Mole City

New Generation Decentralized Lending Protocol

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https://mole.city

Abstract： Mole City is a completely decentralized multi–chain protocol establishing money markets with algorithmic–based interest rates, provide the best interest rate for both depositors and borrowers, currently it is running on Binance Smart Chain (BSC). Mole City enables users to supply their crypocurrencies to borrowers pledging over–collateralized cryptocurrencies and earn interest. By providing decentralized lending services, Mole City allow users to frictionlessly exchange the time value of BSC assets. Based on the current lending model, Mole City will develop NFT lending service and LP Token staking modules, gradually expand multi–chain lending market, so that crypto assets can flow seamlessly with the best investment environment for users.

1. Background

In today's society, the financial system is everywhere. In the traditional financial system, the operation mode of institutions is centralized trusteeship, but traditional institutions such as commercial banks are facing the dilemma of increasing information cost and reducing capital flow rate. The cost of institutional decision–making is high, and the barrier for users is high.

With the development of technology, the blockchain industry has established a decentralized financial (DeFi) ecosystem, which operates through cryptography and open source verifiable smart contracts, so as to develop a dynamic financial market and redefine the structure of the money market. Compared with the traditional financial market, the decentralized financial system has the following advantages.

- Decentralization: without the participation of central institutions and third–party decision makers, reduce costs and improve market matching efficiency
- Trustless: market participants have absolute control over their own funds, and all market behaviors are enforced by verifiable smart contracts
- Permissionless: not limited by time, place and other factors, no access threshold, anyone can participate in the market
- **Composable**: the richness of traditional financial products is combined with smart contract technology to realize more diversified business

Decentralized finance (DeFi) just solves the pain point of traditional finance. The blockchain technology has the characteristics of traceability, non tampering and high transparency, which is a positive supplement to the current financial business. The technical advantages will help the financial industry expand the content and coverage of application services, and diversify the service objects of applications. The application of blockchain technology in the financial field will bring relative security, trust and efficiency, which will reconstruct business model to a certain extent. With the maturity of decentralized finance and the iteration of blockchain technology, decentralized finance will bring more market opportunities.

2. Mole City Protocol

2.1 Introduction

Mole city is an open–source protocol on blockchains that establishes money markets. By providing lending services of cryptocurrencies, Mole City realizes the mutual accommodation and value transfer of crypto assets. Currently, based on the operation of Binance Smart Chain,

Mole City has the advantages of high efficiency and low gas cost. It provides users with a low-cost platform to participate in DeFi, and alleviates many performance and cost problems of Ethereum lending protocols.

Based on the relationship between asset supply and demand, Mole City money market adopts an algorithm to obtain the deposit and borrow interest rate of each asset. Depositors (and borrowers) interact directly with the protocol to earn (and pay) floating interest rates without negotiating terms such as maturity date, interest rate or collateral with peers or counterparties. Based on this, users can freely deposit specific crypto assets to earn interest, or pay interest to borrow some crypto assets. Lower matching costs bring higher efficiency, which may benefit users with faster and stable asset appreciation.

Compared with the pioneers such as Compound and Aave, Mole City Protocol will, on the premise of giving priority to capital security, take the existing lending model as the starting point, actively create a diverse lending market, optimize the execution efficiency of smart contracts, build NFT lending and LP Token staking function modules, gradually expand the multi-chain lending market and more dimensional business, let assets flow seamlessly and create the best investment environment for users. Moreover, Mole City protocol focuses on the global user experience and further reduces the learning and operation threshold. With the gradual improvement of the protocol, Mole City will build a series of richer decentralized applications.

2.2 Supplying Assets

Mole City users can supply various cryptocurrencies supported by the protocol. Depositors can earn interest on lending, and cryptocurrencies can be used as loan collateral at the same time. By supplying assets, users will earn interest according to the yield curve of a specific market. All assets will be pooled into smart contracts so that users can withdraw their assets at any time when the protocol balance is positive. Different from the exchange and P2P platforms, Mole City protocol aggregates the asset supply of each user. This reduces the matching cost of borrowing and provides higher liquidity, so that users can recover their loans at any time without waiting for specific maturity of loans.

Users who provide cryptocurrencies to Mole City will automatically mint and obtain mToken, such as mETH, which is the only pass that can be used to redeem the underlying collateral provided. MToken further improves the liquidity of users' assets and the composability of investment strategies. Users can freely transfer mToken or use it to hedge other assets. Based

on the loan interest rate model of Mole City, as the money market generates interest as income, mToken can be converted into more and more underlying assets when redemption, and users only need to hold mToken to realize the final income.

2.3 Borrowing Assets

Mole City allows users to frictionlessly borrow from the protocol, for use anywhere in the integrated blockchain ecosystem. Users who want to borrow any cryptocurrency from Mole City must supply assets as collateral and lock the collateral on Mole City. The collateral cannot be retrieved during the borrowing period. Considering the market fluctuation risk, users must carry out excess collateral when borrowing assets to protect the protocol from the risk of default. Due to the differences in risk factors and volatility between crypto assets, different crypto assets will have different ratios between the total amount of loanable assets and the value of collateral. These collateral ratio parameters are determined by the risk framework of the protocol and controlled through the governance process which will be discussed later.

Once assets are supplied as collateral, users can borrow according to the collateral ratio of assets. Typically, the collateral ratio is set between 40% and 80%. For example, if the collateral ratio of USDC is 80%, this means users can lend up to 80% of the value deposited in USDC. If a user provides $10000 of USDC, the user can borrow 80% of the collateral value, that is, an asset of $8000. However, if the ratio of the user's collateral value to the value of the borrowed assets falls below the collateral ratio, it may lead to a liquidation event.

Users will have a compound interest rate that will be applied per block on these assets and have no monthly payment obligations. To return the collateral, the user must pay off their origination balance and compounded interest back to the protocol. The market interest rate is determined by the yield curve specified in the smart contract, and the interest rate is related to the asset utilization rate.

2.3.1 Collateral Value

When assets are supplied and used as collateral for loans (represented by the ownership of mToken), each asset has a corresponding collateral ratio. Assets with high liquidity and large market cap have high collateral ratio, while assets with low liquidity and market cap have relatively low collateral ratio. The pricing data of collateral is fed through the oracle (such as chainlink), the oracle extracts the market price data and sends it on the chain. Therefore, the

pricing data is transparent and verifiable. On Binance Smart Chain, these pricing data can be obtained efficiently and at low cost.

2.3.2 Risk & Liquidation

If the outstanding loan value of the account exceeds its borrow limit, the liquidator can repay part of the outstanding loan for the user at the current market price in exchange for the user's mToken collateral. The liquidator can obtain excess liquidation incentive from liquidating a collateralized position. At present, the liquidation incentive of Mole City is 8%. The liquidation mechanism urges arbitragers to intervene quickly to reduce depositors' risk exposure and mitigate the risk of the protocol.

In Mole City protocol, the liquidation coefficient is the maximum percentage of loans that can be repaid in a single liquidation transaction. If the user has multiple borrowing assets, the liquidation coefficient is applicable to each borrowed asset rather than the total value of the user's outstanding loans. The initial parameter of Mole City is 50%. Liquidation may continue until the user's borrowing is below its maximum borrow limit. Any user with borrowed assets can call the liquidation function to exchange its assets for the borrower's mToken collateral. As both users, both assets, and prices are all contained within the Mole City protocol, liquidation is frictionless and does not rely on any outside systems or order–books.

2.4 Interest Rate Model

The interest rate provided by the borrowing or supply market of Mole City is dynamic, and the interest rate is jointly determined by the supplier and the borrower. Based on the yield curve, the interest rate changes according to the utilization rate of funds, and there is no need for individual suppliers or borrowers to negotiate terms and interest rates. According to economic theory, the interest rate should increase with the increase of demand; When the demand is low, the interest rate should be reduced, and when the demand is high, the interest rate should be increased accordingly. The fund utilization rate U provides a unified variable for the changes of interest rates in the supply market and the borrowing market. The case is as follows:

U = Borrowed Assets / (Remaining Assets + Borrowed Assets)

Borrowing Interest Rate = 2.5% + U * 20%

Deposit Interest Rate = Borrowing Interest Rate * U

2.5 Governance

In governance, the core development team of Mole City has more positive and responsible considerations. The team has always adhered to the principle of transparency and disclose all information about the protocol. In the initial stage of Mole City governance, the core development team will actively participate in governance to guide the community to form an atmosphere of scientific governance. We will discuss the governance framework of the protocol with all members of the community in the first proposal after the Governance Forum goes online. Over time, Mole City will fully transition to complete community and stakeholder control.

As a decentralized lending protocol, deposit users want higher interest and loan users want lower interest. The optimal solution may achieved through the market mechanism, which is the core purpose of DAO. Mole City deposit and loan users, MOLE token holders and development teams have their own rights and obligations. With the development of Mole City, important decisions of the protocol will be gradually redefined and verified through the DAO governance process, and long–term stakeholders will determine the long–term development direction of the protocol. Under this framework, the developer team is responsible for maintaining the safe, reliable and continuous operation of the system, and constantly innovating and iterating products. The community completes the setting of key operating parameters through voting. There are two options for voting on future proposals: Yes and No. Only users locking MOLE token in the staking pool can vote on the proposal. The voting weight is determined by the lock up amount of MOLE: 1 MOLE = 1 vote. To encourage Mole City users to participate in DAO governance, the protocol plans to distribute platform revenue to DAO pool through MOLE token, and plans to bring more rewards in the future. Users with MOLE token can participate in protocol governance:

- Add a new asset to the protocol

- Renewal protocol interest rate model

- Update the oracle address used by the protocol

- Update agreement interest rate parameters

- Propose other improvements related to the protocol

3. Tokenomics

3.1 MOLE Introduction

Mole City protocol is governed by Mole City Token (MOLE). All users participating in Mole City will be rewarded with MOLE. The MOLE operates on the mainnet of Binance Smart Chain and adopts BEP–20 specification. MOLE is an important medium used to motivate users and maintain the normal operation of Mole City ecology. It is also the only certificate for users to participate in protocol governance. Community governance and user revenue Incentives all depend on MOLE.

3.2 Token Distribution
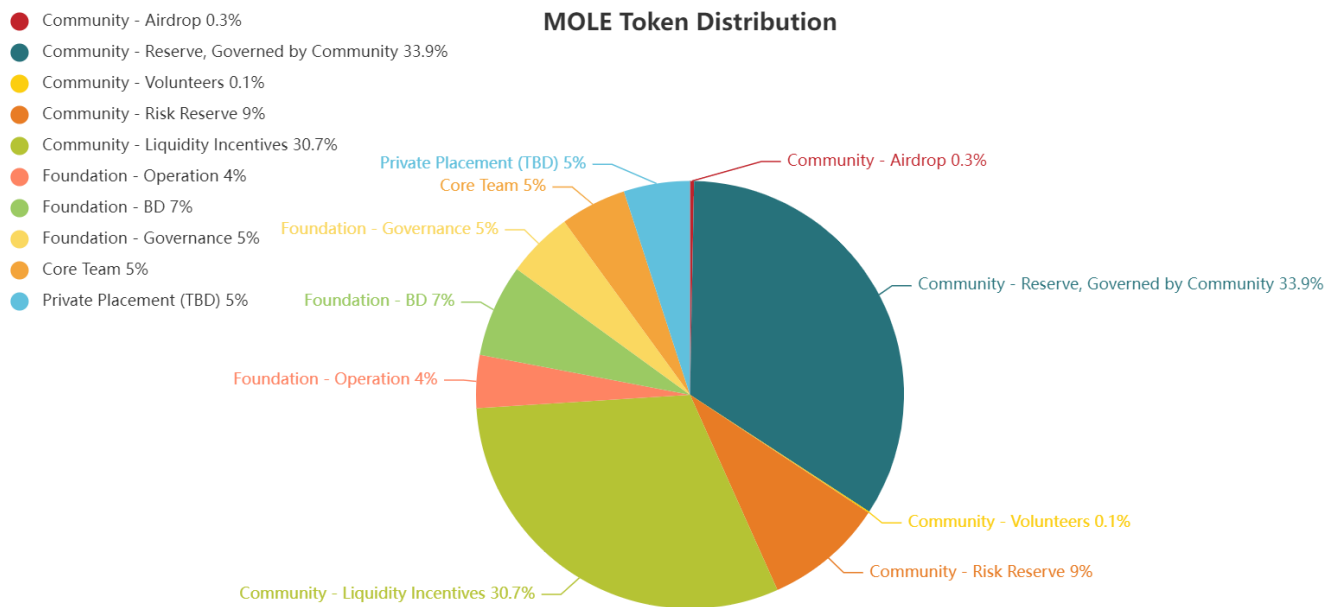
The total amount of MOLE is set to 50,000,000, and it will be distributed as follows:

- Community – Airdrop 0.3%, 150,000 in total, will be distributed in air drop activities

- Community – Reserve, Governed by Community 33.9%, 16,950,000 in total

- Community – Volunteers 0.1%, 5,0000 in total

- Community – Risk Reserve 9%, 4,500,000 in total, will be used as reserves to prevent internal and external risks for the protocol

- Community – Liquidity Incentives 30.7%, 15,350,000 in total, will be used as a reward for protocol users

- Foundation – Operation 4%, 2,000,000 in total

- Foundation – Business Development 7%, 3,500,000 in total

- Foundation – Governance 5%, 2,500,000 in total

- Core Team 5%, 2,500,000 in total

- Private Placement (TBD) 5%, 2,500,000 in total

3.3 Token Function

MOLE is the governance token in Mole City Protocol, and has the following functions:

- Participate in the staking activities and get more MOLE rewards

- Participate in the governance of Mole City protocol, initiate proposals or vote

4. Summary

Mole City protocol aims to build a decentralized multi–chain cryptocurrency lending market, allowing users to manage assets and obtain loans more efficiently and safely, provide the best interest rate for both depositors and borrowers. Currently, the protocol runs completely on Binance Smart Chain, with faster transaction speed and lower transaction cost. In the subsequent development, Mole City protocol will launch NFT lending services and LP token staking module, gradually expand multi–chain markets, so as to realize the full potential of decentralized finance.