After the war, the Shinjuku Botanical Garden was transferred from the imperial household to the people of Japan, and in 1949 its management came under the jurisdiction of the Ministry of Health and Welfare. On May 21, 1949, it was opened to the public as "Shinjuku Gyoen National Garden." The greenhouses were also opened to the public and no longer provide produce to the imperial family. Initially the pre-war greenhouses were repaired, after which in 1958 a large-scale remodeling created what was then the largest greenhouse in Asia. It featured a large dome 17 meters high to house palm trees.

This new greenhouse provided much more space for display and cultivation, bringing the greenhouses in line with other major botanical gardens around the world. The popularity of the greenhouses with the public increased, and the facilities set the standard for corporate and municipal greenhouse construction.

In 1965 the subtropical specimen greenhouse was completed, and in 1971 Shinjuku Gyoen was transferred to the jurisdiction of the Environment Agency (now the Ministry of the Environment). In 1975 a new greenhouse for cultivation was completed. Orchids and other rare plants were grown here, and many varieties of greenhouse orchids were exhibited, often to wide acclaim. In 2012, the greenhouses used for display were replaced with a new greenhouse, which provides space for growing and displaying both tropical and subtropical plants and an environment suitable for the display and preservation of plants in danger of extinction.