

AUTONOMOUS PHOTOBIOREACTOR FOR IN-MOTION VEHICLES

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1. INTRODUCTION

IT IS WIDESPREAD KNOWN THAT CO₂ EMISSIONS IS A HOT ISSUE WORLDWIDE. CARBON CAPTURE AND STORAGE (CCS) TECHNIQUES PROVIDE A VALID APPROACH FOR ABSORBING CO₂. MICROALGAE-BASED TECHNOLOGIES ARE REMARKABLE DUE TO THE RENEWABLE GENERATION OF BIOMASS, AND CONSEQUENTLY, GREEN BIOMASS-BASED PRODUCTS AND SERVICES. DURING THE PAST DECADE, ENORMOUS RESOURCES AND FUNDS HAVE BEEN EARMARKED FOR MICROALGAE-BASED PROJECTS WITHOUT REVOLUTIONARY RESULTS. ONE OF THE REASONS ARE:

- (1) GIGANTIC COSTLY FACILITIES ONLY ACCESSIBLE TO SMEs/COMPANIES
- (2) CO₂ REDUCTION IN TARGETED RATHER THAN IN DISTRIBUTED AREAS
- (3) HABITUALLY FOCUSED ON RESEARCH RATHER THAN IN DEVELOPING EFFECTIVE, ACCESSIBLE AND GROUNDBREAKING PRODUCTS AND SERVICES

2. AIMS

THIS PATENTED REDUCED PHOTOBIOREACTOR, CONSISTS OF AN ICT THAT SENDS VIA WIFI THE READINGS OF SENSORS TO ANY SMARTPHONE(S) CONNECTED USING OUR APP. A PUMP IS USED TO DRAIN THE MICROALGAE AND A STRUCTURE LESSENS THE ACCELERATIONS AND DECELERATIONS WHEN INSTALLED IN VEHICLES. THE DEVICE PROVIDES A MECHANISM TO ENSURE THE CORRECT MICROALGAE HARVESTING, AUTOMATICALLY SWITCHING OFF IN CASE ANY OF THE PARAMETERS (I.E. THE ARTIFICIAL LIGHT OR PH) IS INADEQUATE. THE AIMS PURSUED WITH DIFFERENT APPLICATIONS ARE:

- (1) A VIABLE MICROALGAE-BIOMASS PROJECT FOR A CIRCULAR ECONOMY
- (2) AN AFFORDABLE PRODUCT INSTALLED INTO THE VEHICLES' CHASSIS
- (3) STATIC AND DISTRIBUTED (IN-MOTION) MASSIVE CO₂ ABSORPTION
- (4) IN FUTURE, SO_x AND NO_x EMISSIONS WILL BE ADDRESSED

IN-MOTION INTO CARS' CHASSIS

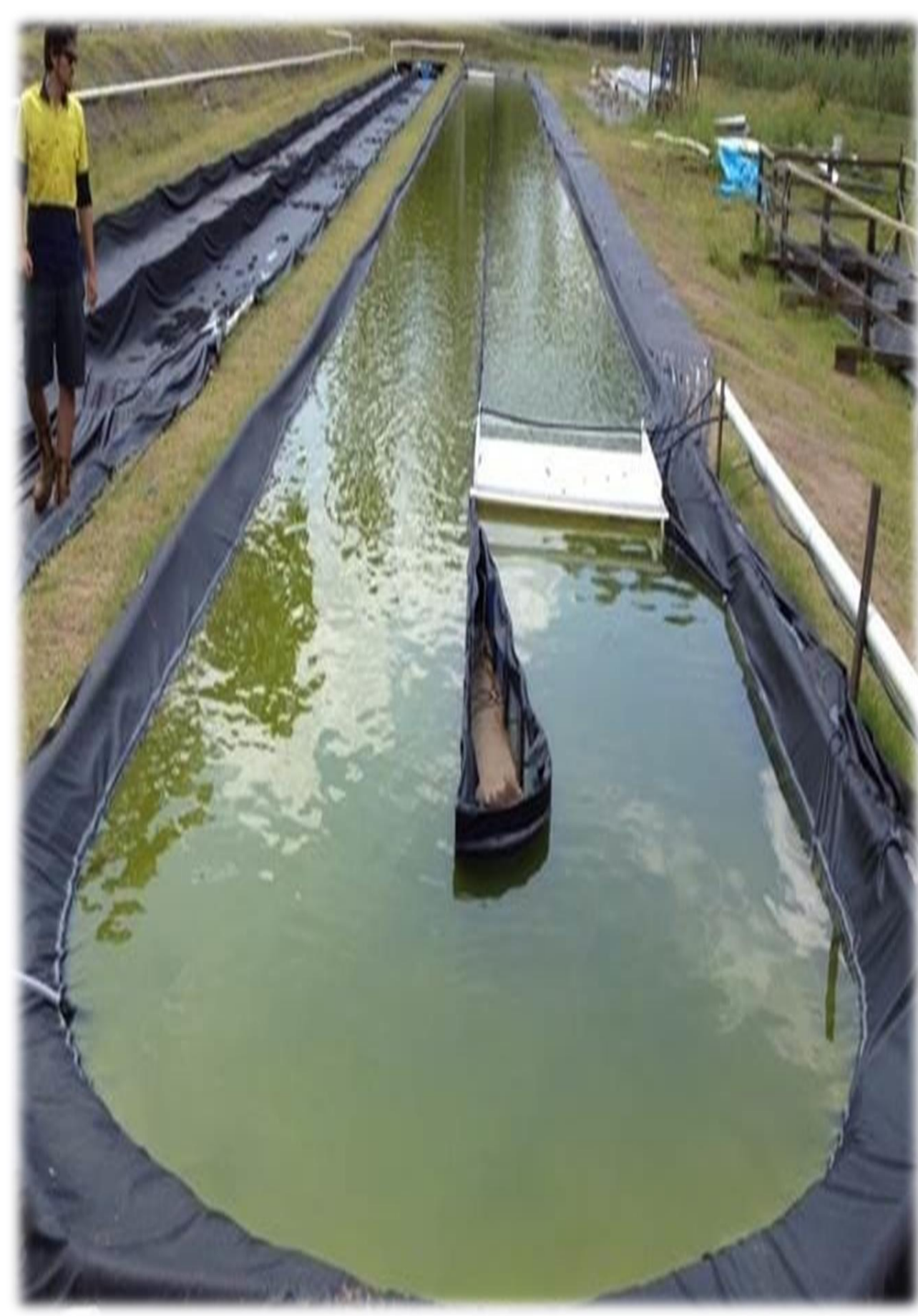


Source: ISUZU and Euglena DEUSEL Project: www.deusel.jp

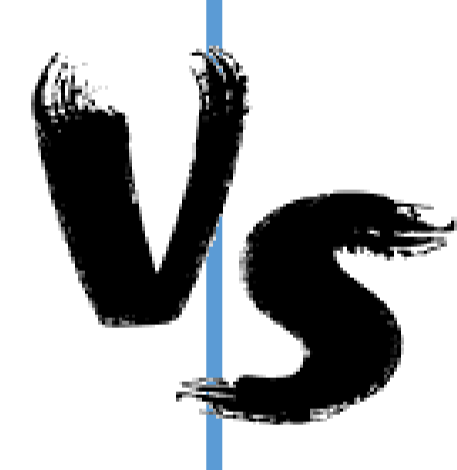


IN-MOTION INTO CARS' ROOF BOX

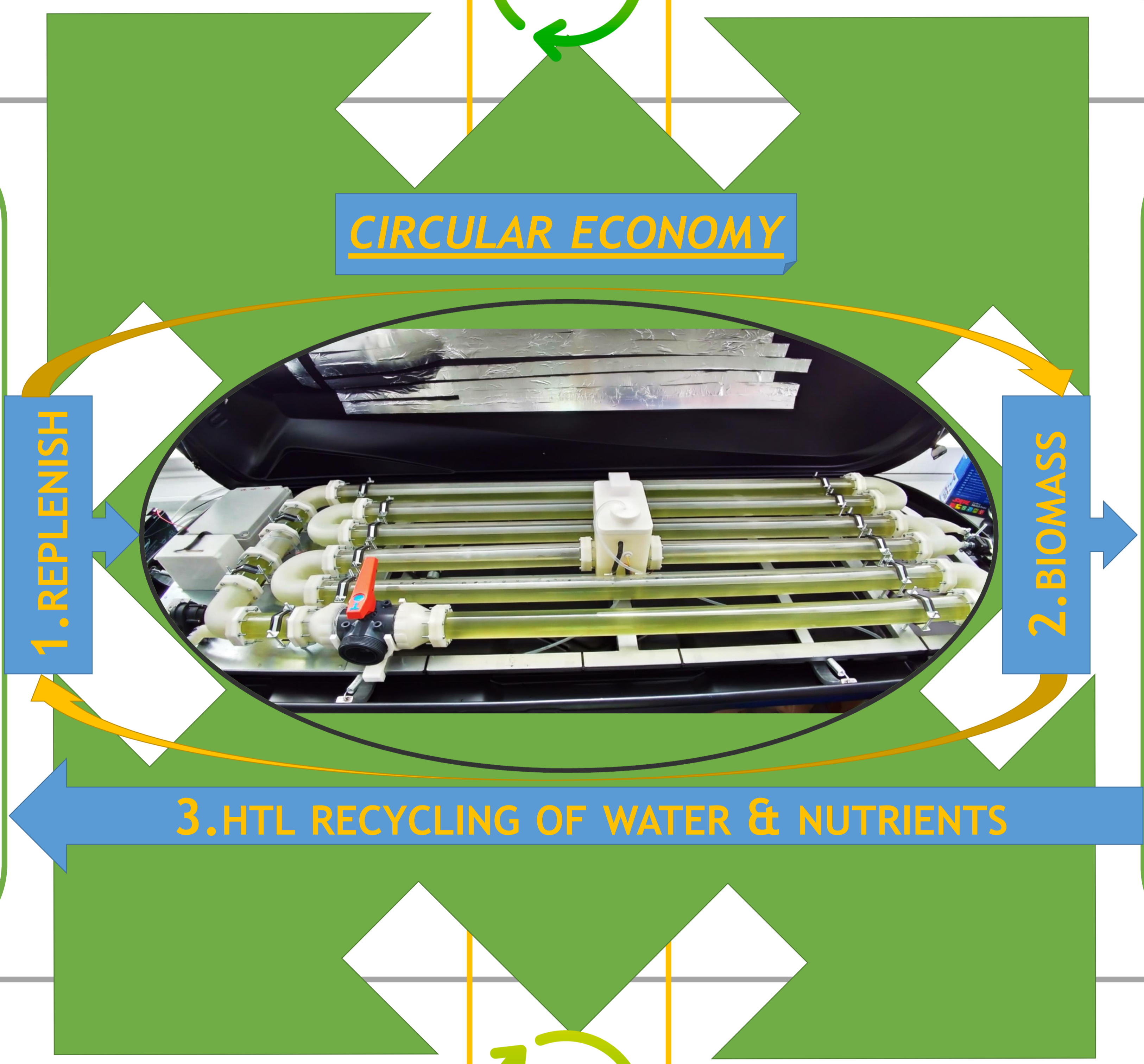
HARVESTING



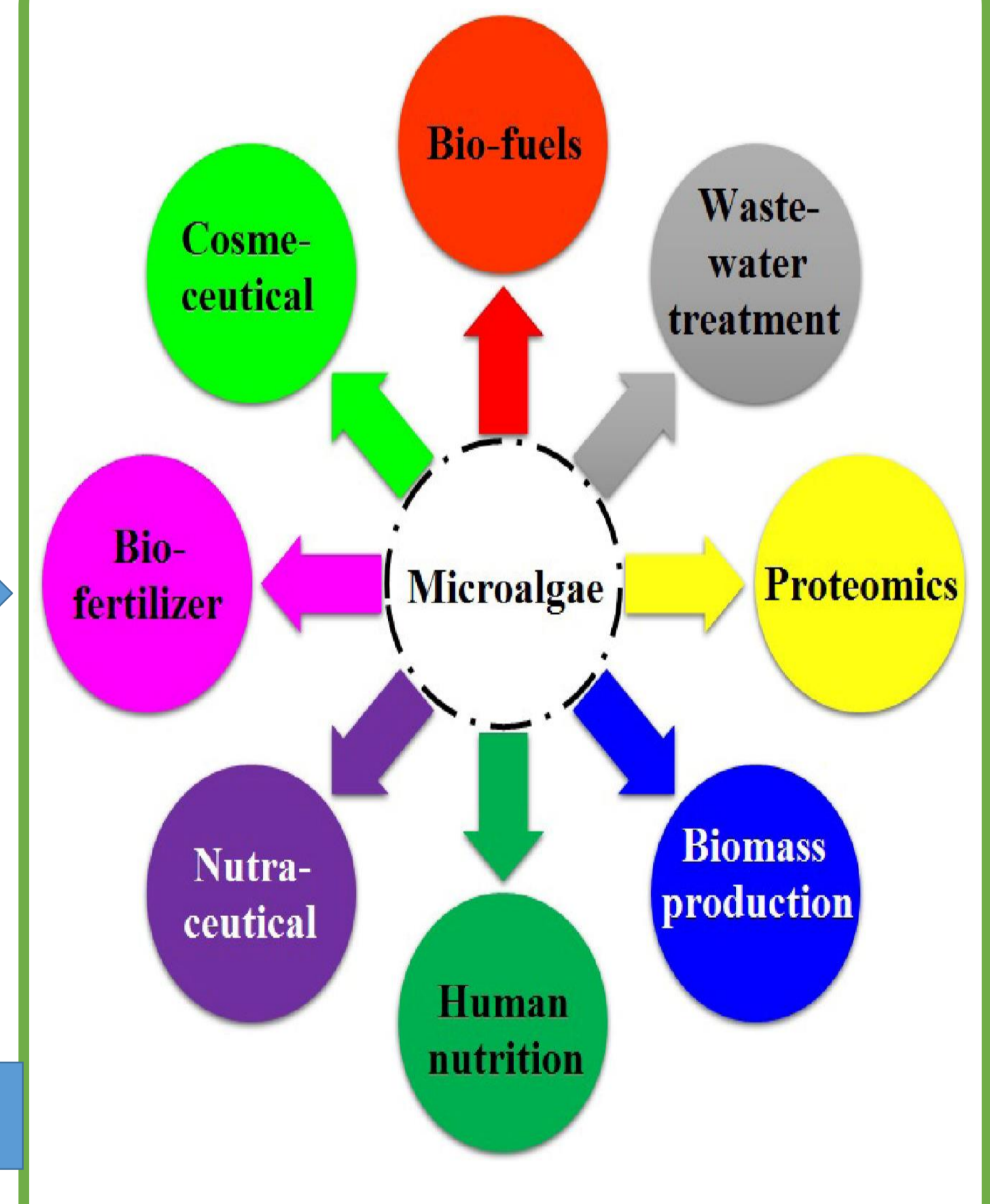
Source: University of Queensland: goo.gl/rPqJSL



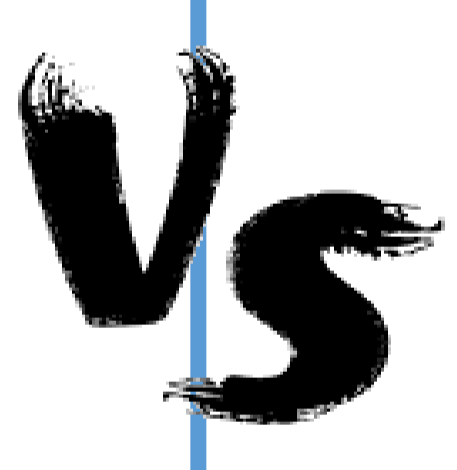
CIRCULAR ECONOMY



PRODUCTS



Source: Bilal M. et al.: goo.gl/MiYaU6



STATIC DISTRIBUTED AREAS



Source: goo.gl/nvSbPD



STATIC TARGETED AREAS



VIDEO OPERATING, THIS POSTER & CONTACT @WWW.CO2.OX



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