Greater Chennai Corporation
GREAT Module
(GCC Revenue Evaluation and Augmentation)

GREAT Revenue League
(Gamification of Tax Collection measure as part of Modern Governance initiative)

- M.P.Azhagu Pandia Raja

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- # Game Theory : (Science of Decision Making)

- Famous "**Thought Experiment**" is "**Prisoners Dilemma** "

The Prisoner's Dilemma

	B stays silent (cooperates)	B betrays A (defects)
A stays silent (cooperates)	Both serve 1 year	A serves 3 years, B goes free
A betrays B (defects)	A goes free, B serves 3 years	Both serve 2 years

- # Game Theory : (Science of Decision Making)

  - **Game theory** is the study of mathematical models of strategic interaction among rational decision-makers. It has applications in all fields. **Game theory** is an important tactics applied in mathematical economics and business for modeling the patterns of behavior of interacting agents

  - **For Competitive Games : Nash Equilibrium**
    - When you are competing with others, it makes sense to choose the course of action that benefits you the most no matter what everyone else decides to do. The **Nash equilibrium** is a proposed solution of a non-cooperative game involving two or more players in which each player is assumed to know the equilibrium strategies of the other players, and no player has anything to gain by changing only their own strategy

  - **For Cooperative Games : Shapley Value:**
    - Calculating Marginal Contribution – Contribution of each player is determined by what is gained or lost by removing them from the game.
    - Interchangeable players have equal value
    - Dummy Players have zero value – If the member of the group contributes nothing, they should receive nothing.
    - Rewards must be compartmentalized.

- # Game Theory : (Science of Decision Making)

- In game theory, **trembling hand perfect equilibrium** is a refinement of Nash equilibrium. A trembling hand perfect equilibrium is an equilibrium that takes the possibility of off-the-equilibrium play into account by assuming that the players, through a "**slip of the hand**" or **tremble,** may choose unintended strategies, albeit with negligible probability.

- Applications:
    - Traffic issue
    - Nuclear war fare
    - Climate Change etc

- **Game designed must fulfill all the AXIOMS described above.**

- **Reward system design:**
    - Intrinsic reward
    - Extrinsic reward
    - Social reward

- # GCC Revenue League: (Game Guidelines)

  - **Team Formation**
    - Each Zone will act as a Team. We will have total 15 teams.
    - ARO of each zone will act as the captain of the team.
  - **Evaluation Parameters**
    - Based on Tax collected and Assessment made by individual zones.
    - Clear guidelines on Evaluation is given in upcoming slides.
  - **Game Duration – Three Months**
    - Quarter Finals
    - Semi Finals
    - Finals
  - **Monthly Reward**
    - Worker of the Month Zone wise and Overall
    - Rewards will be given by Commissioner
    - Event happens in Amma Malligai
  - **Final winners**
    - Dinner Night for complete Zone with Commissioner and DC R&F
    - Best Worker Zone Wise / Overall
    - Cash Rewards.

- Game Theory : (Science of Decision Making)

- Special Points system : (For Online)
  - Zonal Groups based on Online Penetration:
    - Group 1 - Zone 7,11,12,13,14,15
    - Group 2 - Zone 3,6,8,9,10
    - Group 3 - Zone 1,2,4,5

- # Game Theory : (Science of Decision Making)

- **Based on GIS Data:**

Assessment		Points
Unassessed		10
Underassessed	(Only Area)	10
Under assessed	Area + Usage or Usage	15

- # Game Theory : (Science of Decision Making)

Property Tax	Offline	Online
Current		
Group 1 (7,11,12,14,15)	1	2
Group 2 (3,6,8,9,10)	1	4
Group3 (1,2,4,5)	1	6
Arrear		
Group 1 (7,11,12,14,15)	3	4
Group 2 (3,6,8,9,10)	3	6
Group3 (1,2,4,5)	3	8

- Game Theory : (Science of Decision Making)

Professional Tax	Current	Arrear
Online	2	4
Offline	1	4

Trade License	Points
New	5
Renewal	2

Dishonour	Points
Below 15 days	5
Above 15 days	-5

- # Game Theory : (Science of Decision Making)
  - ## Golden Rewards
    - ### **Assessment (GIS)**
      - For Core Zone

GIS Assessment	Points
25%	500
50%	1000
100%	5000

      - For Extended Zones

Last Year Assessment (Form 7)	Points
10%	500
20%	1000
50%	5000

    - ### **Property Tax**
      - For All Zones
        - For completing 15% of arrear amount – 1000 Points.
        - For completing 20% of arrear amount – 2000 Points.

- # Game Theory : (Science of Decision Making)

- Areas of Opportunities to increase income of GCC:

  - Online portal to register **Commercial Properties. (Later stage we must mandate all commercial property owners to register here)**
    - As of now around 70,000 properties have been registered in non digital mode.
    - But ground level data through informal sources inform us that we have around 3 lakh commercial properties in GCC.
    - By bringing all commercial properties under single window, issue of Trade licenses will also increase.
    - Further, the work of monitoring will get simplified for LI's . (We have around 100 LI's for entire GCC, which is very less. Technological support is needed to improve the efficiency)
    - **This initiative will easily triple the income of GCC through Professional Tax/ Trade License / Property registration.**

  - **Single Window/Umbrella Portal for entire Revenue department.**
    - **Unique QR code for every property (GIS is providing Unique ID as of now)**

Thank You