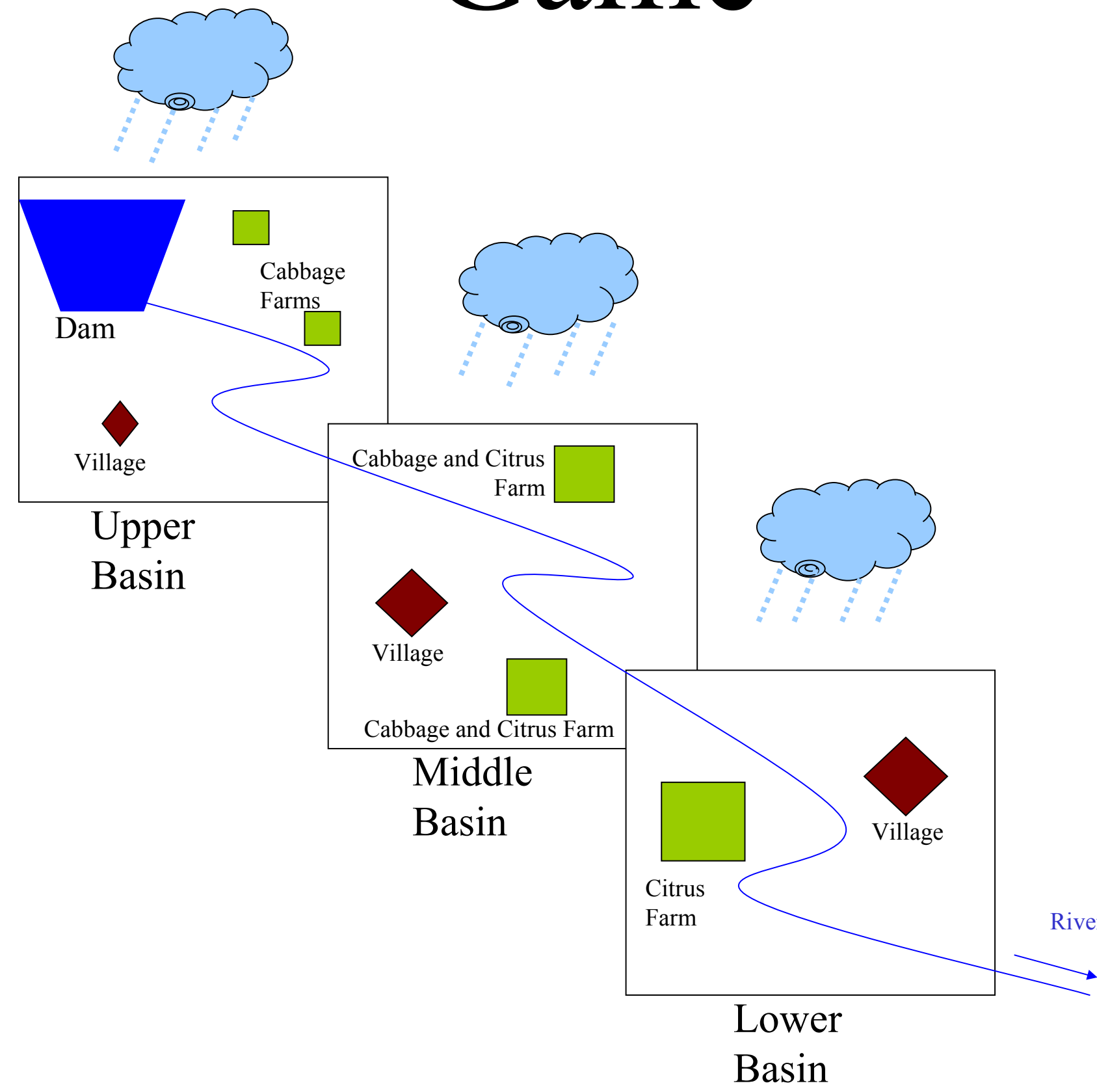


FROM EXPERIENCE TO EXPERIMENTS IN WATER MANAGEMENT

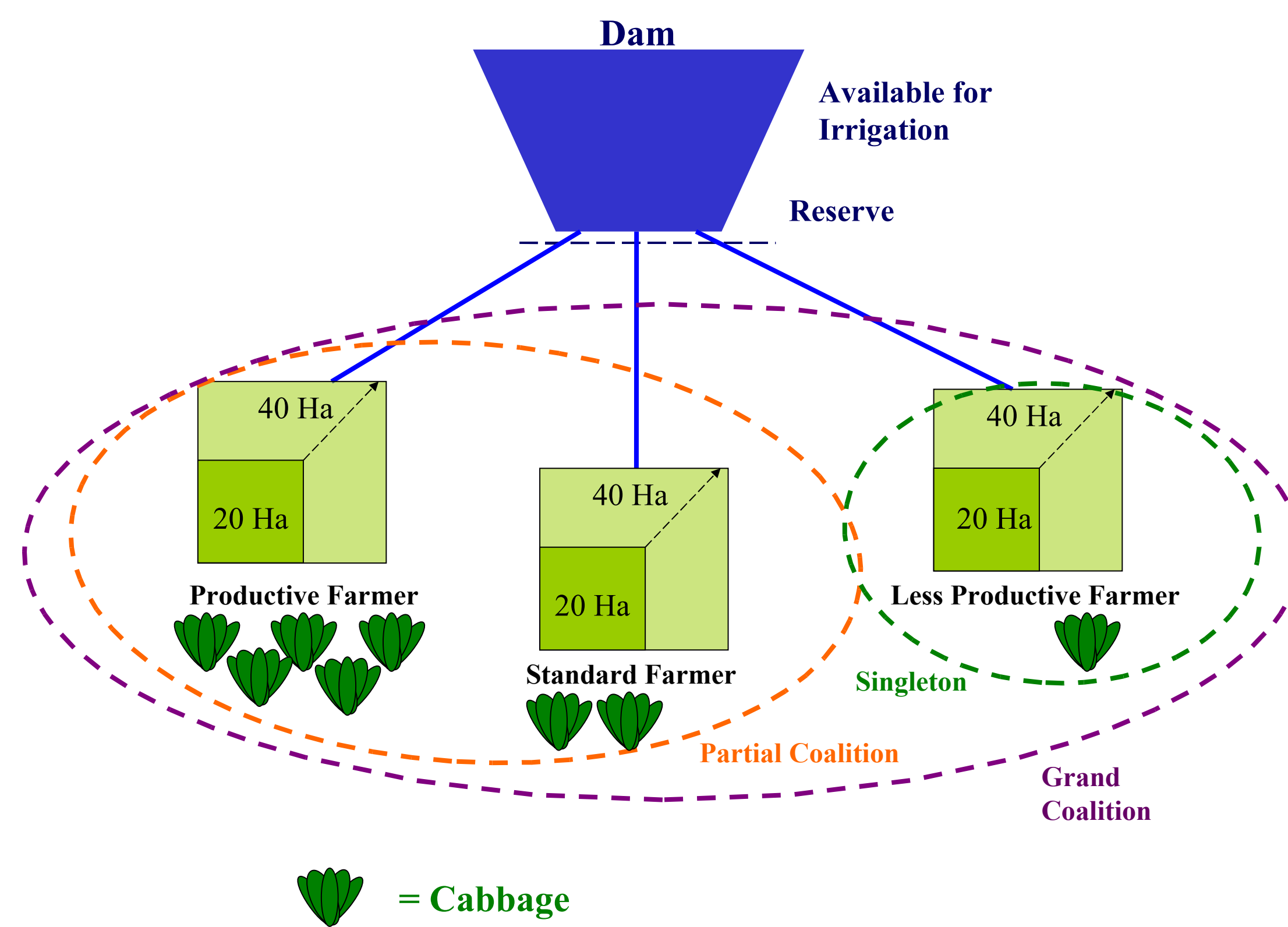
Désolé Mathieu, Farolfi Stefano, Patrone Fioravante, Rio Patrick, Thoyer Sophie, Tidball Mabel

- Need of tools and methods to help policy makers to implement participatory process for water management.
- In the Kat River catchment (South Africa) a Role-Playing Game (RPG) named « Kat AWARE» was developed within a participatory process called Companion Modelling (ComMod) (Farolfi and Rowntree, 2007).
- This **experience** exhibited some phenomena and new research hypotheses arose.
- **MOTIVATIONS:** Design of **experiments** in order to reproduce the observed phenomena in other contexts and to test the hypotheses (by running the experiments in a laboratory to control parameters and replicate sessions).

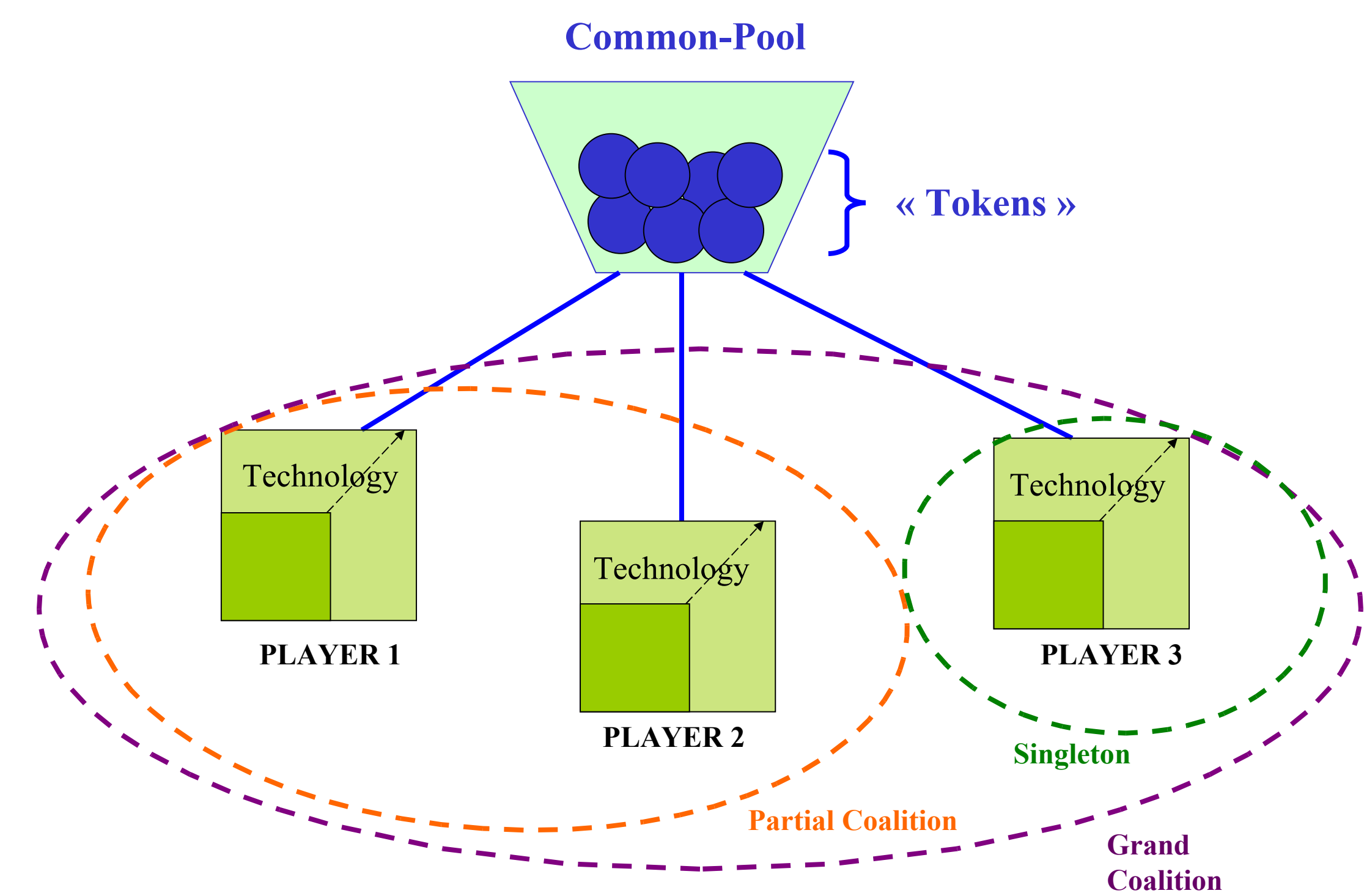
Role-Playing Game



Contextualized Experiment



Abstract protocol



Objective	Accompany negotiation process	Research	
Players	Played with committed stakeholders	Played with subjects or stakeholders	Played with subjects
Context	Mimic reality	Experimental environment control	
Justification	Exhibit Phenomena	Test hypotheses in a controlled environment	

CONTEXT DEGRADATION

To simplify the situation (RPG) in which committed stakeholders are involved in order to isolate specific elements aimed at testing hypotheses formulated on the basis of the RPG observation

CONTEXT BUILDING

To test the impacts of ordered context re-building on players' behaviour

- Some behavioural rules exhibited during a RPG session (Kat AWARE) played with local stakeholders were compared to the results of a cooperative game theory model (Dinar et al., 2008).
- The observed similarities between RPG session and CGT model suggested to test experimentally some behavioural hypotheses.
- A new protocol was built by context degradation (Désolé, 2007), to test specifically:
 - 1) Players' **rationality** (selfishness) and profit maximization;
 - 2) Players' capacity to take advantage of the **side payments** in coalitions;
 - 3) Players' behaviour in terms of **resources allocation** within a coalition;
 - 4) Players' choice to **stay** in partial or grand coalition (because of the particular case of this cooperative-framed experiment);
 - 5) If players stay in the grand coalition, allocation of coalition's payoff in **comparison** with the Shapley values.



References:

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- **Dinar Ariel, Farolfi Stefano, Patrone Fioravante, Rowntree Kate (2008)** "To negotiate or to game theorize: evaluating water allocation mechanisms in the Kat Bassin, South Africa", in: Dinar, Albiac and Sanchez-Soriano (eds.) "Game Theory and Policy Making in Natural Resources and the Environment", Routledge
- **Farolfi Stefano, Rowntree Kate (2007)** "Accompanying local stakeholders in negotiation processes related to water allocation through simulation models and role-playing games: an experience from South Africa", Empowers Insights, 1 (2): 5-7.