



# IPNDV Basic Scenario

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Phase III of the International Partnership for Nuclear Disarmament Verification (IPNDV) is executing a multi-year program of work to further develop, test, evaluate, and refine concepts and practical verification approaches to support future nuclear disarmament. This program of work has used a basic scenario that describes a notional nuclear-armed state (Ipindovia) as well as its disarmament obligations under a multi-party Nuclear Weapons Reduction Treaty (NWRT). The NWRT also provides for the multilateral verification of those obligations. This paper sets out the Basic Scenario and its assumptions.<sup>1</sup>

## Description of Ipindovia and Its Nuclear Weapons Enterprise

### General Features

**Background.** A large regional power, Ipindovia has approximately 100 million inhabitants and is a democracy with a free press and free speech. Ipindovia possesses an army, navy, and air force, but does not operate any military bases beyond its borders.

**Political-legal situation.** Ipindovia has a permanent seat in the United Nations Security Council. It is a nuclear weapons State party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). It is in compliance with all relevant international obligations and has made a Voluntary Offer Agreement with the International Atomic Energy Agency (IAEA) under which it has declared its entire civilian nuclear fuel cycle. Ipindovia is not involved in any national or international conflict, nor are there any conflict zones on or near its borders.

**Geography.** Ipindovia has access to open seas and land borders with neighboring states. Ipindovia has fully developed, modern transport links between major cities and other significant locations, including military and nuclear bases (see Figure 1, a map of Ipindovia).

**Reliance on nuclear deterrence.** Ipindovia relies on nuclear deterrence for its national security.

### Ipindovia's Nuclear Arsenal

Ipindovia possesses a full nuclear triad. It has a total nuclear stockpile of 1,000 nuclear warheads, defined as a mechanism containing special nuclear material (SNM) and high explosives (HE).

- 900 warheads are located at deployment bases:
  - 200 warheads at nuclear bomber bases with both gravity bombs and air-launched cruise missiles (ALCMs)
  - 300 warheads at submarines bases

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<sup>1</sup> As needed to conduct specific exercises, additional detail has been added to the Basic Scenario (e.g., descriptions of specific Ipindovia sites). Further refinements of the Basic Scenario also are possible, as needed to support future work.

- 400 warheads at ground-based intercontinental ballistic missile (ICBM) bases (some are silo-based and some are road-mobile)
- 100 warheads are **located in a central storage area at the primary nuclear weapons facility.**



The number of warheads on specific delivery systems is as follows:

- Each bomber carries six nuclear warheads.
- The ICBMs have one warhead per missile.
- The submarine-launched ballistic missiles (SLBMs) have multiple-independently targetable re-entry vehicles (MIRVs). Each SLBM carries five warheads.

Ipindovia operates six ballistic missile submarines (SSBN) each with 10 SLBMs.

Ipindovia has two different types of nuclear warheads. The same type of container is used for storage and transport of both types of nuclear warheads, (i.e., the containers have the same dimensions and weight with no distinguishing features).

### *Nuclear-Related Bases and Infrastructure*

Ipindovia possesses the following eight nuclear military bases, as shown in Figure 1:

- Seastar and Saltstar SSBN Naval Bases (30 SLBMs on three SSBNs are deployed at each base)
- Westend and Eastside Road-Mobile ICBM Bases (100 ICBMs at each base)
- Northern Light and Southern Cross Silo ICBM Bases (100 deployed warheads at each base)
- Altitude and Velocity Air Force Bases (100 deployed warheads at each base)

In addition, Ipindovia has the following other military nuclear infrastructure:

- LADDU (Lead Assembly/Disassembly Unit), Ipindovia's primary nuclear weapons facility where it conducts nuclear weapons production, refurbishment, storage (both of nuclear warheads undergoing refurbishment and warheads awaiting dismantlement), and dismantlement. This site also contains stocks of fissile material and other components for refurbishment and modernization.
- Atomic Town, a military nuclear research and development (R&D) site
- One former fissile material production facility for military use co-located at Atomic Town
- One former nuclear weapons storage location and one former nuclear weapon production site co-located at LADDU

### *Other Relevant Ipindovia Locations*

Other non-nuclear locations of potential interest in exploring future nuclear disarmament verification scenarios:

- Milville Test Range: Military munitions test site
- Zoomtown AFB: Non-nuclear air force base
- Far West AFB: Former-nuclear air force base

- Stern and Bow Naval Bases: Non-nuclear naval ports
- Arendy Research Station: Non-nuclear military R&D site
- Gigantcorp: High-tech non-nuclear industrial complex with advanced security arrangements and secure storage

## States Parties' Disarmament Obligations Under the NWRT

### Overall Disarmament Obligations

The NWRT is a multilateral treaty with both nuclear weapons-possessing and non-nuclear weapons possessing states. As a State party to the NWRT, Ipindovia is obligated to reduce its arsenal from 1,000 nuclear warheads to 500 nuclear warheads. Ipindovia is obligated to dismantle those nuclear warheads; the dismantlement of nuclear warheads as well as the absence of undeclared warheads over and above the limit of 500 are to be verified. (The Basic Scenario does not address elimination of delivery vehicles.)

The NWRT is of indefinite duration. Within 20 years of the treaty's entry into force (EIF), Ipindovia is obligated to dismantle all 500 nuclear warheads as specified in the central limits of the NWRT, in accordance with verification provisions also set out in the treaty.<sup>2</sup> The NWRT does not address the fissile material derived from the warheads or any other fissile material.

### Overall Verification Provisions of the NWRT

Verification is to be carried out by a multilateral entity, the Multi-State Verification Body (MSVB), composed of nationals from both nuclear- and non-nuclear-weapons possessing States parties to the treaty.

The parties to the agreement have provided, mainly before the EIF of the agreement or contained in its text itself, an *Initial Declaration* that specifies all nuclear weapons holdings and related sites and facilities on their territory or under their jurisdiction and control and subject to declaration under the NWRT. The verification regime includes a range of additional *declarations and notifications* to help the MSVB plan, prepare, and conduct verification activities and to track implementation of the NWRT. Broadly speaking, these are:

- **Baseline Declarations.** All parties must make a Baseline Declaration identifying all nuclear weapons on their territory or on territory under their jurisdiction or control, all facilities where nuclear weapons may be located, and other nuclear weapons-related infrastructure. The parties also are obligated to provide site diagrams of facilities subject to the NWRT.

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<sup>2</sup> In Phase I of its work, IPNDV developed a 14-step model outlining the process of dismantlement and elimination of nuclear warheads. See Working Group 5 Report, <https://www.ipndv.org/reports-analysis/working-group-5-verification-of-each-of-the-14-steps-of-nuclear-weapon-dismantlement/>.

- **Periodic Declarations.** At least annually, parties to the NWRT are obligated to provide an update of all the data contained in prior declarations to the MSVB.
- **Notifications/Ad Hoc Declarations.** Parties are obligated to notify the MSVB of changes in the locations and movement of nuclear weapons subject to the NWRT, changes to the status of declared facilities, and activities carried out to implement the obligations of the NWRT.

The NWRT provides for the following types of inspections by the MSVB:

- **Baseline Inspections.** To confirm the Baseline Declaration, associated site diagrams, and declared TAIs located at those facilities
- **Regularly Scheduled Data Confirmation Inspections.** To confirm notifications of activity under the NWRT (e.g., the movement of a nuclear warhead from one location to another)
- **Nuclear Warhead Dismantlement Inspections.** To confirm the dismantlement of a nuclear warhead (defined as the separation of the SNM and HE)
- **Short Notice Inspections.** To confirm the accuracy of declarations at operational facilities and to verify absence of non-declared TAIs at formerly declared facilities

### Specific Inspection Processes, Procedures, Techniques, and Technologies (PPTT)

The Basic Scenario states that technical measurements for the presence or absence of nuclear materials and warheads will be permitted as agreed by the parties to the NWRT. More detailed information about specific inspection PPTT is derived from earlier IPNDV analysis. For example, the Phase II report of Working Group 5<sup>3</sup> includes details about the quotas for different types of inspections, the time for the conduct of an inspection at a specific facility or base, safety and security requirements, use of inspection equipment, and limits on inspectors' access and other managed access provisions for protecting proliferation-sensitive and other sensitive information available for use by Ipindovia in hosting an inspection.

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<sup>3</sup> [https://www.ipndv.org/wp-content/uploads/2020/04/WG5-Deliverable\\_FINAL-.pdf](https://www.ipndv.org/wp-content/uploads/2020/04/WG5-Deliverable_FINAL-.pdf)

## About IPNDV the International Partnership for Nuclear Disarmament Verification

The International Partnership for Nuclear Disarmament Verification (IPNDV), through a unique public-private partnership between the U.S. Department of State and the Nuclear Threat Initiative, brings together more than 25 countries with and without nuclear weapons. In this ongoing initiative, the partners are identifying challenges associated with nuclear disarmament verification, and developing potential procedures and technologies to address those challenges. Learn more at [www.ipndv.org](http://www.ipndv.org).