remote theaters in the game. This mod attempts to make shipping capacities a little more reasonable with the transportation rules described in §3.7, which provide a transport

capacity penalty for being adjacent to an enemy land region, and a transport bonus for being connected to a friendly port.

Another area in need of more realism is Africa, where campaigns across the continent can regularly occur in AWD. This is fixed by severing many of the land connections on the map, as described in §3.6.

3. Details of the Mod

All comparative references to “AWD” are the setup of GGAW:AWD “Total War” v1.011.

Each section provides first the details of changes, then some small description of the motivations and impacts if appropriate.

3.1. Initial Deployment Differences

A detailed list of unit differences from AWD. Parentheses show the AWD value. Infrastructure that starts “damaged” represents infrastructure that requires some investment to bring online.

Italy

S Italy

TF 1 (4) note: 1 additional transport in the production queue

Central Mediterranean

TF 1 (0) ¹

Tripoli

Mil 1 (2)

Sup 0 (5)

Tobruk

Mil 6 (0)

Sicily

Sup 0 (5)

Italian East Africa

Mil 3 (1)

TF 1 (0)

¹ The Italian transport in the Central Mediterranean does not hinder WA movement into or through the Central Med, but warships ending the turn in the central Med require combat and hence a declaration of war against Italy (i.e. any blockade of Italy’s North African colonies is considered an act of war by neutral Italy).

Rumania

Rumania

TF 1 (1) unchanged, but 2 transports are in the production queue²

Portugal

Portugal

Pop 1 (0)

Spain

Spain

Mil 3 (4)³

Netherlands

Low Countries

Fact 1 (0)

Sumatra

Fact 1 (0)

Sup 5 (0)

Borneo

Fact 1 (0)

Sup 5 (0)

Commonwealth

Sudan

Mil 0 (1)

TransJordan

Fact 1 (0)

Mil 1 (0)

Sup 5 (0)

Iraq

Res 4 (2) note: 2 of the 4 resources start the game damaged

Mil 1 (0)

² The Rumanian transports in are in the queue at 3 turn delay, meaning that they are more expensive than usual, but since they start in the queue the German player does have a chance to build this limited quantity if he so chooses (even though Rumania can't build transports from scratch). Note that they do count against transport research if Rumania is German controlled. They can be disbanded (with no resource penalty).

³ There is a new instant militia for Spain, in case it is attacked, of 1x population (3 units). See §3.2.

New South Wales

Fact 1 (0) note: the factory starts the game damaged

South Australia

Res 1 (0)

USSR

Smolensk

Fact 1 (0)

Moscow

Fact 1 (2) note: 1 additional factory in the production queue

Airb 0 (1) note: 1 airborne unit in production queue

Kiev

Inf 4 (3)

Persia

S Persia

Res 2 (1) note: 1 of the 2 resources starts the game damaged

N Persia

Res 3 (1) note: 1 of the 3 resources starts the game damaged

USA

SW USA

Res 6 (7) note: 2 of the 6 resources start the game damaged

Fact 1 (4) note: 3 factories in the production queue (delayed 2,5,5)

S Central USA

Res 7 (7) unchanged, but 2 of the 7 resources start the game damaged

Sea Zone 282 (Midway)

TF 1 (0) note: also frozen

Sea Zone 284 (Hawaii)

TF 1 (2)

Sea Zone (Hawaii)

TF 1 (2)

Venezuela

Venezuela

Res 2 (1)

3.2. Insta-Militia

- Spain generates 1x population of instant militia whenever it is attacked while it is still neutral.
- Portugal generates 1x population of instant militia whenever it is attack while it is still neutral.

3.3. Production differences

The changes of factory placement have been noted in §3.1.

Changes related to Germany:

- Germany has a non-military resource consumption (NMRC) of 3 while its factory multiplier is 2
- the Russian resource gift to Germany is 4 (increased from 3 in AWD)
- Germany factory multiplier automatically becomes 3 in 1943.

Changes related to the WA:

- USA non-military NMRC has been reduced to (70,45,25) for USA factory multipliers (0,1,2) respectively (NMRC reduced from 75,50,25 in AWD).
- Netherlands has a production factory multiplier of FM=0 in 1939, FM=1 thereafter.

With these changes, Germany will no longer have a huge resource surplus (overflowing storage capacity) in the beginning of the game. As with the USA, the German NMRC represents civilian use. Historically, the German economy did not go to a real war footing until 1943. In the game it occurs as soon as Russia is attacked and the FM=3 level is reached.

3.4. USA and USSR preparedness changes (WR and strat move)

Some changes have been made in War Readiness accumulation and thresholds and frozen strategic movement, in order to allow the Allies to better prepare defensively without having to DOW to do it, so delayed DOW is possible but more difficult for the Axis.

for the USA

WR thresholds (parentheses are original AWD):

28, 39, 52 (28, 37, 52) (respectively for FM=2, DOW, FM=3)

WR die increment per turn (parentheses are original AWD)

2, 2, 2, 3, 3 (2, 2, 2, 3, 3 [unchanged]) (respectively for 1939, 40, 41, 42, 43)

frozen strategic movement⁴ limit per turn (starting in year given)⁵

1939 0

1941 $\frac{1}{4}$

1942 $1\frac{1}{4}$

1943 $2\frac{1}{2}$

WR for USSR

WR thresholds:

17, 41, 49 (10, 34, 43) (respectively for FM=2, DOW, FM=3)

WR die increment per turn

2, 2, 2, 3, 4 (2, 2, 4, 4, 4) (respectively for 1939, 40, 41, 42, 43)

frozen strategic movement limit per turn (starting in year given)⁶

1939 2

1941 $1\frac{1}{2}$

1942 2

1943 3

HINT: it is presumed that most of the initial Russian strategic movement will be used to bolster E Poland in order to attain the FM=2 production bump on schedule on the Vichy event (which is still +3WR).

WARNING: unfortunately, the game engine will inform the Russian Player of this strat move limit even AFTER the USSR is at war. In this case, the limit may be ignored. When at war, the Russian strat move limit is removed (same as AWD).

⁴ Note that for the WA, frozen strat moves have the following limitations: (i) units may move into frozen zones, but may not move out (undoing a move is possible, however), (ii) American units may only strat move to American frozen zones, and non-American units may only strat move to non-American frozen zones.

⁵ A fractional limit means that probability exists to be able to move 1 unit. E.g. a strat move limit of $\frac{1}{4}$ means there is a 25% chance that 1 unit may be moved.

⁶ The increased Russian FM=2 WR threshold and strat move limit is in part intended to encourage a heavy garrisoning of E Poland, similar to the poor initial deployments Russian experienced. Also, utilizing the strat moves requires building units, perhaps at the expense of research. Since these units should be lost in Barbarosa, this balances against the new Moscow factory in production. The reduction in 1941 represents the complacency of Russian military preparedness in that period.

In general, these rules are intended to give the Axis more latitude in delaying conflict with the Allies, but at a greater cost in terms of the preparedness of the Allies.

3.5. Unit Attributes

Changed unit attributes (AWD value in parentheses):

All players transport fleets (see §3.7)

capacity: 20 +15 (adj port) +10 (near port) -10 (adj hostile)

All players artillery⁷

evasion: 5 (6)

All players carrier fleet⁸

antiair: 2 (3)

German CAG⁹

antiair: 4 (3)

land attack: 4 (3)

cost: 4 (3)

German factory

cost: 6 (8)¹⁰

Chinese sub fleet

evasion: 1 (2)

World Standard Tac Air

torp: 2 (1)

World Standard Heavy Fleet

anti-air: 6 (4)

Changed initial research point status:

Heavy Fleets Anti-air:

⁷ This evasion change is intended to make artillery “brittle” against being fired on directly from other units, thereby requiring that artillery have support units. It won’t have as large an effect when fired upon with Bombardment (which is the way artillery is usually fired upon unless one has hordes of artillery), due to the way suppression fire works.

⁸ An attempt to give Heavy and Light Fleets a valid CV escort role.

⁹ German CAGs are made the same as everyone else, in cost and capabilities.

¹⁰ The German factory cost can be reduced because of the addition of the German NMRC.

Western Allies:	3 (0)
Japan:	2 (0)
Germany:	2 (0)
Artillery evasion:	
Western Allies:	3 (0)
Germany:	3 (0)

3.6. Map Differences

- Cairo has been made rough terrain.
- all inland routes in Africa have been severed, except from Rhodesia. Severed borders are shown in the figure below (unfortunately, there is no in game visual indication of this change).
- ports have been added: Panama, Djibouti, Brisbane, Okinawa, Lisbon, Sao Paulo
- ports moved: Singapore (new port connection to Gulf of Siam), Cape Town (moved westward, disconnected from the Indian Ocean)

The change to Cairo will slow armor movement, and cost extra supply to use armor. The change to Africa brings a little more realism, since supplying Sudan from the coast of French Equatorial Africa, or campaigning across the continent, are practical impossibilities.



Figure 1: Severed inland routes in Africa

3.7. Transport capacity changes

Transports a reduced base strategic movement capacity of 20 cargo points (from 30), but with the following adjustments for each transport:

- +15 for a transport which is connected to a port (i.e. a naval unit can actually move from the port to the sea zone and vice versa, not just adjacent). This is does not accumulate for multiple ports.
- +10 for a transport that is not directly connected to a port, but is one removed from connections to a port. This is does not accumulate for multiple ports.
- -10 for a transport which is adjacent to an enemy controlled land region. This is noncumulative (only assessed once, even if adjacent to multiple enemy regions).

These adjustments apply only to the regular transport capacity, not amphibious capacity. They are assessed equally for each transport in a sea zone.

For example, if the WA control Malta then every transport in the Central Mediterranean will benefit from the ports in Italy but suffer from the hostile control of Malta, netting a capacity per transport of 20 (20 base, +10 for radiated port, -10 for enemy adjacent), and two transports would have a total capacity of only 40.

The radiating effect of the port benefit is illustrated in Figure 6 for the Allies and Figure 7 for the Axis, shown for region ownership of the historical 1942 scenario.

As has been noted, these changes help make North Africa a bit more realistic, reducing both WA and German shipping capacity. They provide some historical role for Italian East Africa in hindering British shipping, and also a direct role for Norway in hindering lend lease to Russia.



Figure 2: Example of how the port benefit radiates from Cape Town toward the Northwest



Figure 3: Continued example, how the port benefit radiates from Cape Town toward the South and East



Figure 4: What it means in the Med, without Malta or Greece

Adriatic:	35 = 20 base +15 direct port
Aegian Sea:	20 = 20 base (no modifiers)
Tyrrhenian Sea:	20 = 20 base (no modifiers)
Central Med:	20 = 20 base + 10 radiated port - 10 hostile
Eastern Med:	10 = 20 base - 10 hostile (no port benefit!)



Figure 5: What it means in the Med, with the port in Greece

Adriatic:	35 = 20 base +15 direct port
Aegian Sea:	⇒ 35 = 20 base +15 direct port
Tyrrhenian Sea:	20 = 20 base (no modifiers)
Central Med:	20 = 20 base + 10 radiated port - 10 hostile
Eastern Med:	⇒ 20 = 20 base + 10 radiated port - 10 hostile

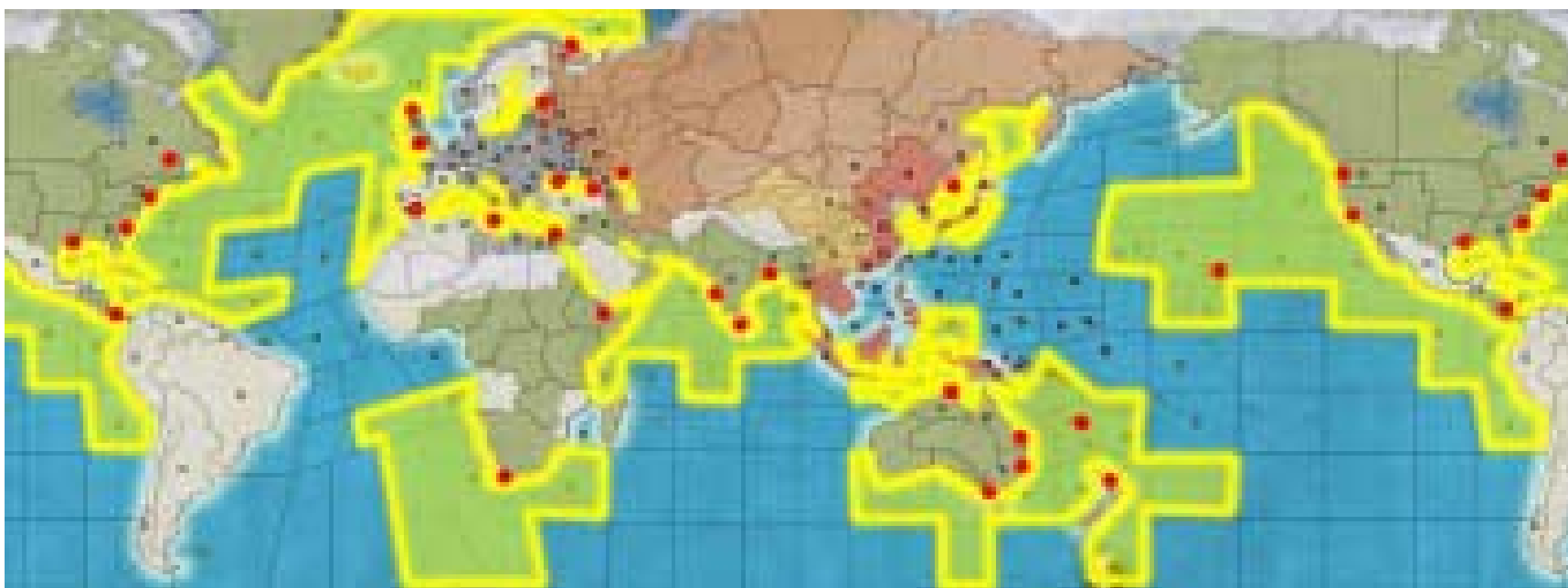


Figure 6: Global reach of Allied port benefit, historical 1942 (ports are red dots, +10 and +15 port benefited highlighted in yellow, effect of adjacent hostile regions not shown)

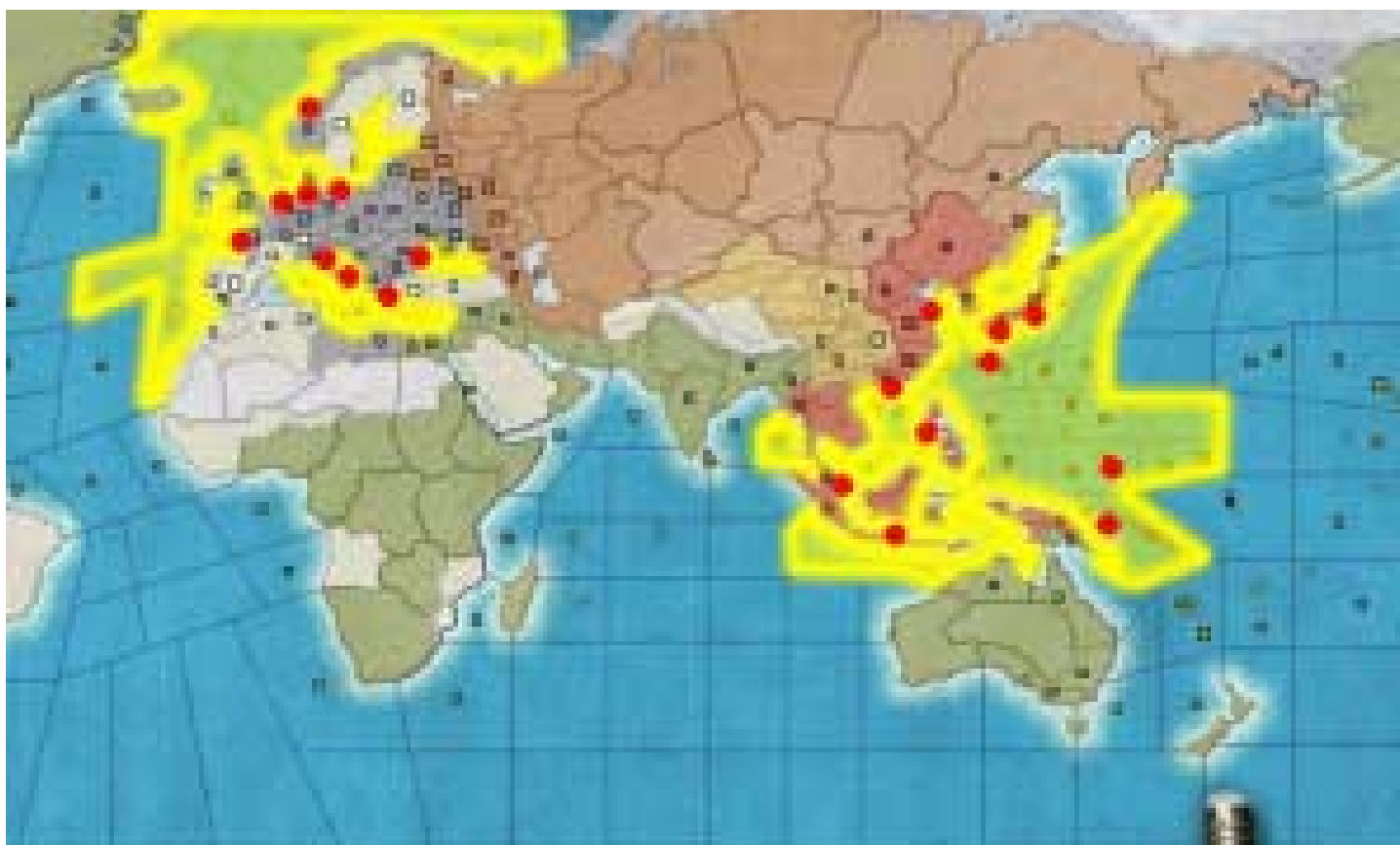


Figure 7: Global reach of Axis port benefit, historical 1942 (ports are red dots, +10 and +15 port benefited highlighted in yellow, effect of adjacent hostile regions not shown)

3.8. Random Political Events

Many events are the same, with some new events. The new events are most notably surrender events for Russia, Australia and India.

Thinking through the implications of implementing surrenders as random events, it is clear that some notion of *momentum* should be considered. It doesn't make sense to have Russia surrender after several turns of reclaiming lost territory. This leads to some rather more complex implementations of the surrender event probabilities, based on the prior history of region ownership. These are explained more in the specific events below.

Event overview (unchanged from AWD v1.010 unless otherwise noted):

- Italy joins Axis
- Finland border war
- Rumania border war
- Greece border war
- Yugoslavia coup
- Netherlands coup
- **Iraq coup (probabilities changed)**
- **Syria joins Axis (new)**
- Portugal joins WA
- Spanish coup
- Sweden coup
- Finland coup
- Greece joins WA
- **Russia surrenders (new)**
- **Australia surrenders (new)**
- **India surrenders (new)**
- **Caucasus border crisis (new)**
- **USA responds to Asian situation (new)**
- **Portugal leases Azores to Britain (new)**
- **Spain responds to occupation of Portugal (new)**

3.8.1 Iraq coup

The change in this event is that if Germany holds Syria, the probability is increased by 5%.

Requirements: Iraq is WA controlled, Iraq has no land units

Probability: 5% base, +5% if Syria is German controlled

Effect: Iraq becomes German controlled, 1 militia and 1 supply created.

3.8.2 Syria joins Axis

Similar to the Iraq coup. This represents the Vichy government of Syria deciding to join Germany (a real fear of the British during the war, which led to Free-French versus Vichy-French fighting in Syria).

Requirements: Syria is WA controlled, Syria has no land units, Eastern France is Neutral (i.e. Vichy)

Probability: 5% base, +5% if Iraq is German controlled

Effect: Syria becomes German controlled, 1 militia and 1 supply created.

3.8.3 India surrenders

Nationalist movements in India considered taking advantage of the war to attain independence. This event can be considered to be a nationalist uprising in India, which sides with the Japanese.

Requirements: 1 out of E India, S India, W India must be German or Japanese controlled.

Probability: 20% base + modifier - momentum

modifier = 30% if Japan controls S India, +20% if Japan controls E India

momentum = $\text{mean}(\text{maximum}(\text{modifier}), \text{last_turn}(\text{modifier}))$

Effect: All of the following regions that have no ground units immediately become Japanese/German controlled with no damage to infrastructure: E/S/W/N India, Mandalay, Rangoon. Any of those regions with WA land units remain WA controlled with no effect.

The momentum rule warrants some example. If the requirements are satisfied but neither S India nor E India is Japanese held, the probability is 20%. If S India is then capture by Japan, then the probability goes up to 50% for the next turn with modifier=30%. After that, the momentum value becomes 30%, and the overall probability returns to $20+30-30=20\%$. If S India is then recaptured by the WA, the modifier becomes 0%, but the momentum value is still 30% for the next turn, so the probability is $20+0-30 = -10\%$ (i.e. won't happen). The next turn, the momentum value becomes 15% (since $\text{last_turn}(\text{modifier})=0$), and the probability is $20+0-15=5\%$.

This momentum rule seems complicated at first, but really is a fairly simple way to make the event most probable while forward progress by the Axis is made, and less probable when the Axis is falling back.

3.8.4 Australia surrenders

Much of Australia is remote, and under pressure with a collapse of the government it is conceivable that outlying regions of Australia could have been taken over with little meaningful resistance. This event represents that.

Requirements: 1 out of Victoria or New South Wales must be German or Japanese controlled.

Probability: 5% base + modifier - momentum

modifier = +20% if Japan controls NSW, +60% if Japan controls Victoria

momentum = mean(maximum(modifier), last_turn(modifier))

Effect: All Australian mainland regions that have no ground units immediately become Japanese/German controlled with no damage to infrastructure. Any of those regions with WA land units remain WA controlled with no effect.

The momentum rule is similar to India. On the turn after Japan captures Victoria, surrender is possible and fairly likely (85% if NSW and Victoria captured on the same turn). But if the surrender doesn't occur immediately, the probability becomes only 5%. And if the WA recapture NSW or Victoria, then the probability of surrender effectively becomes zero.

3.8.5 Russia surrenders

Striking success of German armies in Russia could easily have caused collapse of the Russian government and surrender. This surrender implementation yields territories to the Germans and refreezes the remaining regions of Russia, setting a new gift and new War Readiness thresholds.

Requirements: Moscow is German controlled, as well as 2 out of Leningrad, Stalingrad, Gorki

Probability: -20% base + modifier - momentum

modifier = +25% (German control of Leningrad)

+25% (Moscow)

+25% (Stalingrad)

+25% (Gorki)

+25% (Kazan)

+25% (Grozni)

+25% (Caucasus)

momentum = (maximum(modifier) + last_turn(modifier)) * 2/5

Effect: All unfrozen Russian regions west of the Urals or in far eastern Asia that are *adjacent* to Axis regions become Axis controlled (German or Japanese) with no damage to infrastructure, and *any units in those regions are retreated*. Units that cannot retreat are destroyed. The core Russian regions that do not

surrender are Kazan, the Urals and non-coastal Siberia, the following regions: 115, 119, 120, 121, 122, 123, 124, 125, 368, 162, 163, 366, 365, 367.

All remaining Soviet regions are frozen with unlimited strategic movement. Any subsequent attack by the Germans or Japanese will again unfreeze them, for good this time.

USSR War Readiness is set to a random value from 0 to 40, with new WR thresholds of (0,50,50) for (FM=2, DOW, FM=3).

The USSR reinitiates a Gift of 4 resources/turn to Germany, for 3 years.

USA War Readiness is increased by 4.

Again, the momentum rules are not so complicated as they appear at first glance. Basically, for every new probability modifier region the Germans capture, there is a *one turn* increase in surrender probability of 25%, and an accumulating increase of 5% per capture. The maximum surrender probability with no territory exchange is 15% (all applicable regions German controlled), the maximum probability when one region is captured (the last applicable region) is 35%. Capture of more than one applicable region in a single turn (without immediate Soviet counter attack, i.e. liberation before the start of season political event determination) yields a higher surrender probability.

A specific example of a sequence of surrender probabilities is as follows:

- o Axis takes Leningrad $\Rightarrow -20 + 25 = 5\%$ (but prereq of Moscow is not satisfied)
- o Axis takes Moscow $\Rightarrow -20 + 25 + 25 - (25*2/5 + 25*2/5) = 10\%$
- o Axis takes Stalingrad $\Rightarrow -20 + 25 + 25 + 25 - (50*2/5 + 50*2/5) = 15\%$
- o stall, no progress $\Rightarrow -20 + 25 + 25 + 25 - (75*2/5 + 75*2/5) = -5\%$ (effectively 0%)
- o Axis takes Gorki $\Rightarrow -20 + 25 + 25 + 25 + 25 - (75*2/5 + 75*2/5) = 20\%$
- o stall, no progress $\Rightarrow -20 + 25 + 25 + 25 + 25 - (100*2/5 + 100*2/5) = 0\%$
- o Axis takes Kazan $\Rightarrow -20 + 25 + 25 + 25 + 25 + 25 - (100*2/5 + 100*2/5) = 25\%$
- o Axis takes Grozni $\Rightarrow -20 + 25 + 25 + 25 + 25 + 25 + 25 - (125*2/5 + 125*2/5) = 30\%$
- o stall, no progress $\Rightarrow -20 + 25 + 25 + 25 + 25 + 25 + 25 - (150*2/5 + 150*2/5) = 10\%$
- o Sov capture Grozni $\Rightarrow -20 + 25 + 25 + 25 + 25 + 25 - (150*2/5 + 150*2/5) = -15\%$
- o stall $\Rightarrow -20 + 25 + 25 + 25 + 25 + 25 - (125*2/5 + 150*2/5) = -5\%$
- o Axis capture Grozni $\Rightarrow -20 + 25 + 25 + 25 + 25 + 25 + 25 - (125*2/5 + 150*2/5) = 20\%$
- o Axis capture Caucasus $\Rightarrow -20 + 25 + 25 + 25 + 25 + 25 + 25 + 25 - (150*2/5 + 150*2/5) = 35\%$
- o stall $\Rightarrow -20 + 25 + 25 + 25 + 25 + 25 + 25 + 25 - (175*2/5 + 175*2/5) = 15\%$
- o Sov capture Kazan $\Rightarrow -20 + 25 + 25 + 25 + 25 + 25 + 25 - (175*2/5 + 175*2/5) = -10\%$
- o stall $\Rightarrow -20 + 25 + 25 + 25 + 25 + 25 + 25 - (150*2/5 + 175*2/5) = 0\%$

The bottom line is that the Germans must maintain forward momentum to have a significant chance of forcing surrender, and if the Germans capture everything and hold on an eventual surrender is possible (15%/turn). As soon as the Germans lose the initiative and start to lose those critical territories the probability of surrender will quickly drop, because of the high water mark applied in the momentum value as the max(modifier). In this way, if the Russians are enjoying forward momentum recapturing territory, then a surrender becomes impossible.

3.8.6 Caucasus border crisis

The response of USSR to a German presence in Turkey or Persia is deterministic in AWD. This event provides some variability, and also a little War Readiness boost to adjust for the fact that the Russian DOW threshold is increased but the increment for Germany attacking a neutral is not modified.

Requirements: at least 1 of Istanbul, Turkey or N Persia is German controlled
Moscow is Russian controlled
Caucasus is politically frozen

Probability: 30% base + 30% if Turkey is German controlled, +10% if N Persia is German controlled

Effect: Soviet War Readiness increases by 4. 3 militia units are built in the Caucasus, 5 supply units are built in Moscow.

3.8.7 USA response to Asian situation

In AWD, the USA response to Japanese incursions into Russia or China is confined to WR increases. This event provides a little more variability, in particular allowing the USA to prepare the Philippines for possible attack.

Requirements: at least 1 of Vladivostok, Changsa, Chungking, Kunming is Japanese controlled.
NE USA is frozen.

Probability: 0% base
+ 10% if Vladivostok is Japanese controlled
+4 % if Chungking is Japanese controlled
+2% if Changsa is Japanese controlled
+2% if Kunming is Japanese controlled

Effect: USA War Readiness increases by 2. 3 militia units and 1 supply unit are built in the Philippines.

3.8.8 Portugal leases Azores to Britain

In 1943 Portugal leased bases in the Azores to Britain. This event models that action.

Requirements: Portugal is Neutral, Leaning or Pro Allied.
 Spain is Neutral controlled.
 Scotland, England and Gibraltar are WA controlled.
 NE USA is unfrozen.

Probability: 25%

Effect: The Azores become WA controlled
 2 militia are created in Portugal¹¹

3.8.9 Spain responds to occupation of Portugal

In the event that Portugal were invaded by the WA, Spain would undoubtedly see itself as a stepping stone to France and view the situation as a threat. This event models the likely political fall out from such an invasion of Portugal, with Spain protesting the situation and preparing to defend herself.

Requirements: Portugal (the nation) is Axis, or Neutral Full or Pro-Axis.
 Portugal (the region) is WA controlled.
 Spain is Neutral.
 W France is German controlled.

Probability: 15% base + modifier - momentum
 modifier = +60% (WA control of Portugal)
 momentum = (maximum(modifier) + last_turn(modifier)) * 1/2

Effect: 4 militia are created in Spain.
 Spain shifts 1 level towards the Axis.

The momentum rule is such that the probability is 75% on the turn that Portugal is captured by the WA, 15% thereafter.

¹¹ This is an increased disincentive for subsequent WA invasion of Portugal.

3.9. Victory Conditions

The addition of surrender rules for Russia, India and Australia could dramatically change the Axis victory occurs, so that it is possible to play without AV on. In addition, Japan can perhaps bring up production more quickly with factories in the DEI.

The AV conditions still exist but are changed as follows (AWD values in parentheses).

SP increases:

- 1 (0) SP for Bismarck Archipelago
- 1 (0) SP for New Caledonia
- 1 (0) SP for Hawaii
- 1 (0) SP for Queensland
- 1 (0) SP for New Zealand
- 1 (0) SP for Vladivostok
- 1 (0) SP for Luzon
- 1 (0) SP for Malaya

SP decreases:

- 5 (6) SP for Moscow
- 1 (2) SP for New South Wales
- 2 (4) SP for Victoria
- 1 (2) SP for E India

Victory point thresholds:

1st shift: 71 (67) 2nd shift: 76 (71) AV: 83 (78)

Basically, 1 strategic point has been assigned to most Pacific ports, followed by some compensating reductions elsewhere. The new SPs in easy conquests like the Philippines or Vladivostok require higher AV levels.

4. Final Discussion

4.1. Suggestions and warnings for play

- The AI will not play this scenario well, it was not designed for it. Please don't complain about it.
- Leave items in the production queue "on hold" if their region has no production capability (e.g. factories at multiplier zero). If not on hold then they will consume resources even though they don't progress.

- Be careful to ensure that factories “on hold” in production get started at the appropriate time (if you want it to start). E.g. the SW USA would typically want to start one factory moving in Winter 1940.
- Resource capabilities are carefully tuned.
 - o Germany should immediately repair all captured resources and factories in the first years of the war (prior to war with Russia or a successful Sealion). Even though there is a resource surplus early on, they can be stored and Germany will want them later when FM=3 hits.
 - o For a typical “historical” course of events, the German resource storage (unused resources stored in various regions) will generally be just about hitting max capacity in Fall 1941, just before the Russian resource gift ends. German resource surplus storage would generally start to fall after this unless Germany has attained new resources from ahistorical places.
 - o For a typical “historic” course of events, no significant adverse trade agreements (e.g. Turkey), and with full worldwide transport connectivity, the WA resources should be just barely adequate for fueling their factories up until the USA DOW, even without repairing any of the resources that start “damaged”. However, early repair may still be desirable because it will lead to increased storage in anticipation of the unsustainable “burn” that occurs after the WA loses the DEI resources and hits higher factory multipliers.
 - o The USSR has 35 resources, but gives 4 to Germany every turn through Fall 1941. It starts with 13 factories and 1 in production. Russia has the resources to support *one more factory* without reducing long term production. It can be a good idea to start another factory for the Urals on the first turn. A second new factory is also not unreasonable, but probably won’t pay off unless war with Germany is substantially delayed so that it produces for some time after the Gift is terminated.
- Persia has resources that start damaged, and hence can only be exploited by a player that captures the regions and repairs the resources (those regions will not produce resources for free trade while they are damaged).
- Monitor the political events screen to see what is possible and what is probable. If a surrender event looms, the Allied player can reduce the probability if he can reverse the momentum.
- Transport and port rules add substantial value to Malta and Norway, enhancing or hindering transportation in the region. WA control of Okinawa will ultimately be crucial for any invasion of Japan.
- The addition of a factory and a resource in Australia, along with the port-rich region it inhabits, makes it both more of a juicy target and more of a potential thorn in the underbelly of Japan.
- The high USSR War Readiness threshold for factory multiplier of 2 will lead to a horrendous delay in Soviet production if nothing is done. It is strongly suggested that

the Russian player spends the first turns continuously sending units to East Poland to increase War readiness.

4.2. Ideas for future changes

This scenario is still in flux, ideas for improvement of play and balance are requested!

It is planned to change the Italy Joins event to allow it to occur before Vichy, but code changes are required in order to appropriately modify French surrender. It would not currently work, since occupation of S France would prevent the surrender. A likely implementation is that occupation of any of W, E or S France would cause surrender, but if S France is occupied then there is no establishment of Vichy and the colonial French possessions remain WA controlled.

5. References

- [1] *OIL AND WAR: How the Deadly Struggle for Fuel in WWII Meant Victory or Defeat*. Robert Goralski and Russel Freeburg, 1987
- [2] *Petroleum Encyclopedia, DONE IN OIL: The Cavalcade of the Petroleum Industry from a Practical, Economic and Financial Standpoint*. David Leven, 1942

6. Appendix A: Historical Daily Production (barrels), sorted by region (from [1])

		1938	1939	1940	1941	1942	1943	1944	1945
N America	Canada	19,085	21,474	23,472	27,764	28,540	27,540	27,593	23,241
	Mexico	105,496	117,529	120,317	115,605	95,384	96,337	104,380	119,307
	US	3,327,000	3,466,000	3,697,000	3,842,000	3,799,000	4,125,000	4,584,000	4,695,000
S America	Argentina	46,783	50,995	56,309	59,927	64,942	75,929	66,202	62,688
	Bolivia	619	589	787	644	844	915	858	1,047
	Colombia	59,129	65,362	69,926	67,268	28,732	36,332	60,904	61,504
	Ecuador	6,153	6,337	6,418	4,266	6,241	6,342	8,107	7,299
	Peru	43,395	37,008	33,131	32,699	37,340	40,148	39,314	37,655
	Trinidad	48,595	52,795	60,730	56,181	60,463	58,589	60,489	57,789
	Venezuela	515,545	565,671	507,022	625,836	404,589	486,660	702,311	885,359
Europe	Albania	2,060	2,559	4,090	3,655	4,386	2,742	915	732
	Austria	1,049	3,397	7,672	11,611	16,162	20,488	22,454	8,422
	Czechoslovakia	356	329	445	501	742	547	505	249
	France	1,405	1,370	1,355	1,134	1,268	975	820	553
	Germany	10,578	12,293	20,139	17,268	14,222	13,625	16,814	10,780
	Hungary	789	3,022	5,139	8,721	13,800	17,390	17,150	13,748
	Italy	277	249	232	260	277	236	150	145
	Netherlands	0	0	0	0	0	3	33	112
	Poland	10,310	10,680	10,631	4,912	7,655	9,589	8,197	2,055
	Rumania	132,841	125,063	117,945	111,005	115,326	107,348	71,560	95,266
	UK	0	0	339	611	1,658	2,299	1,920	1,458
	USSR	571,992	605,112	608,197	663,424	634,164	563,699	765,027	424,529
	Yugoslavia	25	27	27	27	27	27	601	548
Mideast	Bahrain	22,734	20,792	21,049	18,614	17,099	18,005	18,344	20,025
	Egypt	4,332	12,784	17,773	23,414	22,671	24,529	25,727	25,770
	Iran	214,718	214,112	181,194	139,115	197,961	204,416	278,811	357,605
	Iraq	89,432	84,359	66,189	34,658	54,044	68,351	82,090	96,197
	Saudi Arabia	1,356	10,778	13,866	11,808	12,411	13,337	21,295	58,386
Asia	Brunei	18,940	19,444	19,254	18,805	8,219	12,329	16,393	5,753
	Burma	20,652	21,570	21,123	21,266	6,850	2,740	2,049	1,986
	China	0	11	27	238	932	1,225	1,380	1,326
	Dutch E Indies	157,036	170,101	169,429	147,134	65,753	132,312	60,820	20,822
	India	6,816	6,375	6,290	7,942	7,649	6,918	7,607	6,474
	Japan (+ Taiwan)	6,879	7,271	7,210	5,455	4,658	4,836	4,484	4,260
	total (summed)	5,446,377	5,715,458	5,874,727	6,083,768	5,734,009	6,181,758	7,079,304	7,108,090

7. Appendix B: Historical Daily Production (barrels), sorted by mean production (from [1])

	1938	1939	1940	1941	1942	1943	1944	1945	mean
US	3,327,000	3,466,000	3,697,000	3,842,000	3,799,000	4,125,000	4,584,000	4,695,000	3,941,875
USSR	571,992	605,112	608,197	663,424	634,164	563,699	765,027	424,529	604,518
Venezuela	515,545	565,671	507,022	625,836	404,589	486,660	702,311	885,359	586,624
Iran	214,718	214,112	181,194	139,115	197,961	204,416	278,811	357,605	223,492
Dutch E Indies	157,036	170,101	169,429	147,134	65,753	132,312	60,820	20,822	115,426
Rumania	132,841	125,063	117,945	111,005	115,326	107,348	71,560	95,266	109,544
Mexico	105,496	117,529	120,317	115,605	95,384	96,337	104,380	119,307	109,294
Iraq	89,432	84,359	66,189	34,658	54,044	68,351	82,090	96,197	71,915
Argentina	46,783	50,995	56,309	59,927	64,942	75,929	66,202	62,688	60,472
Trinidad	48,595	52,795	60,730	56,181	60,463	58,589	60,489	57,789	56,954
Colombia	59,129	65,362	69,926	67,268	28,732	36,332	60,904	61,504	56,145
Peru	43,395	37,008	33,131	32,699	37,340	40,148	39,314	37,655	37,586
Canada	19,085	21,474	23,472	27,764	28,540	27,540	27,593	23,241	24,839
Egypt	4,332	12,784	17,773	23,414	22,671	24,529	25,727	25,770	19,625
Bahrain	22,734	20,792	21,049	18,614	17,099	18,005	18,344	20,025	19,583
Saudi Arabia	1,356	10,778	13,866	11,808	12,411	13,337	21,295	58,386	17,905
Brunei	18,940	19,444	19,254	18,805	8,219	12,329	16,393	5,753	14,892
Germany	10,578	12,293	20,139	17,268	14,222	13,625	16,814	10,780	14,465
Burma	20,652	21,570	21,123	21,266	6,850	2,740	2,049	1,986	12,280
Austria	1,049	3,397	7,672	11,611	16,162	20,488	22,454	8,422	11,407
Hungary	789	3,022	5,139	8,721	13,800	17,390	17,150	13,748	9,970
Poland	10,310	10,680	10,631	4,912	7,655	9,589	8,197	2,055	8,004
India	6,816	6,375	6,290	7,942	7,649	6,918	7,607	6,474	7,009
Ecuador	6,153	6,337	6,418	4,266	6,241	6,342	8,107	7,299	6,395
Japan (+ Taiwan)	6,879	7,271	7,210	5,455	4,658	4,836	4,484	4,260	5,632
Albania	2,060	2,559	4,090	3,655	4,386	2,742	915	732	2,642
France	1,405	1,370	1,355	1,134	1,268	975	820	553	1,110
UK	0	0	339	611	1,658	2,299	1,920	1,458	1,036
Bolivia	619	589	787	644	844	915	858	1,047	788
China	0	11	27	238	932	1,225	1,380	1,326	642
Czechoslovakia	356	329	445	501	742	547	505	249	459
Italy	277	249	232	260	277	236	150	145	228
Yugoslavia	25	27	27	27	27	27	601	548	164
Netherlands	0	0	0	0	0	3	33	112	19