

SCENARIO 1

PICKING A TEST CASE

Gene Drive Solutions, Inc. (GDSI) is a young start-up that specializes in using gene drives to eliminate invasive species in localized areas without threatening the species' broader population. GDSI recently developed an "infertility gene" for a species of rat. The technology works by pushing inheritance rates for infertility in female rats to over 90 percent. Every female rat born with the infertility gene cannot reproduce, and every male rat born with the gene is a carrier for spreading the trait to the next generation. Over a few generations' time, an affected population can be driven to extinction. This specific gene drive has been extensively tested in laboratory settings, and the development team is confident ($p < 0.05$) it is ready for real world application.

Throughout the development process, it was assumed the first use would take place in New Wyland. GDSI's largest investors are an environmentalist foundation based in New Wyland and the government of New Wyland, and the country is a natural choice for many reasons:

- It is a remote island chain, which makes it easier to prevent the gene drive from spreading beyond the targeted population.
- The rats are not native to the islands, having arrived on European ships in the late 1700s.
- The rats are a threat to several endangered species only found on the islands.
- The islands already spend a substantial amount of money on less effective forms of pest control to keep the rat population from exploding.

NEW WYLAND

Population	4.8 million
Per Capita GDP	\$42,200
Anticipated Benefits	<ul style="list-style-type: none">• Increased income from tourism, decreased pest control expenses, etc. (est. \$800 per capita)• Prevent the extinction of several bird species only found on the island
Public Support	2018 poll: 68 percent in favor, 32 percent opposed. 2020 poll: 66 percent in favor, 34 percent opposed. 2022 poll: 42 percent in favor, 58 percent opposed.

Equatorial Mbinia is a Central African country comprising a mainland region in addition to offshore inhabited islands (the capital of the country is located on the largest of the islands). The islands of this nation suffer from an invasive rat problem as well. The rats, which were brought over on Dutch slavers' ships in the late seventeenth century, cause tremendous damage to the country's farmers and pose a public health hazard. Despite the benefits promised by rodent elimination, the Mbinians are even less inclined to allow GDSI to release modified rats in their country than are the Wylanders. Mbinian opposition is evenly split between two groups. One group, like the Wylanders, opposes GDSI's plan due to the risks involved. The perception of the plan's riskiness is exacerbated by Mbinian's historical distrust of Western science and business interests. However, if a Western country (like New Wyland) were to test the technology first, they could be persuaded to embrace it. The other source of opposition is the country's significant religious fundamentalist population. The fundamentalists argue that GDSI is interfering with God's plan by deciding which species deserve to live and die. These people would not be persuaded to accept GDSI's services even if it was proven safe elsewhere first. Although a clear majority of the population is opposed to using the gene drive, the Mbinian dictator, His

Excellency, President for Life, Generalissimo Johnson, is a vocal advocate for using a gene drive to solve the country's rat problem. He has repeatedly made the case to the public that GDSI's technology could jump-start the country's economy and save tens of thousands of lives. In fact, he's even framing it as an ethical imperative for GDSI to work with Mbini as a form of reparations for historical injustices perpetrated by the West. Less publicly, however, the generalissimo has demanded that the company pay him a small "friendship fee" of two million U.S. dollars to gain access to his country as a test case. The bribe would be a drop in the bucket for GDSI, as long as it can secure a contract with New Wyland by proving its technology's safety. What is more, the economic benefits of rat elimination to the Mbinian people could be life changing.

WHAT ACTION SHOULD GDSI TAKE?

- A Delay deployment of the technology by two years to collect further safety data in more lab based trials, then try again to convince New Wyland to be the test case.
- B Bribe the generalissimo, using Equatorial Mbini as the test case. Hopefully it will lead New Wyland to change its mind and become a second adopter.
- C Have GDSI lobbyists pressure Parliament to ignore public opinion and move quickly to test the technology in New Wyland anyway. Ignore the generalissimo's offer.
- D Bribe the generalissimo and aggressively lobby Parliament to ignore public opinion, using both nations as simultaneous test cases.

DECISION 1

PICKING A TEST CASE

OPTION	# OF VOTES	REASONING
A		
B		
C		
D		

CONSEQUENCES

Dice Roll: _____

Lives Lost/Saved:

Initial GDSI Stock Price: \$100 / share

Resulting Stock Price: \$____ / share

GDP Lost/Gained:

Other: