



Economics in concert with the environment...

Natural Capital

An economic approach to
planning for the Future of
Chatham County



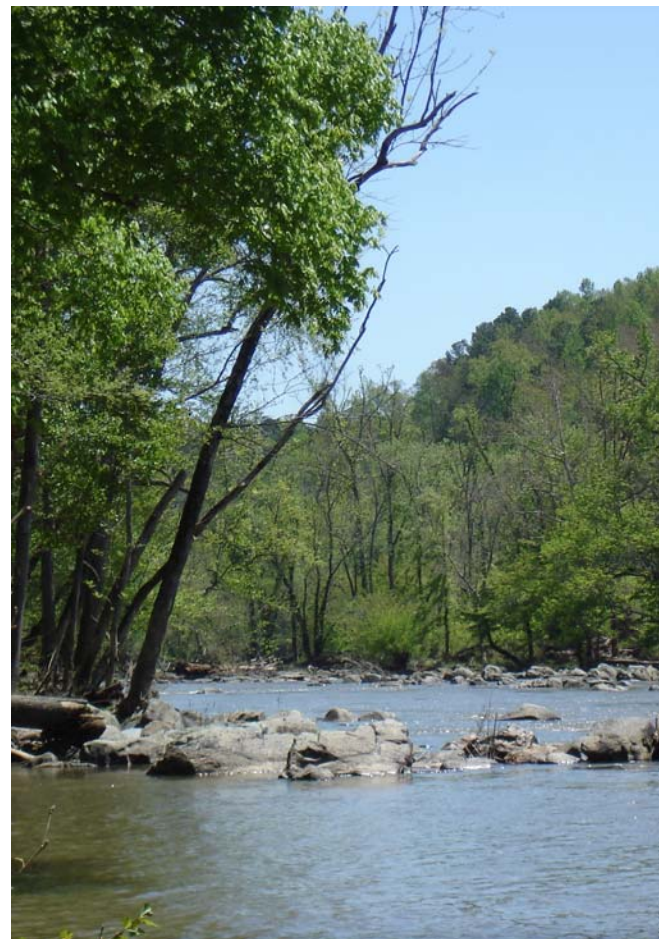
A Chatham County Climate Change Advisory Committee Presentation



What is...

Natural Capital

Natural Capital, also known as “ecosystem services” refers to the benefits that flow from nature to people, e.g., nature’s contributions to the production of food and timber; life-support processes, such as water purification and coastal protection; and life-fulfilling benefits, such as places to recreate.





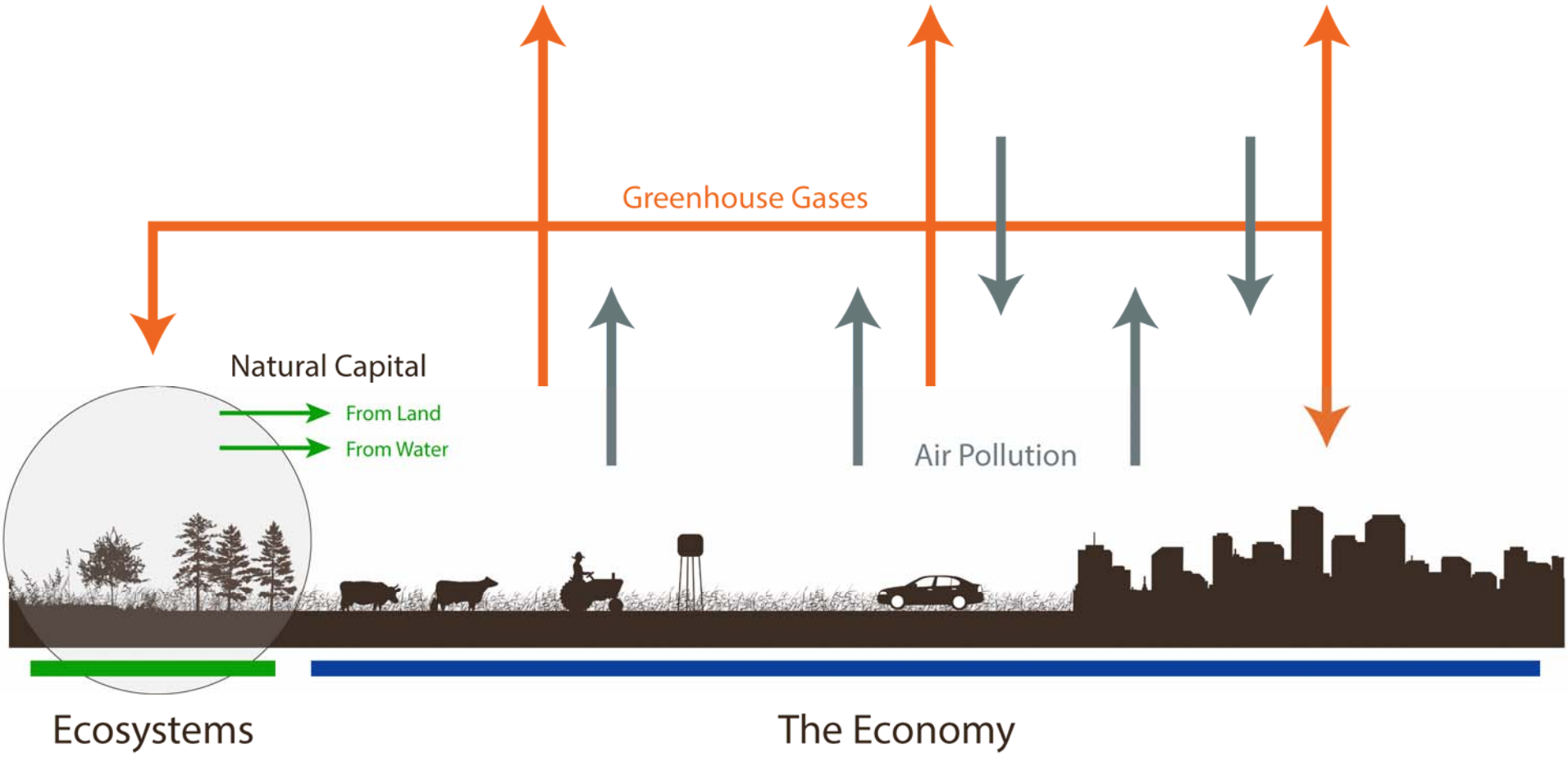
Nature's Economics

- ❖ Non-marketed Goods: The environment provides many goods that are not always sold but are of value - e.g. fuel wood, meat and fish, medicinal plants, building materials
- ❖ Non-Marketed Services: e.g. watershed protection by forest filtration
- ❖ Consumption of Natural Capital: wood, water, meat and fish, medicines, minerals, etc.
- ❖ Environmental Expenditure: Expenditure to protect the environment from harm



Natural Capital

Recognizes the interconnectedness of the environment, society and the economy.





Why is Natural Capital important to Chatham County?



We have a LOT of it!



What is it worth?

United Nations 2011 report:

Global Environmental Impacts are valued at
\$6.6 trillion or 11% of the global GDP.

Impacts & Natural Capital





Health

“Climate change will affect, in profoundly adverse ways, some of the most fundamental determinants of health: food, air and water.”

–World Health Organization, January 2009

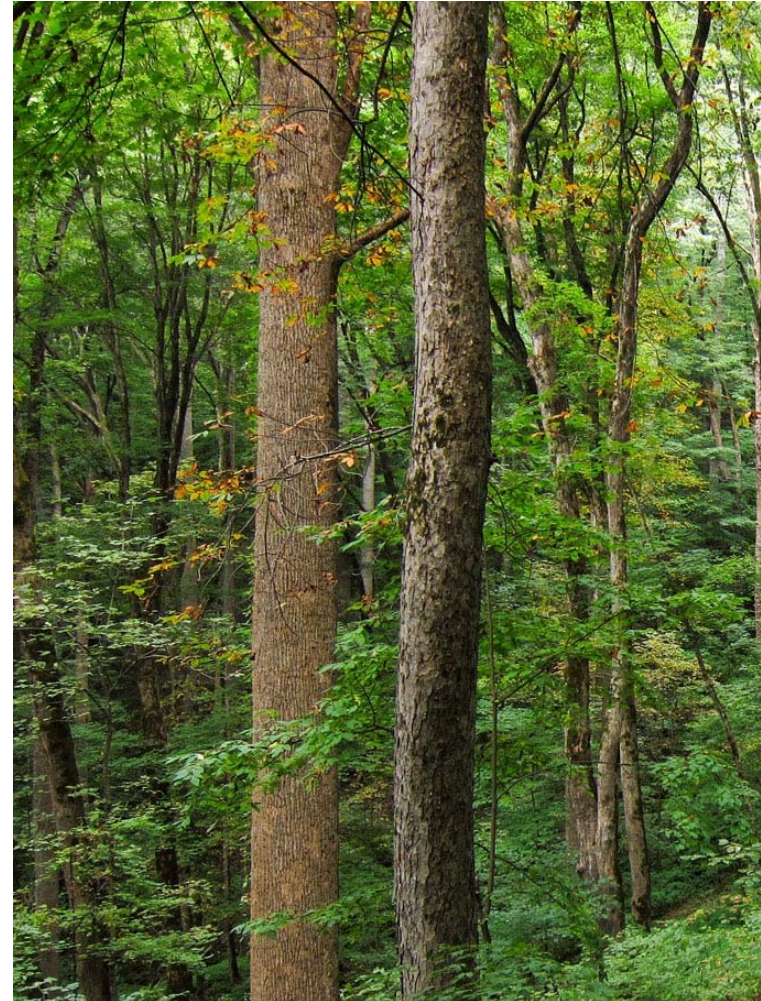


Impacts on

Health

Built Environment

- ❖ Emotional Wellbeing
- ❖ Mental Wellbeing
- ❖ Physical Wellbeing



Neighborhood greenspace and health in a large urban center: <http://www.nature.com/articles/srep11610>



Impacts on

Health

Air Quality

- ❖ Asthma, emphysema, lung disorders
- ❖ Heart disease and strokes
- ❖ Lung cancer
- ❖ 3.7 premature deaths (WHO 2012)
- ❖ Changing future of Chatham



WHO Ambient (outdoor) air quality and health: <http://www.who.int/mediacentre/factsheets/fs313/en/>



Impacts on

Health

Water

- ❖ Recreation water areas
- ❖ Waterborne pathogens
- ❖ Harmful algal and cyanobacterias blooms
- ❖ Extreme weather events
- ❖ Increased nitrogen, fish kills



Jordan Lake after an extreme weather event.

Impacts on

Health

Food

- ❖ Lower nutritional value
- ❖ Presence of toxic chemicals
- ❖ Cancer and other health-related risks



Impacts on

Health

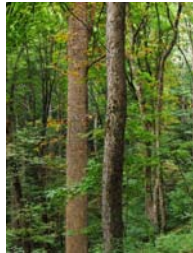
Pests

- ❖ Insect Vectors - Loss of Habitat
- ❖ Ticks, mosquitos, fleas ...
- ❖ Viruses, bacteria, protozoa



Economics \$ Health

- ❖ Accounts for 17.5% Nations GDP
- ❖ Lower healthcare costs
- ❖ Increased prosperity of citizens





Water

“Short-term droughts are expected to intensify in most U.S. regions. Longer-term droughts are expected to intensify in large areas of the Southwest, southern Great Plains, and Southeast.”

– *GlobalChange.gov 2016*

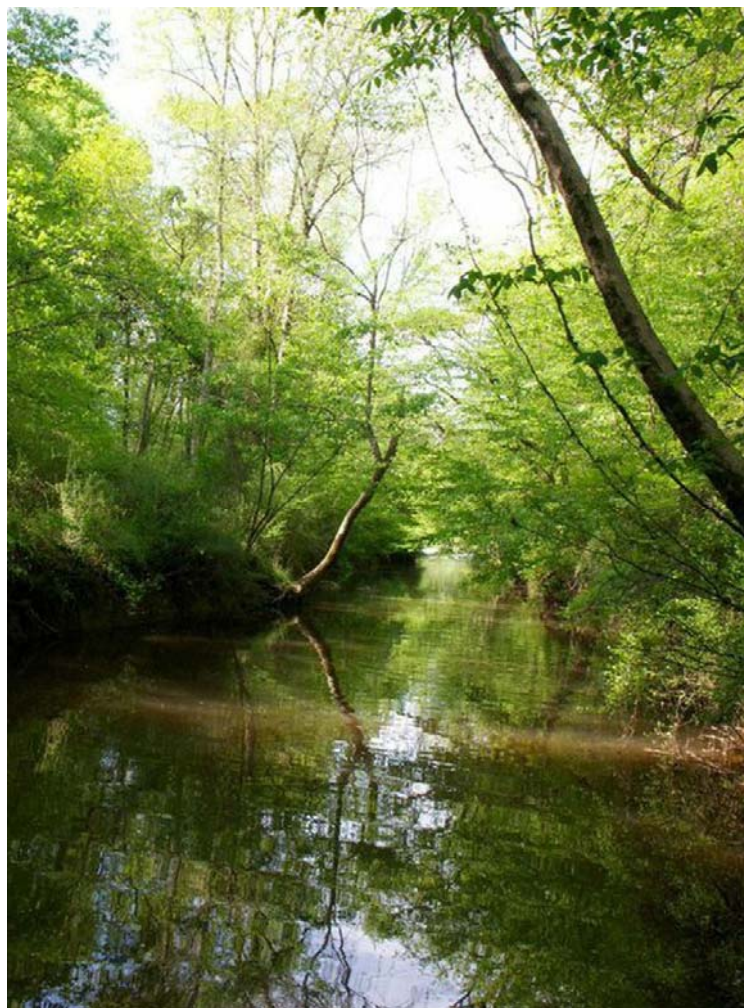


Impacts on

Water

Forests and Water

- ❖ Natural filtration/purification
- ❖ Groundwater Recharge
- ❖ Biodiversity protection
- ❖ Stormwater/flood protection
- ❖ Increase in extreme weather events
- ❖ Natural water infrastructure





Economics \$ Water

- ❖ Lower costs of water treatment
 - ❖ Free stormwater management
 - ❖ Lower flooding impacts
-





Agriculture

Agricultural GHG emissions make up about 25% of global emissions. It is important to study the ways we allocate land for farming and reconsider the impacts of what we farm and the capital investments associated with agriculture.



Impacts on

Agriculture

Food Crops - Organic

- ❖ Healthier food product
- ❖ Savings on chemical fertilizers and pesticides
- ❖ Soils become natural sequester of carbon



Impacts on

Agriculture

Increased CO₂

- ❖ More plant pests
- ❖ Lower nutritional value
- ❖ Lower crop yields

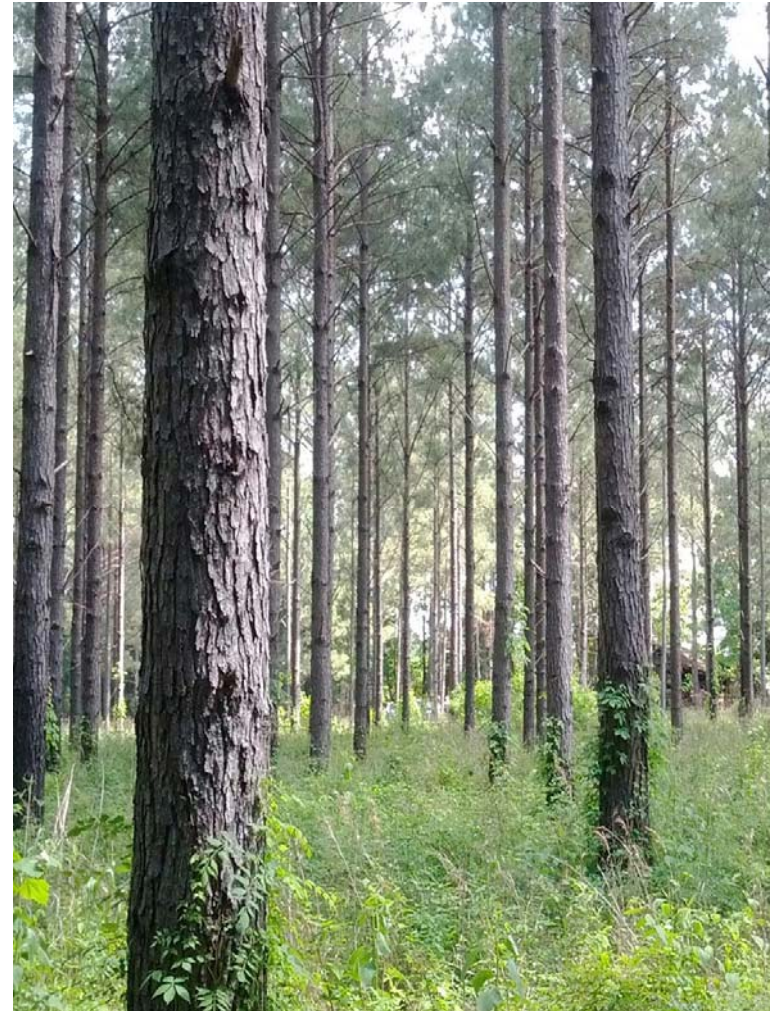


Impacts on

Agriculture

Timber

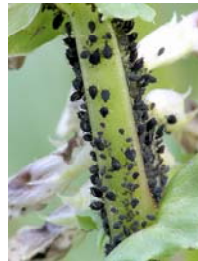
- ❖ Reduced timber yields
- ❖ Increased pest infestations
- ❖ Trees are a major natural carbon sink
- ❖ Soil under trees is a natural carbon sink
- ❖ Modern Forest Management





Economics \$ Agriculture

- ❖ Improvements in farming
- ❖ Increased crop yields
- ❖ Improved timber management





Transportation

“Continuing to invest in incomplete streets will prevent people from using options such as walking, bicycling, or hopping on a bus or train.”

– *Smart Growth America 2016*



Impacts on

Transportation

Traffic

- ❖ Increases pollution and GHGs
- ❖ Instead, promote buying local
- ❖ Instead, promote local businesses
- ❖ Design “Complete Streets”
- ❖ Plan to decrease, not increase





Economics \$ Transportation

- ❖ Road construction/maintenance
- ❖ Healthier Public
- ❖ Improved traffic safety



Recommendations

- ❖ Identify and quantify the Natural Capital/Ecosystem Services currently present in Chatham County
- ❖ Develop a plan to protect and improve upon our Natural Capital and specify these areas in the Comprehensive Plan
- ❖ Include an evaluation of the costs and benefits of a proposed use of an ecosystem to our local economy (services lost) as part of the development approval process in the Comprehensive Plan.
- ❖ Identify opportunities to promote, support and educate citizens, business owners, farmers and local governments.