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Human well-being, ecosystem services and watershed management in the Credit River Valley:

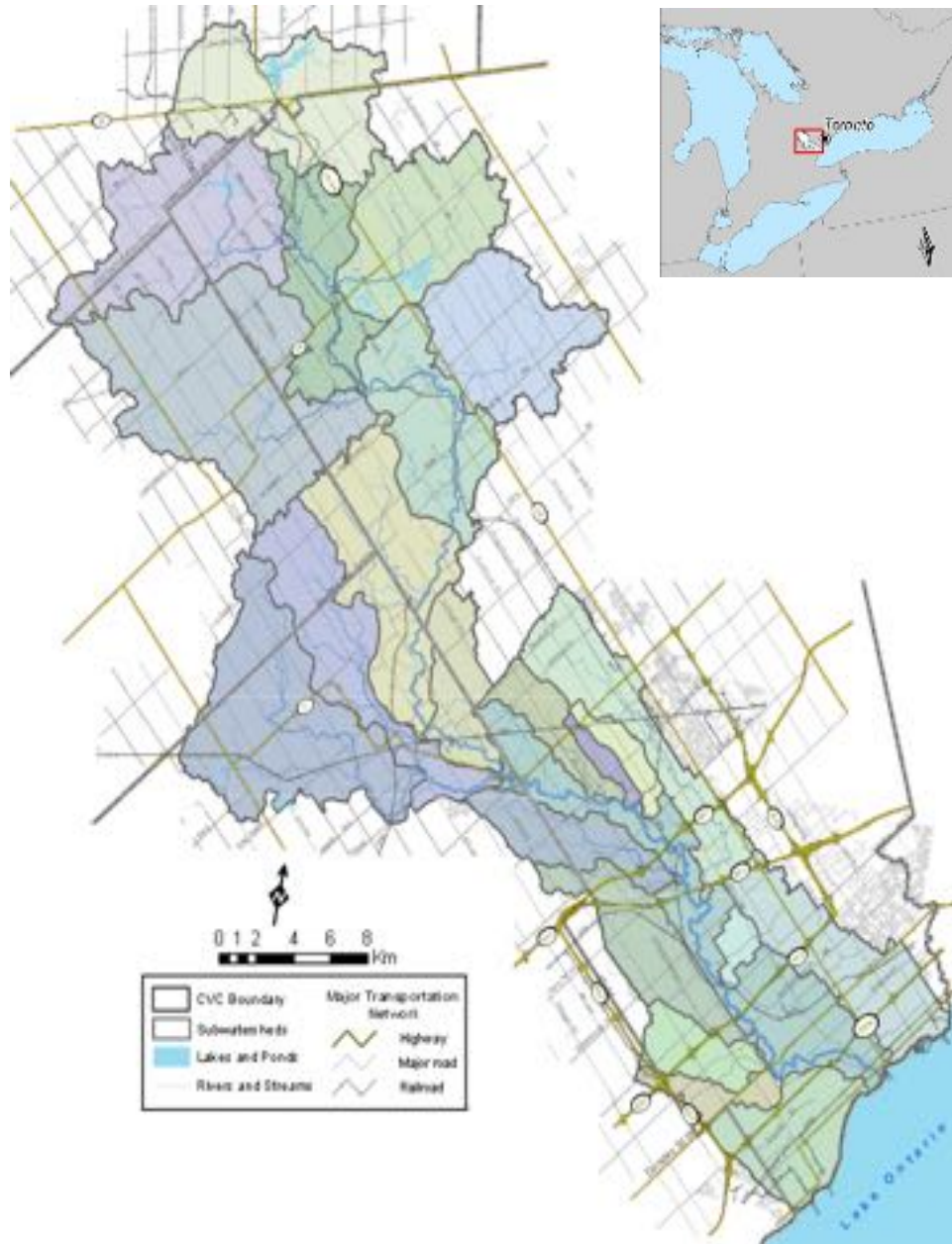
Web-distributed mechanisms and indicators for communication and awareness

Alvaro Palazuelos and Mike Puddister

WEPGN AGM 3 Sept. 2015



Credit River Watershed



~1000 km² land area
~1500 km of tributaries

Protected areas:

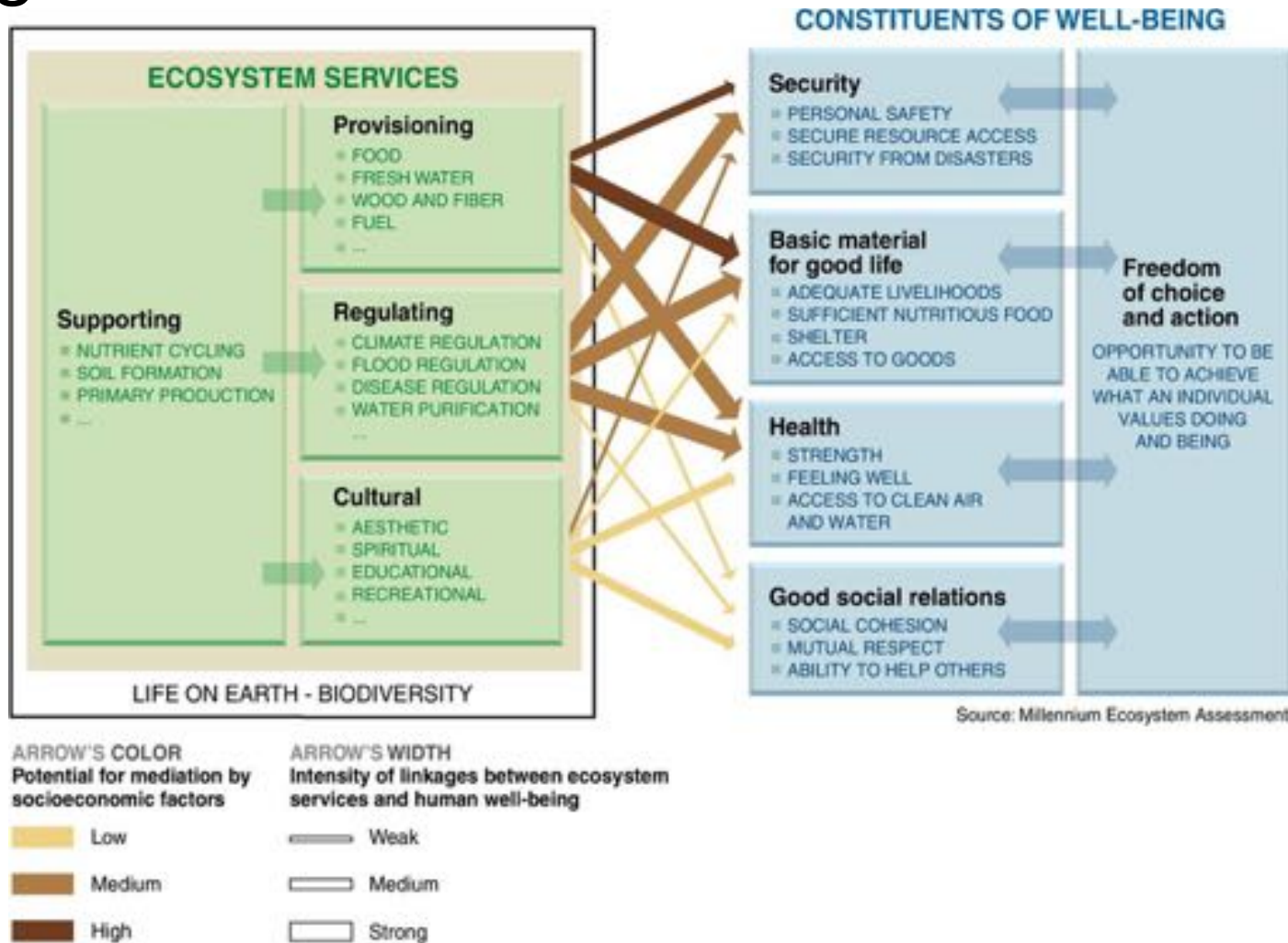
- Niagara Escarpment
- Oak Ridges Moraine
- Green Belt

Challenges:

- Toronto urban agglomeration
- Multiple municipal jurisdictions
- Rapid urbanization
- Climate change

Relationships between environment and well-being

Corvalan, C., S. Hales & A. McMichael. 2005. *Ecosystems and Human Well-Being: Health Synthesis*. Geneva: WHO.

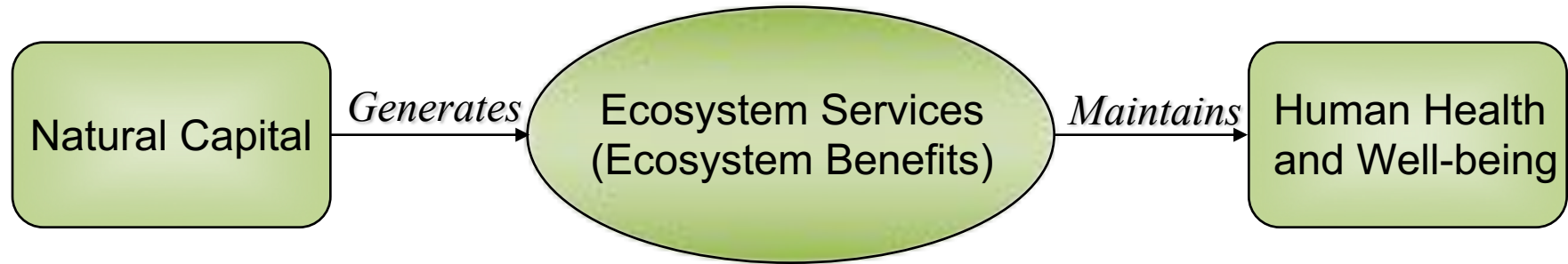


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Ecosystem Benefits in the Credit River Watershed



- Rivers and Streams
- Forests
- Wetlands
- Meadows



- Physical
- Mental
- Social
- Economic

Project Objectives and Updates

Partnership between York University and Credit Valley Conservation Authority

Goal: to explore and report on the relationship between watershed ecosystem health and human health and well-being

Objectives:

- Design conceptual framework - **developed**
- Identify a set of indicators of human well-being that connect to ecosystem services - **developed**
- Produce watershed-wide web-based GIS tool/map to report on the well-being indicators – **developed**
- Assess efficacy of the GIS tool to communicate the CA's impact on well-being of local residents – **developed**
- Develop a set of scenarios to demonstrate how watershed management practices affect well-being of local residents - **to be developed (phase II)**
- Further develop the web-GIS tool as the platform for scenario building (Phase II) - **to be developed (phase II)**
- To measure/evaluate key ecosystem services with respect to human health and well-being – **to be developed (phase II and beyond)**
- To monitor changes in ecosystem services and human well-being over time at different scales– **to be developed (phase II and beyond)**



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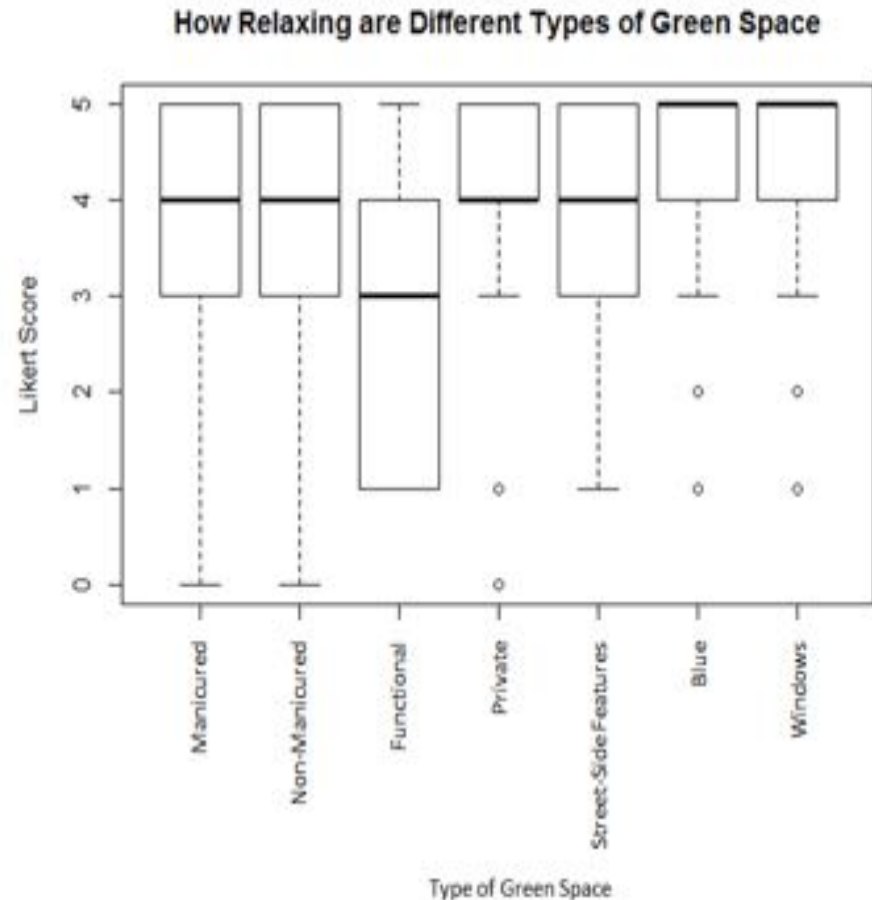


Surveys, Focus Groups...

Access
How important are these ideas to you?

● Very Important
● Somewhat Important
● Not Important At All

Indicators	Your ranking
From the survey 1. Distance from your place of residence to the nearest park or open space.	●
2. Number of parks and green space with parking and wheelchair accessible trails.	●
3. Number of access points and trails in your neighbourhood.	●
Discussion Tonight 4. Number of trails by type, for example: walking or hiking, biking	●
5. Distance of different types of green space such as golf courses from your home	●
6.	



Extracted from A. Belaski (2014) The Role of Conservation in Health Promotion: Investigating Mental Well-Being in the Credit River Watershed, presented at WatIF Graduate Conference, 12 May 2014, Queens University, Kingston, ON

Governance stakeholders



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Your Health & the Watershed

Natural areas such as wetlands and forests mitigate the movement of water through the landscape, protecting against floods



Health & Well-being

Ecosystem Services

My Stories

Web Map



Explore

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[Ecosystem Services](#)
[Watershed Map](#)

Share

[Your Stories](#)

Tools

[About](#)
[Contact us](#)
[User accounts](#)
[Administration](#)

Partners



The CVC browser: physical activity and obesity information with outside recreational facility data

Well-being and Your Watershed: Credit River



Home Well-Being Ecosystem Services Your Stories

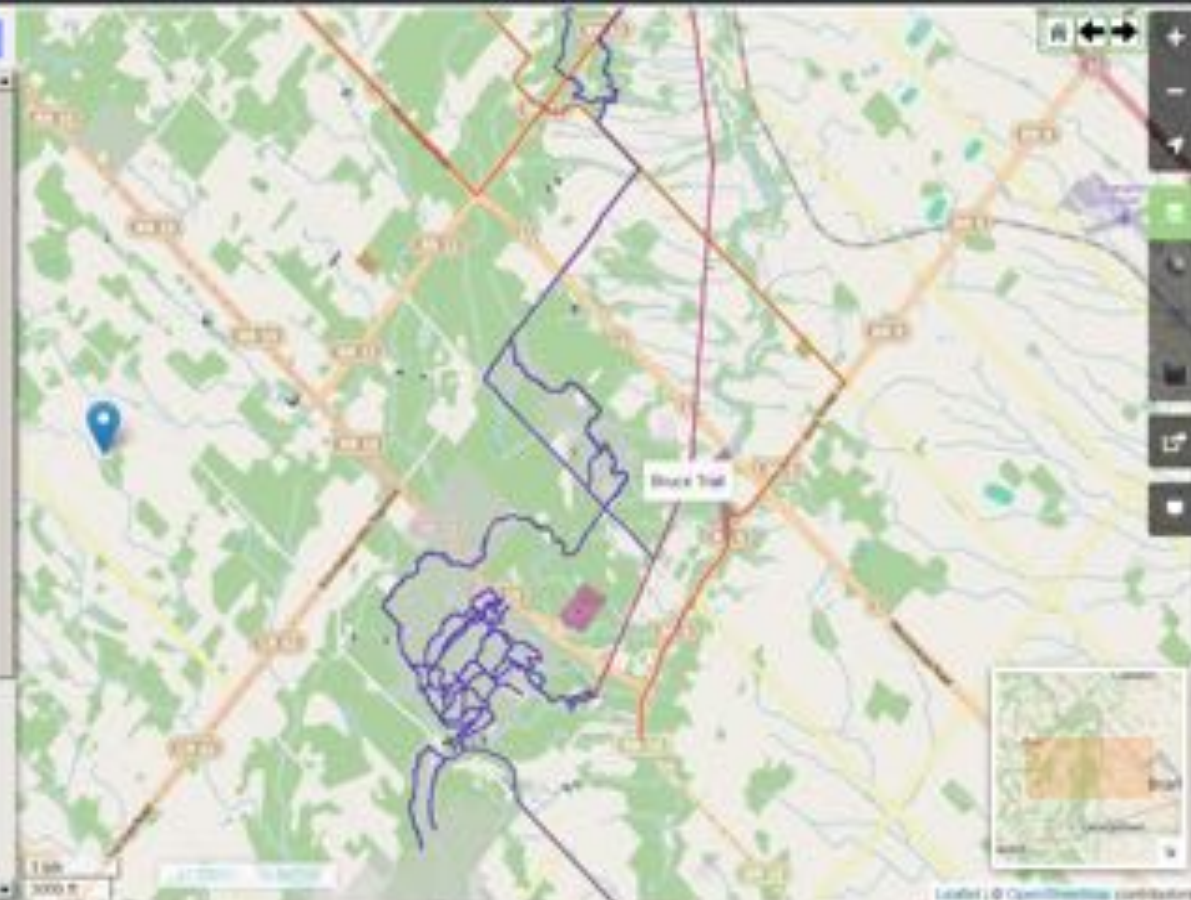
Viewing Scale Help Login

Search

GREEN SPACES Physical Activity, Obesity



Not only do green spaces serve as an aesthetically pleasing environment in which to perform physical exercise, but their sheer presence has been linked to increased levels of physical activity in area residents, as well as lower obesity rates and stabilized body weight. Research has shown that residents of 'greener' areas are more likely to achieve recommended amounts of physical activity than residents of lesser green areas. Proximity of one's living environment to green areas has also been linked to higher physical activity levels. Not only is the presence of green areas linked to higher levels of physical activity, but further research has shown that green areas provide distractions from sedentary activities and that participants

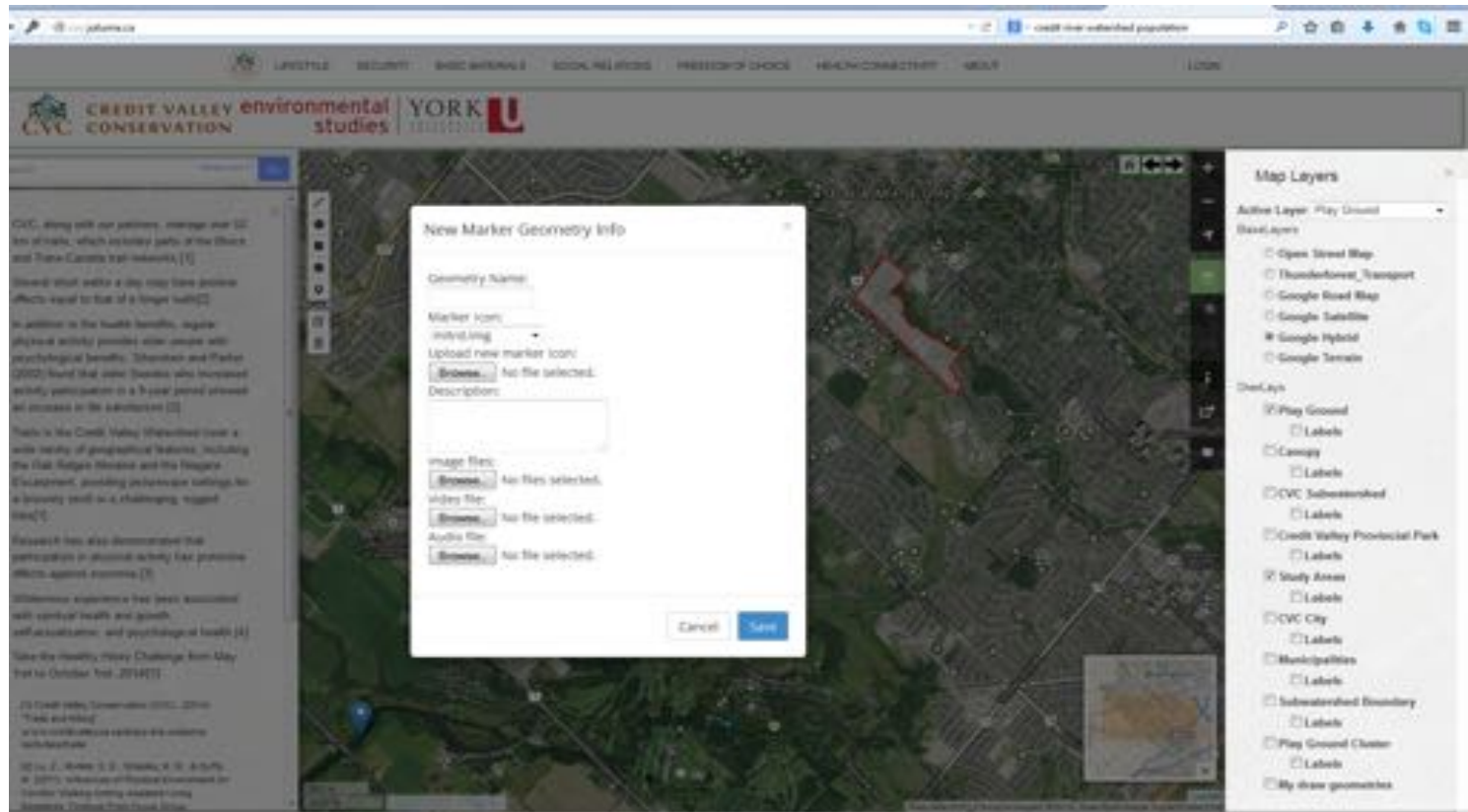


- #### Map Layers
- Outdoor Recreation Facilities
 - Amusement Park
 - Campground
 - Cemetery
 - Exhibition ground
 - Golf Course
 - Liquor Depository
 - Park/Sports field
 - Play area
 - Provincial Park
 - WEPCN project study areas
 - Urban Canopy Cover
 - Water Bodies
 - Provincial Parks
 - Municipalities
 - Regional Municipalities
 - Credit River
 - Subwatersheds
 - Credit River Watershed
 - Stories

Next steps

- Valuation of ecosystem services with particular respect to human health and well-being
- Scenario planning to support water and watershed management
- Consolidation and extension of the technology

Adding spatial entities in the web-GIS



Thank You!

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