

2020

OXIDANE

WATER TRADING DAPP FOR PUBLIC

POWERED ON ETHEREUM NETWORK

VIMAL SURESH

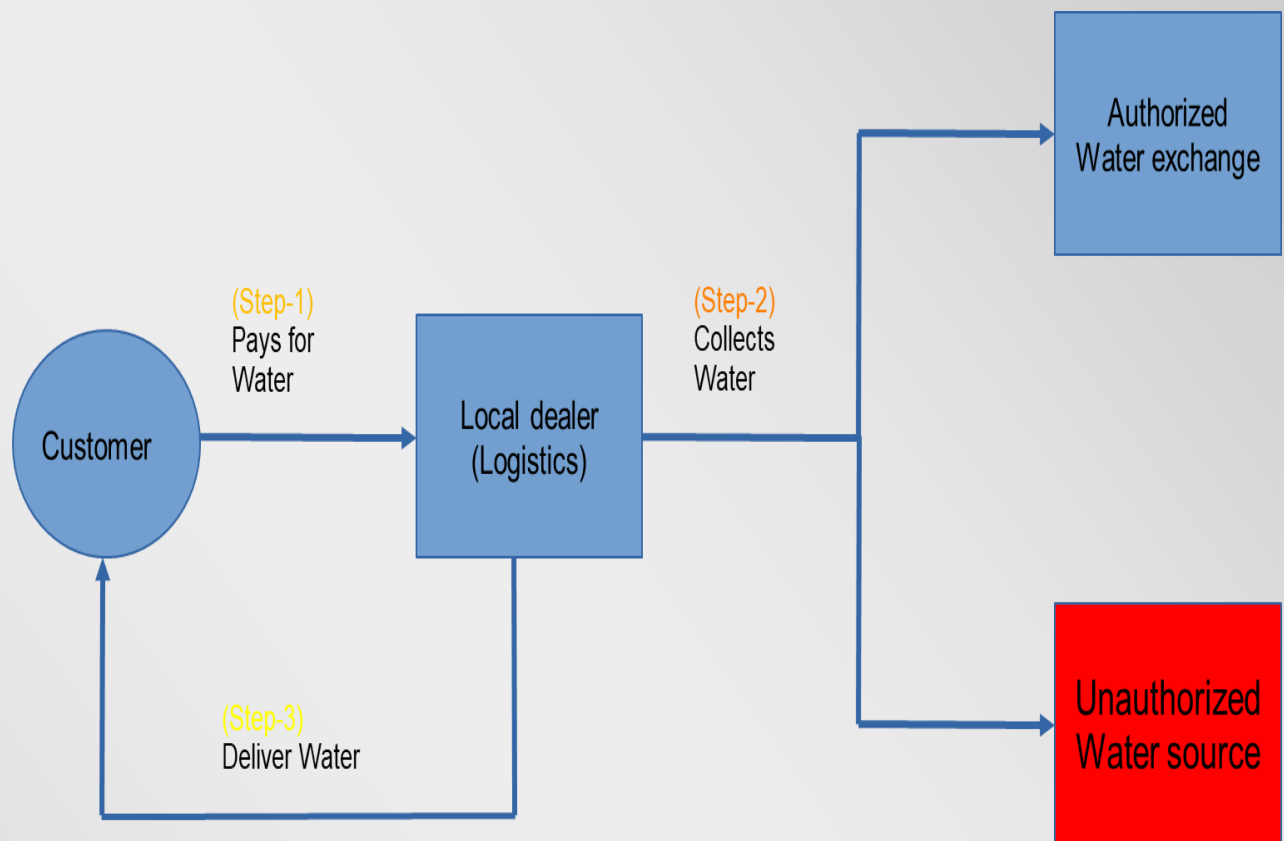
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ABSTRACT

Oxidane is a decentralized application for water trading, it mainly focusses on truck-based water delivery system. Oxidane eliminates the role of middle man between Water-exchange and customers and makes the system more transparent and trustable.

PRESENT SCENARIO IN WATER DELIVERY SYSTEM

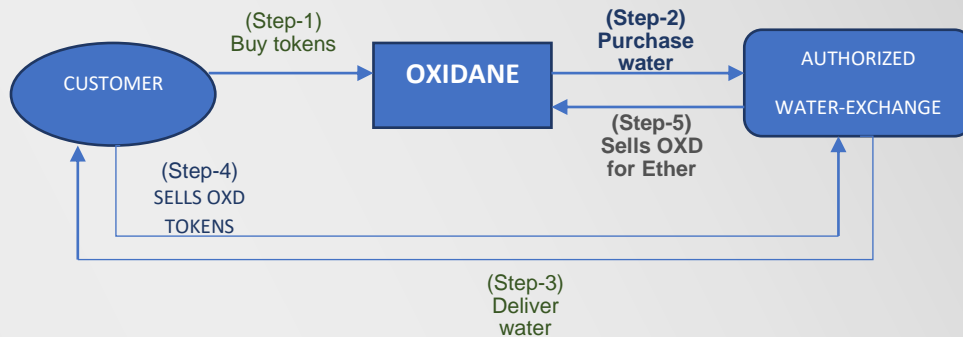


In the present situation, the water lobby is playing a vital role in our society, in which local dealers act as middlemen and they could collect water from both authorized and unauthorized water sources by compromising the quality of water. Even if Authorized water exchange (Govt approved exchange or govt water exchanges) has exhausted their daily limit, local dealers could manipulate the availability of water and bluff customers by producing fake water receipts of authorized water exchange and by providing water from unauthorized sources.

CONS OF THIS MODEL

- Less transparency between customers and water-Exchange
- Compromises quality of water
- Possibility for Purchase-details data tampering of water-exchanges for the gains of employees and exchange.
- Water-Exchanges can show partiality among customers on water delivery.

Oxidane Model



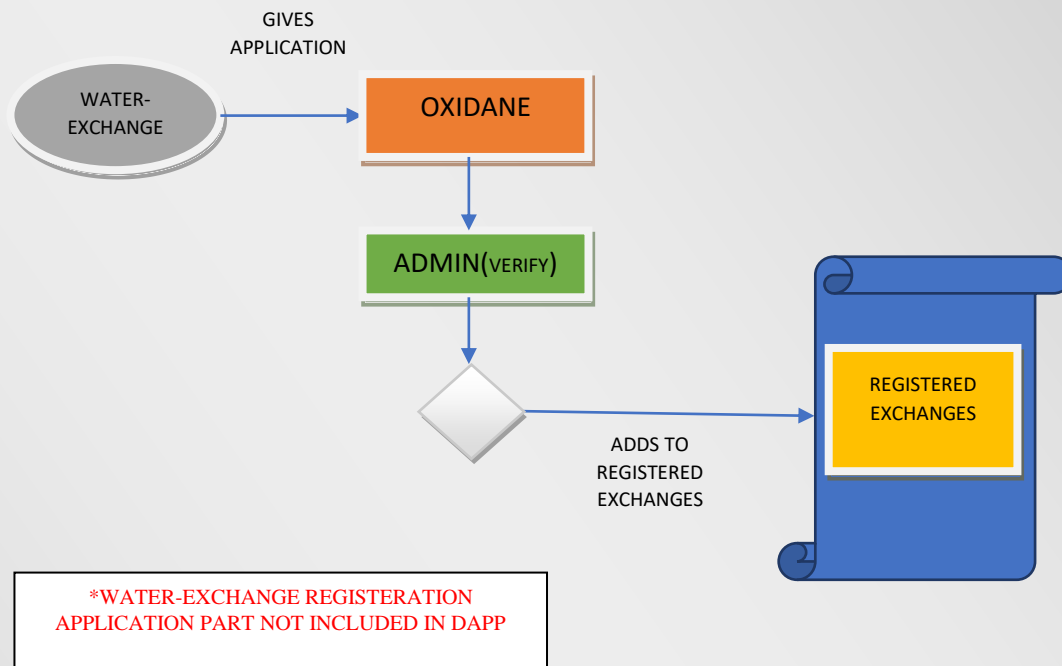
Oxidane eliminates local dealers, by which customers can directly buy water from verified authorized water-exchanges using a token called as OXD.

BENEFITS OF THIS MODEL

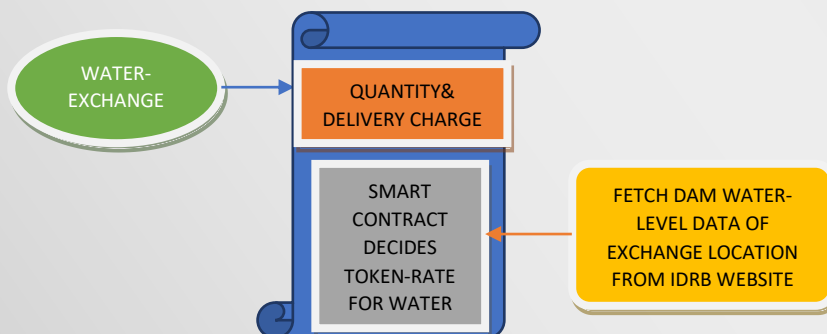
1. Only authorized water exchanges will be part of this model.
2. Oxidane's admin (Govt-authority) registers to water exchange club only after verification, so customers can buy water with trust (Data tampering is not possible).
3. After exchange registration, there is no role for admin in this model and it makes the system decentralized.
4. There is no middle man between water exchange & customer.
5. Actual payment happens only after customers accept the water delivery wherein the former model it happens in the initial stage. In this model, Oxidane tokens are approved or allocated to water exchange during water purchase and transferred only when the customer receives water.
6. Oxidane also provides options to cancel delivery if the customer is not satisfied (due to time- delay in delivery or poor water quality).
7. Oxidane decides the token rate according to the Dam water level data in the Water-Exchange location.
8. This model prevents Purchase-details data tampering of water-exchanges for their gains of employees and exchange.
9. Whole Transaction details are visible to the public with the power of the Ethereum network which makes this model more transparent.

DAPP PROCESS FLOW WITH LOGIC

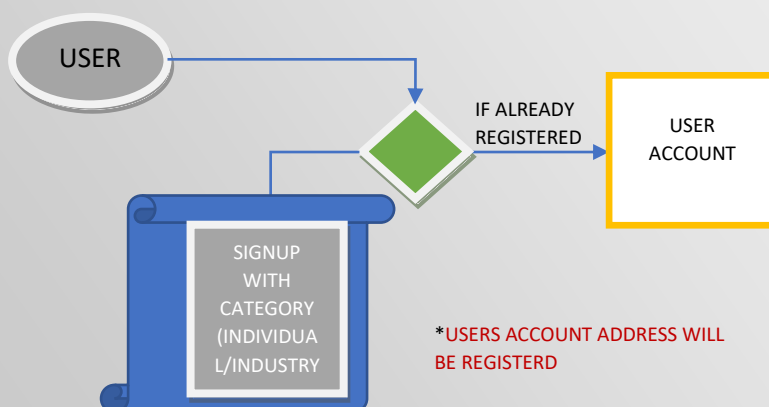
➤ WATER- EXCHANGE REGISTRATION



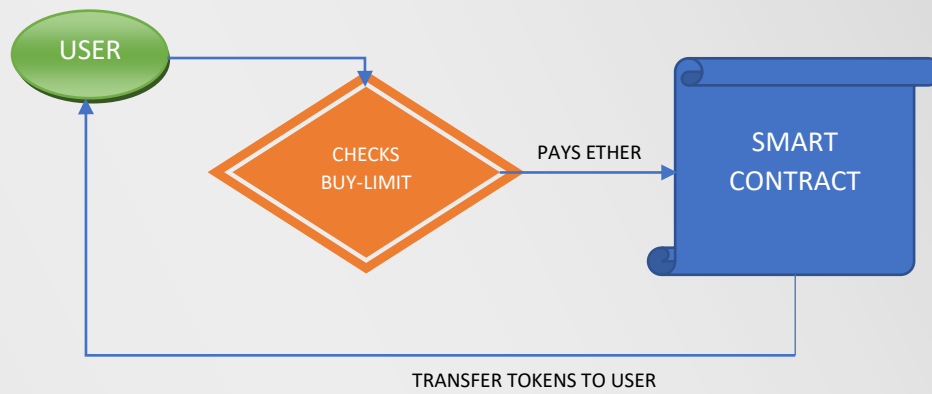
➤ UPDATION OF WATER QUANTITY ON EXCHANGE



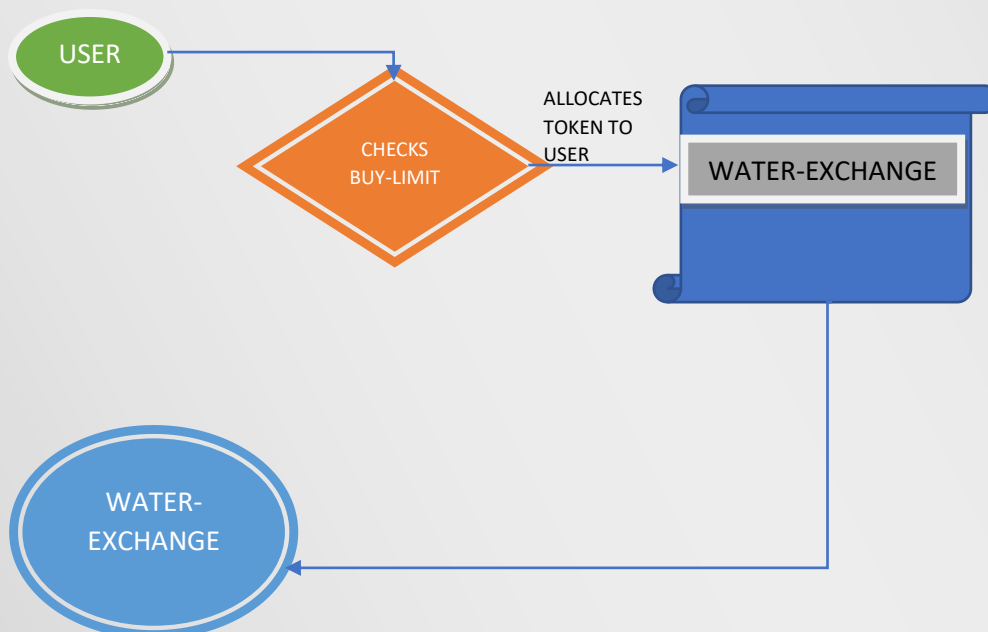
➤ USER -SIGNIN/REGISTRATION



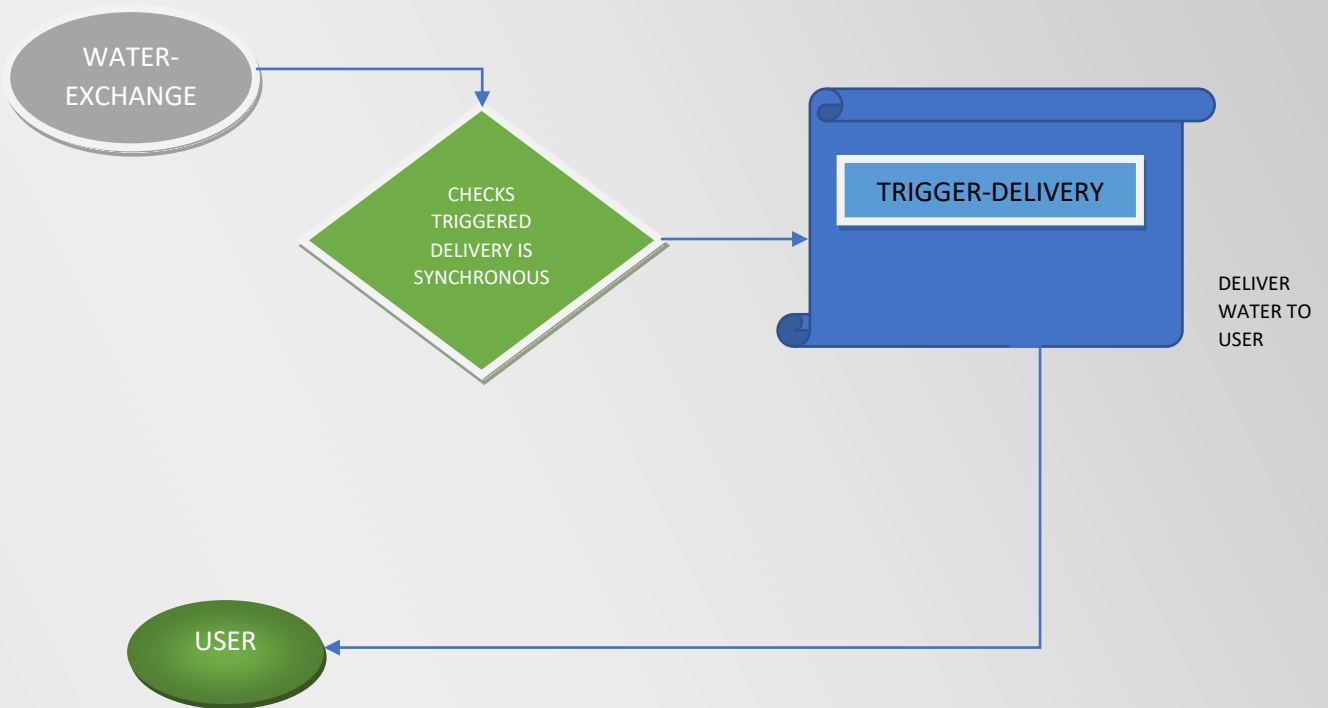
➤ **USER-BUY TOKENS**



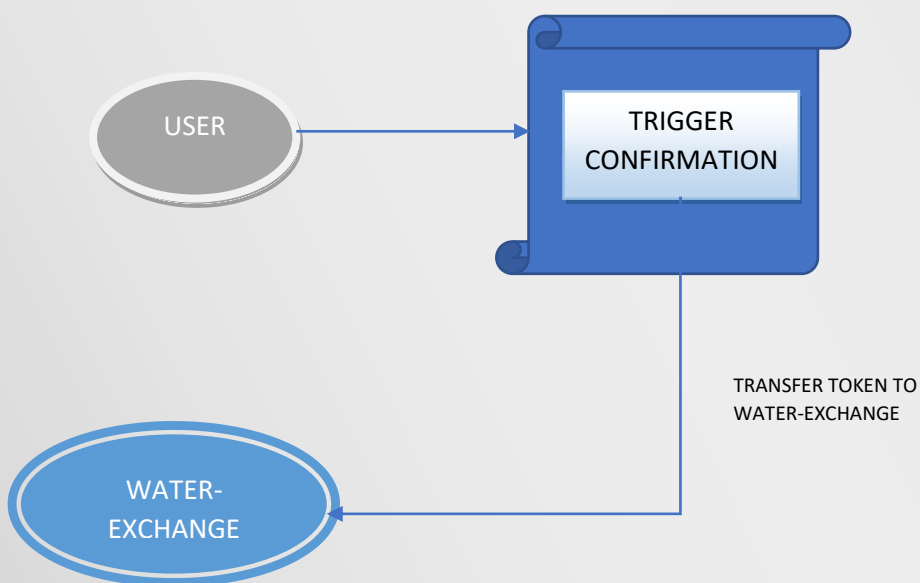
➤ **USER-PURCHASE WATER**



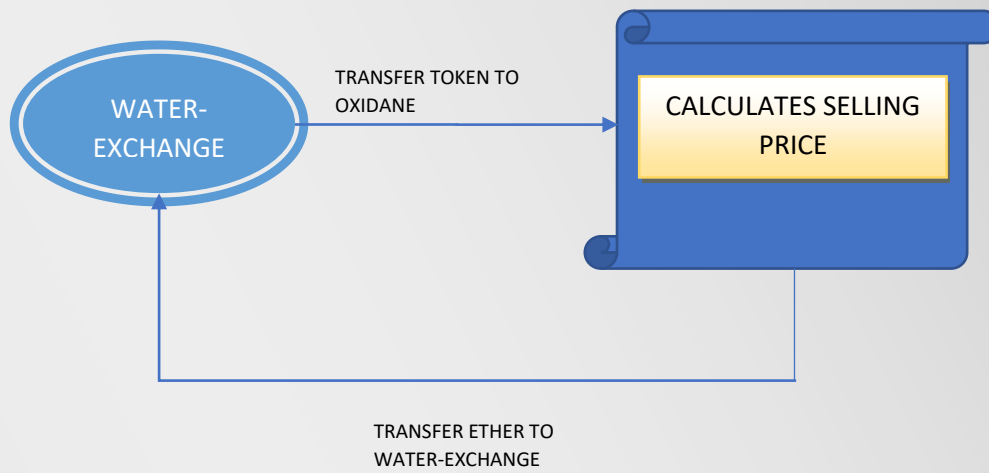
➤ **WATER-EXCHANGE-TRIGGER WATER DELIVERY**



➤ **USER-TRIGGER DELIVERY CONFIRMATION**



➤ **WATER-EXCHANGE-SELLING TOKENS**



TOKEN PRICE CALCULATION LOGIC

- ❖ **1 OXD= 1 DOLLAR** is fixed as a parameter in smart contract,
- ❖ Current Ether price is fetched using an API of cryptocompare(<https://min-api.cryptocompare.com/data/price?fsym=ETH&tsyms=USD>).
- ❖ Then **1 OXD=(1/CURRENT ETHERPRICE))ETHERS**

WATER-TOKEN PRICE CALCULATION LOGIC

Step 1 Fetch FRL (Full reservoir level) & Current water level data from IDRB website (using Dom fetching method)

E.g.:http://idrb.kerala.gov.in/idrb/irrigation_html_disp/main_fr.php?d_cd=12

Step 2 Calculate water level in percentage

Percentage=(Current water level data / FRLdata) * 100;

For Drinking water:

1. If water level percentage is greater or equal to 95% then 1000 litres will cost 5 OXD
2. If water level percentage is between 90 and 95 % then 1000 litres will cost 6 OXD
3. If water level percentage is between 90 and 85 then 1000 litres will cost 7 OXD
4. If water level percentage is less than 85 then 1000 litres will cost 8 OXD

For Non-Drinking water:

1. If waterlevel percentage is greater or equal to 95 then 1000lit Nondrinking water will cost 3 OXD
2. If water level percentage is between 90 and 95 then 1000lit Non-Drinking water will cost 4 OXD
3. If water level percentage is between 90 and 85 then 1000lit Non-Drinking water will cost 5 OXD
4. If water level percentage is less than 85 then 1000lit Non-Drinking water will cost 6 OXD

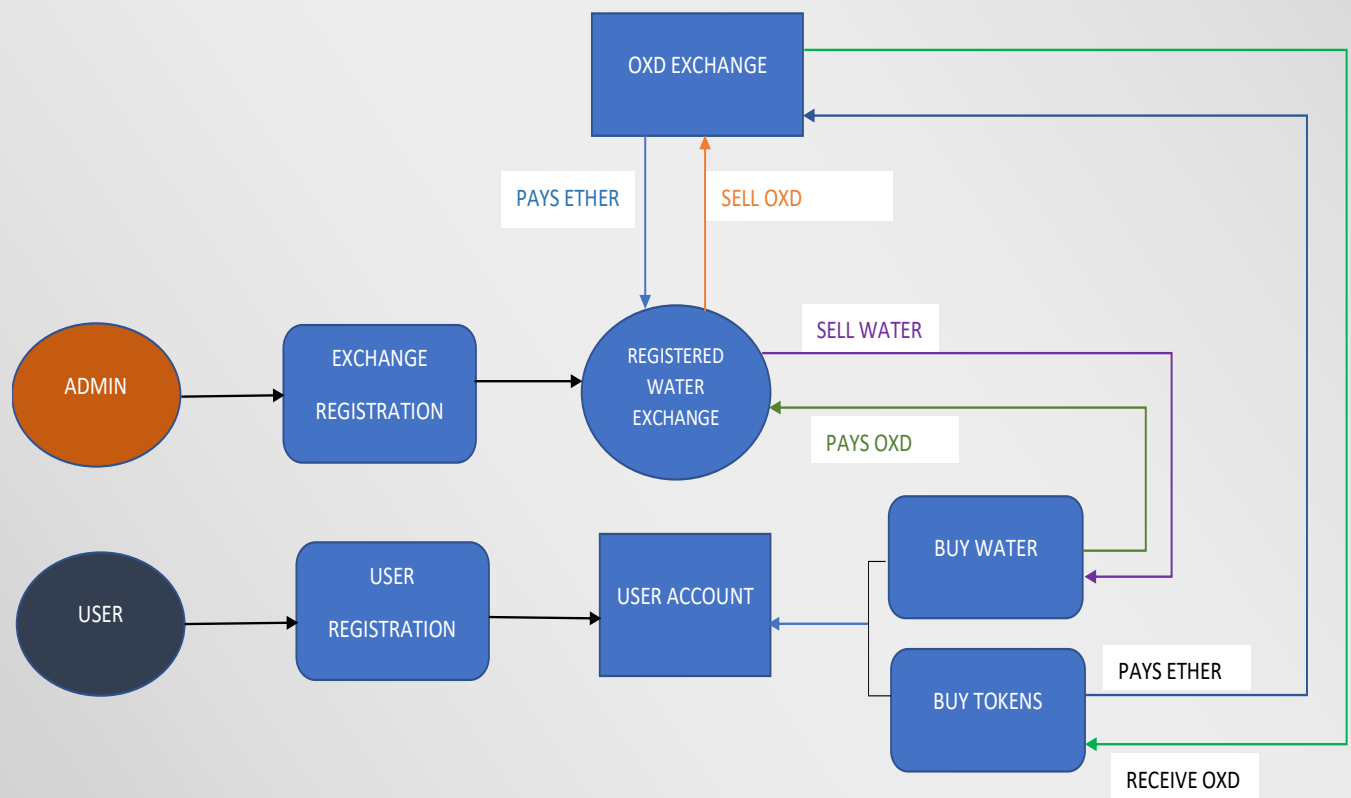
NOTE: If the buyer is of the industrial category have to pay an additional token

TOKEN SELLING LOGIC

Average price= average of the ether price at which users bought token

- If average price is less than current market price then selling is average price.
- If average market price is greater than current market price then selling price will be current market price

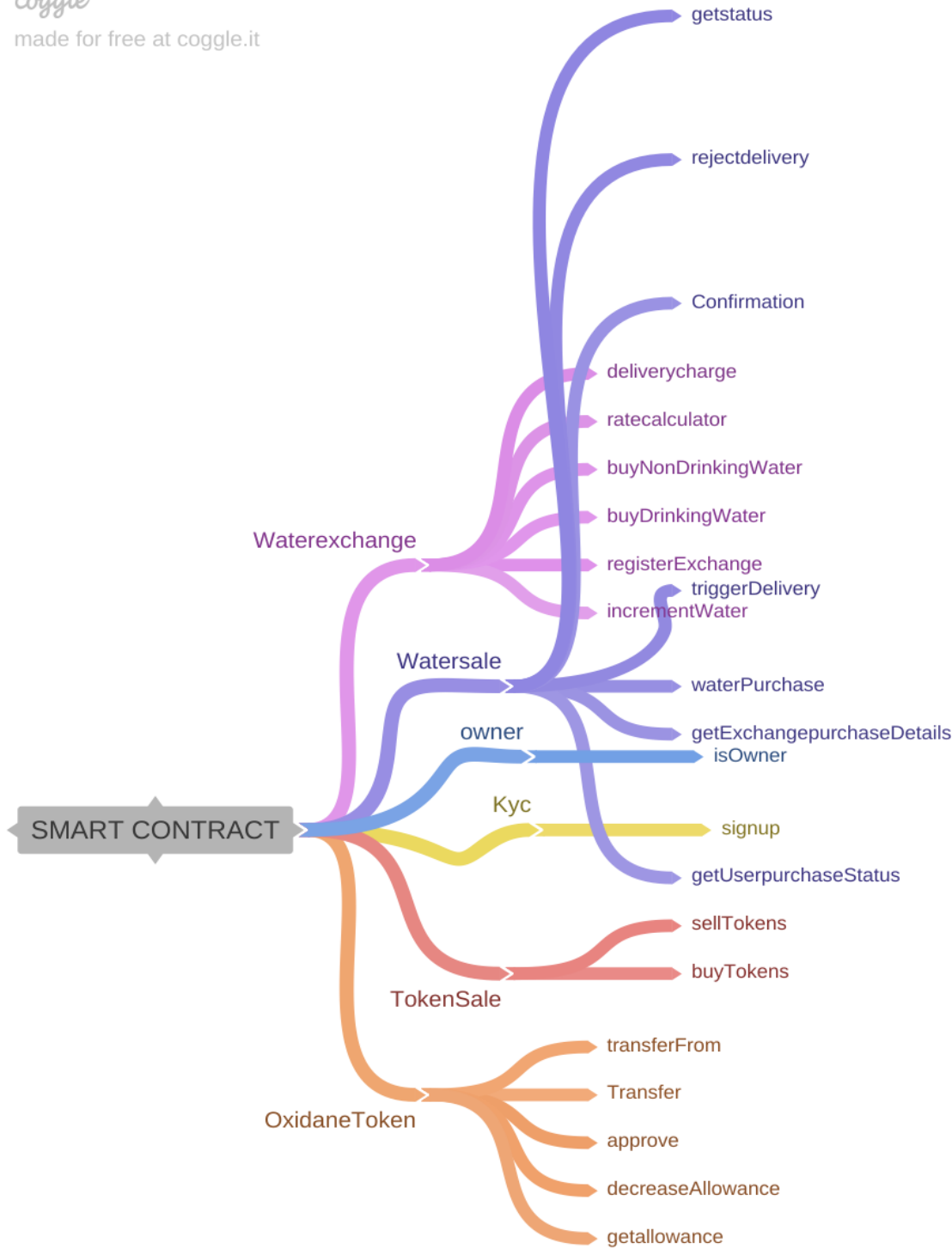
DApp LOGIC FLOW DIAGRAM



SMART CONTRACT MINDMAPPING DIAGRAM

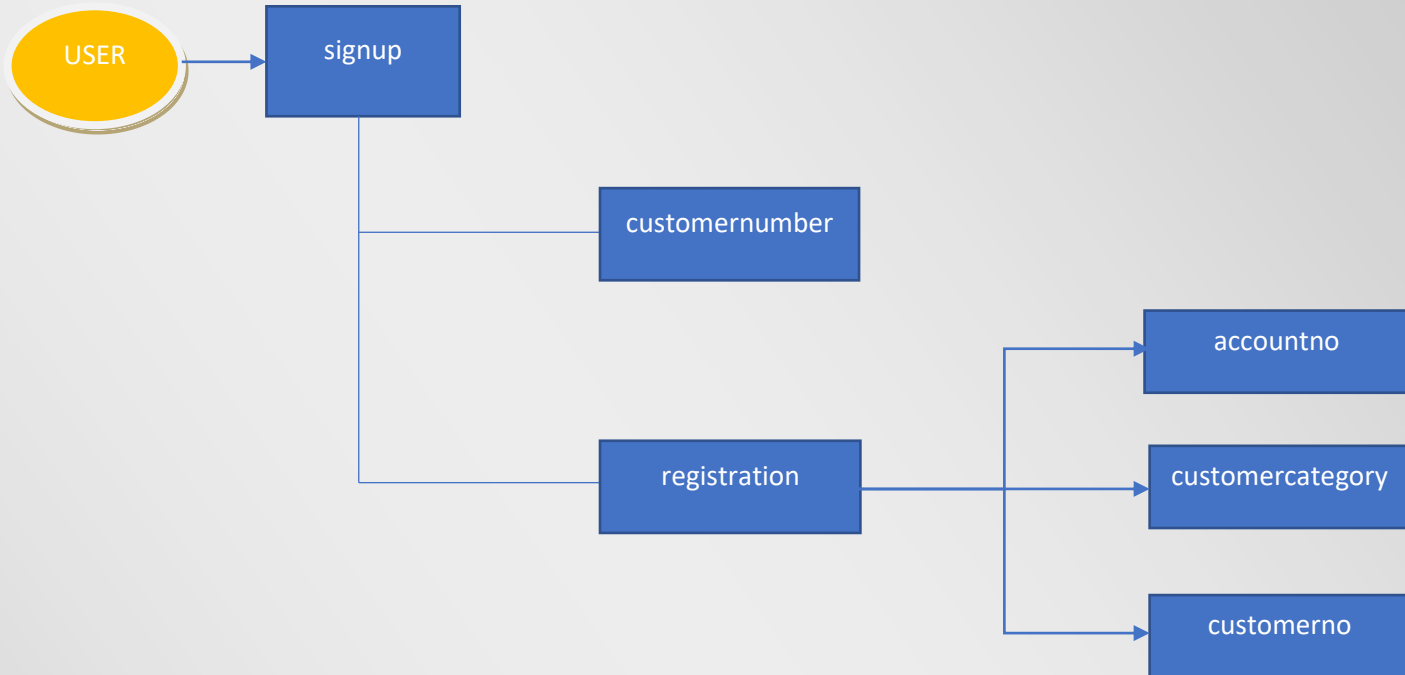
coggle

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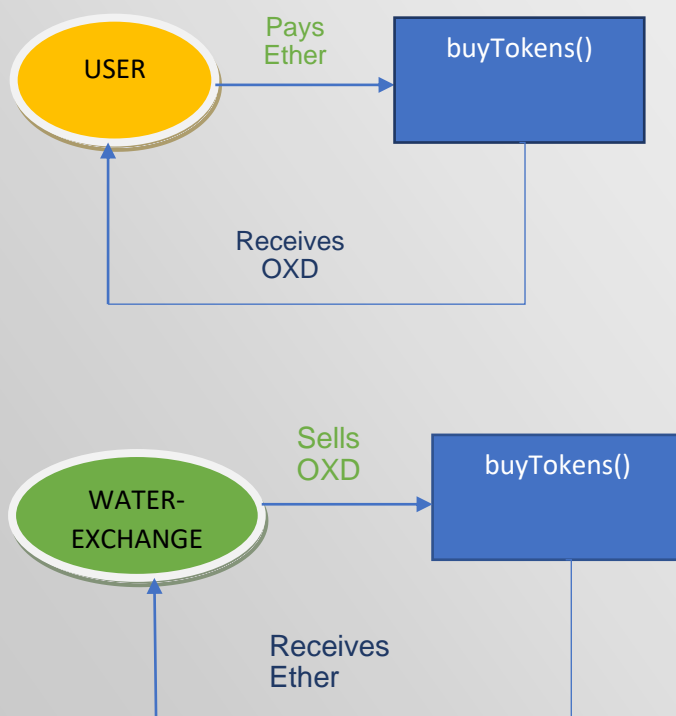


SMART CONTRACT LOGIC FLOW DIAGRAMS

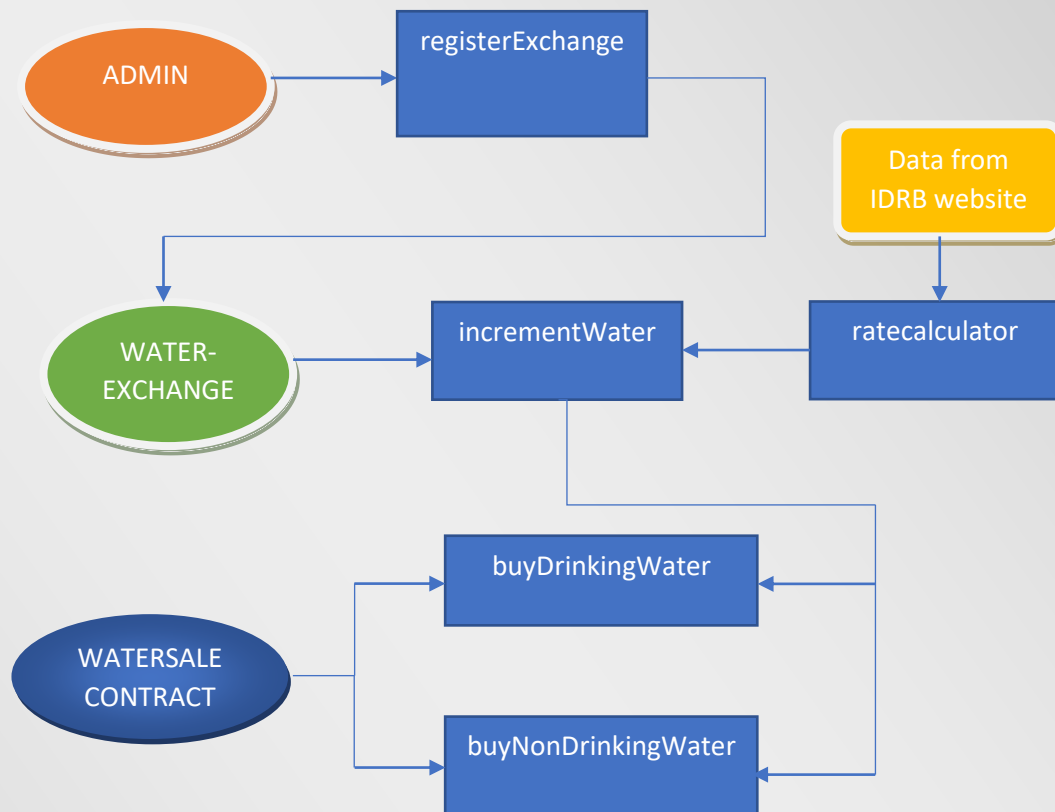
KYC CONTRACT



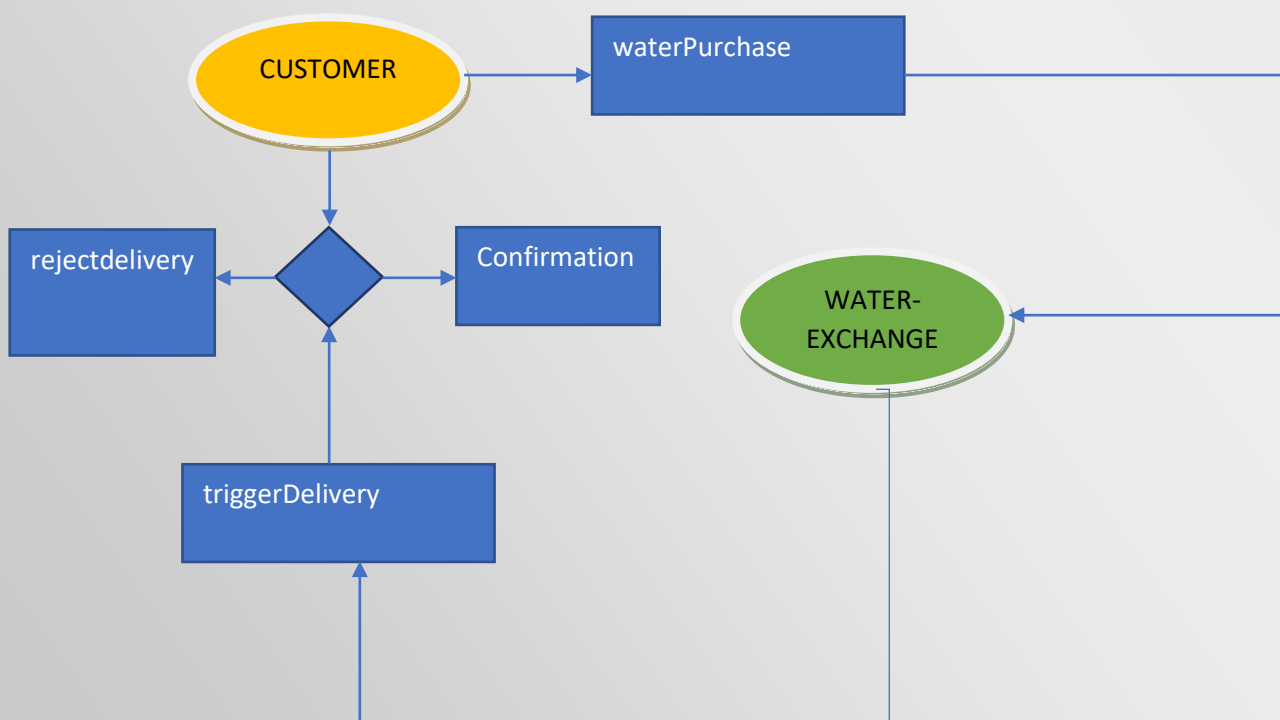
TOKENSALE CONTRACT



WATEREXCHANGE CONTRACT



WATERSALE CONTRACT



THE END