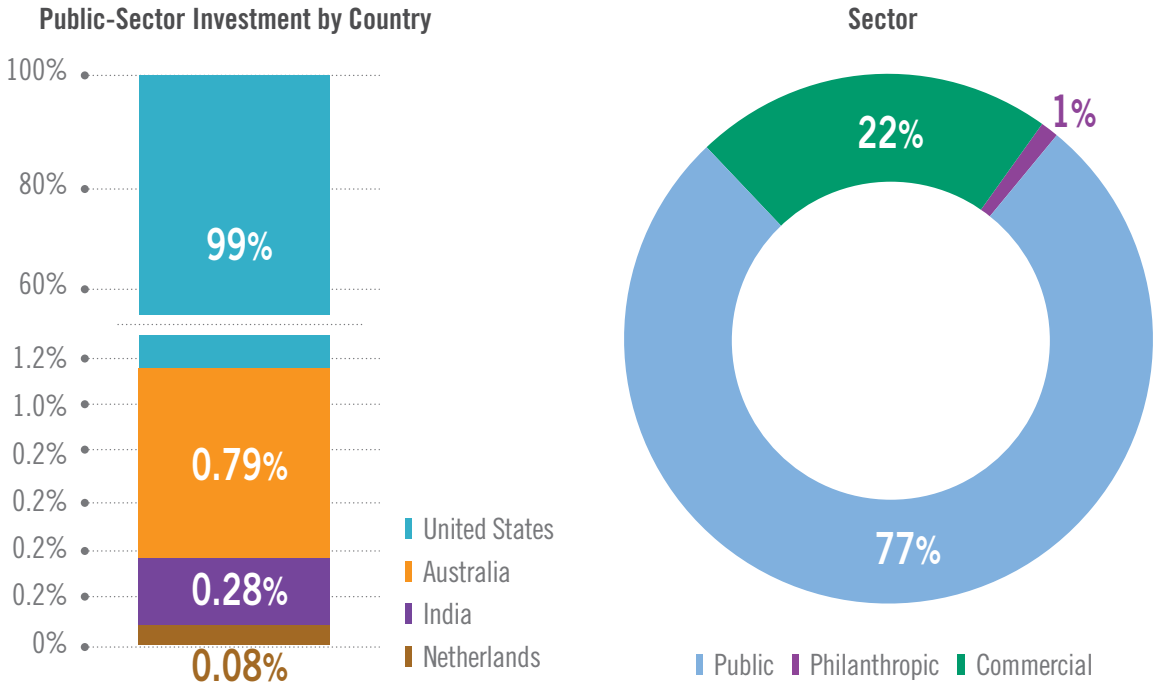
## 2.2 Global investments in multipurpose prevention technology research and development

In 2015, as in 2014, the Working Group partnered with CAMI Health to collect and analyze data on grants for multipurpose prevention technologies (MPTs). In 2014, overall investments totaled US$32 million, a 39 percent increase from the US$22.8 million reported in 2013.[34] As of 2015, that investment figure had risen to US$48 million, 1.5 times the 2014 investment level.

The US public sector provided more than half of MPT funding (59 percent) in 2014, and an even higher proportion in 2015 when it accounted for 86 percent of the total and 99 percent of public funding *(Figure 21).* In both years, as well as in 2013, USAID and NIH were the primary US public-sector MPT R&D funders; the European public sector, primarily the European Commission, accounted for 3.1 percent in 2014 and dropped its support to less than one percent in 2015, when it was represented solely by the government of the Netherlands. The predominant philanthropic source of MPT R&D support in 2013, 2014 and 2015 was the BMGF, with the Wellcome Trust the source of European philanthropic-sector support in 2014. The Female Health Company was the major source of commercial investments in MPTs from 2013 through 2015.

In sum, the United States, primarily its public sector, accounted for over 85 percent of all investments in multipurpose prevention technologies in 2013, 2014 and 2015, with the NIH being the largest contributor in all three years. The primary recipients of this public-sector support continue to be nonprofit entities such as CONRAD and the Population Council; academic research groups, such as the Albert Einstein College of Medicine, University of Louisville and University of Pittsburgh; and small biotechs such as Auritec, ImQuest and Mapp Biopharmaceutical.

FIGURE 21 **Investments in Multipurpose Prevention Technologies by Country and Sector, 2015**



The goal of MPT research is the development of single products that simultaneously protect women from multiple health risks by combining protection from unintended pregnancy and protection from one or more sexually transmitted infections, importantly, though not exclusively, HIV. The only prevention technologies available in today's marketplace that can be defined as MPTs are male and female condoms, which can provide protection against both HIV and pregnancy — of particular importance in countries heavily burdened by HIV and maternal and infant mortality — but they have limitations in use that constrain their effectiveness.

MPT R&D is taking place from the earliest stages of preclinical testing and into Phase I trials, and includes a wide range of formulations and delivery systems for both sustained-release and on-demand use.[35] These include combinations of antiviral agents, including lectins and monoclonal antibodies; intravaginal rings in various configurations, vaginal gels, vaginal and rectal films and fast-dissolving tablets; and new delivery strategies, such as nanofiber platforms and long-acting PrEP formulations that could form the basis for long-acting injectables. The MPT pipeline also includes modifications of female condoms to incorporate protection against HIV and other STIs known to facilitate HIV transmission.

Attention to and progress in MPT R&D have been considerable, especially over the past three years. Still, this new field confronts the usual dilemmas in the development of any new health technology, especially combination products with their particular regulatory implications. It also faces inherently difficult questions in fields traditionally unlinked from one another, each with its own complex history and realities, including the need to rely so critically on user behavior. To address these challenges with maximum rigor and bring clarity and focus to the path ahead, special effort has been devoted to specifying Target Product Profiles (TPP) for the desired attributes of each MPT prevention indication and corresponding dosage form for specific user populations. These are already proving useful in collaboration and communication among donors and developers and with representatives from prospective user settings, and they should continue to inform investment decisions going forward.