Matthew and I negate; resolved: Prioritizing economic development over environmental protection is in the best interest of the people of India.

Observation One: To prioritize means that one is put before another. Thus, evaluating a policy of priority implies that the Pro cannot advocate for a world in which both are done.

Observation Two: The Pro must demonstrate merits of prioritizing development over environmental protection, rather than doing both or merely environmental protection. Absent a clear reason to prioritize one over the other, you negate.

Contention One: Water scarcity in India undermines growth and stability.

There are two links.

The first is urbanization. **The Central Pollution Control Board writes**

Urbanization has encouraged the migration of people from villages to the urban areas in India. **With exponential growth in urbanization,** a number of environmental problems have emerged. For improving standards of life, running water-supply has been established in most of the cities/towns and even in some villages over the past three decades in India. This has, in turn, led to flush-latrines and much large use of water in homes for bathing, washing of clothes utensils etc, generating significant amount of wastewater. Use of soaps, detergents and amounts of various food materials going to the sink have also grown with improved life standards. Unfortunately, due to paucity of resources sewerage or improved sanitation did not get much attention. Hence **sewerage has lagged far behind water supply.** A large number of the cities/towns either do not have any sewerage system or the sewerage system is overloaded or defunct. **Even where sewers exist, they often leak or overflow**, releasing their contents to stormwater or other surface drains or percolate in to soil to reach ground-water. **Thus a bulk of pollution gets retained on land to** percolate, leach or **get washed-off to streams or groundwater.**

Moreover, treatment or filtration of water for consumption can effectively operate as environmental protection because polluted water can't return back to the water source.

The second link is damming. **Ithaca College explains**

Damming and draining of rivers to supply irrigation and urban area's water supplies **is affecting** the world's major rivers. According to the World Commission on Water in the 21st Century, **half of the [world's] major rivers [which] are going dry part of the year or are seriously polluted.**

Furthermore, the way to prevent the problem from occurring is to simply end damming because it already exists as a harmful practice.

There are two impacts.

The first is on the Indian youth. **Daniel Pepper impacts**

The costs to the economy are enormous. **Waterborne diseases are India's leading cause of childhood mortality.** Shreekant Gupta, a professor at the Delhi School of Economics who specializes in the environment, estimates that **lost productivity** from death and disease resulting from river pollution and other environmental damage **is equivalent to about 4 percent of gross domestic product.** "Some of this feeling of euphoria," he says of India's 9 percent growth rate, "gets a bit dampened thinking of environmental degradation."

This is a problem directly related to water scarcity as it forces many to resort to utilizing non-potable drinking water.

The University of East Anglia furthers

They found that during the dry period, **children without access to clean water were about 2.5 times more likely to be absent from school** than children where water was provided.
Education is one of the most important factors that **enables children to** fulfill their potential later in life and **reduce poverty. Better education is also associated with substantial health gains** – especially for child health in future generations and in reducing child mortality. However, even when schooling is available, absenteeism rates can be high. Clearly reducing student absenteeism is vital to improve educational attainment and alleviate poverty.

The second is of conflict, which can be sparked by water scarcity. **David Michel corroborates**
Historically, warring states often made use of existing water resources to threaten the opposing country by poisoning wells or controlling access to water supplies that were not necessarily scarce. By contrast, **recent conflicts over water have increasingly been triggered by genuine shortage** more so than by accessibility. This is a worrying sign. **No longer merely a tool of political or military advantage, the control of water supplies increasingly constitutes the spark or object of civil strife or open conflict.**

Contention Two: Conservation of the tree species *Moringa* is imperative.

Deforestation is an unavoidable harm of economic development because of competition for land resources. **Robert Walker explains**
Despite the importance of the tropical forest biome from an ecological perspective, **forest cover competes directly with** the primary factor of agricultural production, namely **land. Development processes necessarily involve landscape changes as land is put to different and evolving uses** in response to demographic phenomena, technological change, and shifts in consumer preferences. Indeed, **substantial deforestation has occurred in the** so-called **developed world**, a fact often overlooked in discussions on tropical deforestation. Of the various forest types, the greatest deforestation losses have been realized in temperate closed forest, which has declined by 32 to 35 percent since pre-agricultural times. By way of contrast, tropical evergreen forests have declined (as of 1988) by 4 to 6 percent (Repetto 1988: 3).1

This is an ongoing trend which applies to the Moringa species as well. **Katherine Stephenson furthers**
The preservation of the Moringa species is thus **of great concern** from biodiversity, ethnobotanical, dietary and pharmacological perspectives. There are tremendous potential opportunities with M. oleifera for sustainable agriculture, and the development of cash crops in semi- arid regions. Though less well studied, all of the Moringa species now in the wild have local medicinal uses (M. Olson pers. comm.) **but [they] could readily become casualties of the ongoing decline in biodiversity.** Sexual propagation of some of these species would be tedious and would not even be possible without having enough individual plants for cross-pollination. Since flowering of a number of the large tree species of Moringa does not even commence until a critical size is attained-highly unlikely to occur with multiple trees in a greenhouse-tissue culture may be the only practical way to cultivate these trees outside the tropics. Additionally, there are only one or a few individuals of the other Moringa species (M. concanensis, M. ruspoliana and M. ar- borea) in cultivation in the United States (M. Olson pers. comm.). Amplification of these rare individuals by tissue culture propagation would make them more widely available and less likely to become lost to cultivation. Thus developing tissue culture methods for this genus is urgent.

Moringa trees are uniquely beneficial in India. **The Food and Agriculture Organization details**
In a country where hundreds of debt-ridden farmers routinely take their lives after their crops fail, growing drumsticks may be a solution. The drumstick tree (**Moringa** oleifera) is one of India's most common trees, with a vegetable crop of triangular, ribbed pods with winged seeds. The tree's bark, roots, fruit, flowers, leaves, seeds and gum also have medicinal uses including as an antiseptic and in treating rheumatism, venomous bites and other conditions. Growing drumsticks **makes** eminent good **sense in a country such as India with patchy irrigation systems.** Drumsticks **[Moringa] can be grown using rainwater without expensive irrigation techniques since the yield is good even if the water supply is not.**

The impact of conservation is three-fold.

First, it can restore nutrients to depleted soil. **S.A. Emmanuel compounds**
However Moringa is one of the most useful tropical trees. **The relative ease with which it propagates** through both sexual and asexual means **and its low demand for soil nutrients and water after being planted makes its production and**

management easy. Introduction of this plant into a farm which has a biodiverse environment can be beneficial for both the owner of the farm and the surrounding ecosystem (Foidl et al 2001). **Organic fertilizers derived from Moringa** Oliefera **seed** processed with the right procedure **can increase the soil aeration and richness of** indigenous invertebrates, specialized **endangered soil species**, beneficial arthropods, earthworms, symbionts**and microbes** (FAO, 2010).

Second, it can combat malnourishment. **Silver continues**
Moringa trees have been used to combat malnutrition, especially among infants and nursing mothers. Three non-governmental organizations in particular have advocated Moringa as "natural nutrition for the tropics." **Leaves can** be eaten fresh, cooked, or **stored** as dried powder **for many months without refrigeration**, and reportedly without**[or] loss of nutritional value. Moringa is especially promising** as a food source in the tropics **because the tree is in full leaf at the end of the dry season when other foods are typically scarce.**

Third, water purification can naturally be accomplished with Moringa seeds. **Vinod Kapoor impacts**
Using natural materials to clarify water is a technique that has been practiced for centuries and of all the materials that have been used, **seeds of the Moringa have been found to be one of the most effective [to clarify water]. Studies** have been conducted since the early 1970's to test the effectiveness of Moringa seeds for treating water (Paterniani et al. 2010). These studies **have confirmed that the seeds are highly effective in removing suspended particles from water with medium to high levels of turbidity** (Moringa seeds are less effective at treating water with low levels of turbidity).

Contention Three: Cleaning coal can improve output.

A problem exists with current coal burning. **Maureen Cropper initializes**
India relies on coal to supply 70 percent of its electricity and is likely to continue this dependence for many years to come. Almost 300 million Indians are without access to electricity, and the existing supply falls 10 percent short of the demand during peak hours. Determined to maintain the recent high rates of economic growth, India has set ambitious goals to increase electricity generation capacity by either taking advantage of its domestic coal reserves or, failing that, importing large volumes of coal. But the increased use of cheap coal resources comes at a heavy cost. Our results suggest that, on average, premature deaths per ton of pollution are greater for directly emitted particulate matter than for SO2 or NOx. **An average of 23 people die per 1,000 tons of particulate matter emitted.** By comparison, an average of 10 people die per 1,000 tons of SO2 emitted, and 9 people die per 1,000 tons of NOx emitted.

Contrary to low-quality coal, India could wash or beneficiate the coal. **Craig Zamuda continues**
Indian coals are of poor quality and often contain 30-50% ash when shipped to power stations. In addition, over time the calorific value and the ash content of thermal coals in India have deteriorated as the better quality coal reserves are depleted and surface mining and mechanization expand. This poses significant challenges. Transporting large amounts of ash-forming minerals wastes energy and creates shortages of rail cars and port facilities. A **low-quality**, high-ash **coal also creates problems for** power stations, including erosion in parts and materials, difficulty in pulverization, poor emissivity and flame temperature, low radiative transfer, and **excessive amounts of** fly ash containing large amounts of **unburned carbons.** On the other hand, **the benefits of using beneficiated coal** are well documented and **include** reductions in erosion rates and maintenance costs in power plants, and **increases in thermal efficiencies and reduction in CO2 emissions.** Further, if IGCC or supercritical PCC is used in the future, the thermal efficiency can be further increased resulting in even greater GHG reductions. However, use of these state-of-the-art technologies requires consistent supply of clean coal to achieve the maximum overall thermal efficiencies. Even fluidized bed combustors (FBC), which are capable of burning lowergrade coals, would operate more efficiently with higher-grade coals.

Cropper impacts
To illustrate the significant health benefits of coal washing, we also estimated the decline in premature mortality for the Rihand plant in Uttar Pradesh—a plant that is not currently required to use washed coal—if it were to adopt this practice. Rihand is a 2,000-megawatt plant that in 2008 produced 17,000 gigawatts of electricity, using coal with a sulfur content of 0.39 percent and an ash content of 43 percent. We considered **a coal-washing program** that would reduce the ash content of coal burned at the plant to 35 percent. This also **would reduce the sulfur content of coal to 0.34 percent**

and, by raising the heating value of the coal, **would reduce the amount of coal burned to produce the same amount of electricity by 14 percent.**

By our calculations, this coal-washing program would save approximately 250 lives annually and raise electricity prices by 16 percent. Coal washing has other benefits than lives saved. For example, **washing coal at the pit would [also] reduce transportation costs.** Ignoring these other benefits, the cost per life saved is US$250,000. The decline in fatality is due to a 30 percent reduction in emissions of directly emitted particulate matter, which saves 13 lives, and a 25 percent reduction in SO2 emissions, which saves 238 lives. Most of the reductions in emissions of particulate matter and SO2 occur because less coal needs be burned to generate electricity when the coal has been washed.