

## **Chapter 2: Hypothesis and Conceptual Frame**

### ***2.1 Hypothesis***

If the traffic problems at CMU in general and a traffic management deficit in particular are related to problems of inadequate traffic concepts, perception and funding, then proposed changes based on PPP should be effective in offering problem solutions. Public attitude towards a change in traffic management should then positively correspond and relate to variables introduced on the basis of economic internalization, environmental psychology and land-use planning. A pilot project can be developed together with the study groups and implemented in accordance with stakeholders' needs and thus, represent a workable compromise.

### ***2.2 Null Hypothesis***

However, if a pilot project based on a stakeholder-compromise is not accepted, and this is not due to geo-physical or socio-economic restrictions, then, the frame and variables applied for outlining PPP in a traffic management context would fail to provide a valid basis for measure development.

### ***2.3 Second Null Hypothesis***

However, if a pilot project based on a stakeholder-compromise is not accepted, and this is not due to geo-physical or socio-economic restrictions, then, factors other than traffic concepts and perception, for example, social, cultural and political dominance of one or more groups, would be responsible for traffic problems at CMU. They would, thus, probably represent a case of 'lack of political will'.

### ***2.4 Conceptual Frame***

As stated in the introduction, in order to achieve proper implementation of PPP, standards and a detailed working concept have to be outlined. It is therefore necessary to define the basis from which the standards and concepts are developed. As both, traffic and PPP involve a wide range of human activities, these definitions have to be precise and at the same time leave enough room for interpretation to allow a development of tools, which reflect local conditions. This study approaches from a variety of angles in order to provide a conceptual frame, not only for the study itself, but also for measures and tools that might be developed in the future as a direct result.

The problem at hand is one of environmental degradation and the solution suggested tries to introduce sustainability to human activity within that environment. After outlining PPP, the first angle, therefore, introduces definitions, which are the basis for economic internalization. They are derived from the concepts of<sup>11</sup>

- 1. Sustainability**
- 2. Development and sustainable development**

The two definitions are linked to the currently employed economic system without internalization and the cost it creates for the environment. This establishes the status quo from which PPP measures in general and in regard to transportation have to be developed. We then approach the definitions of

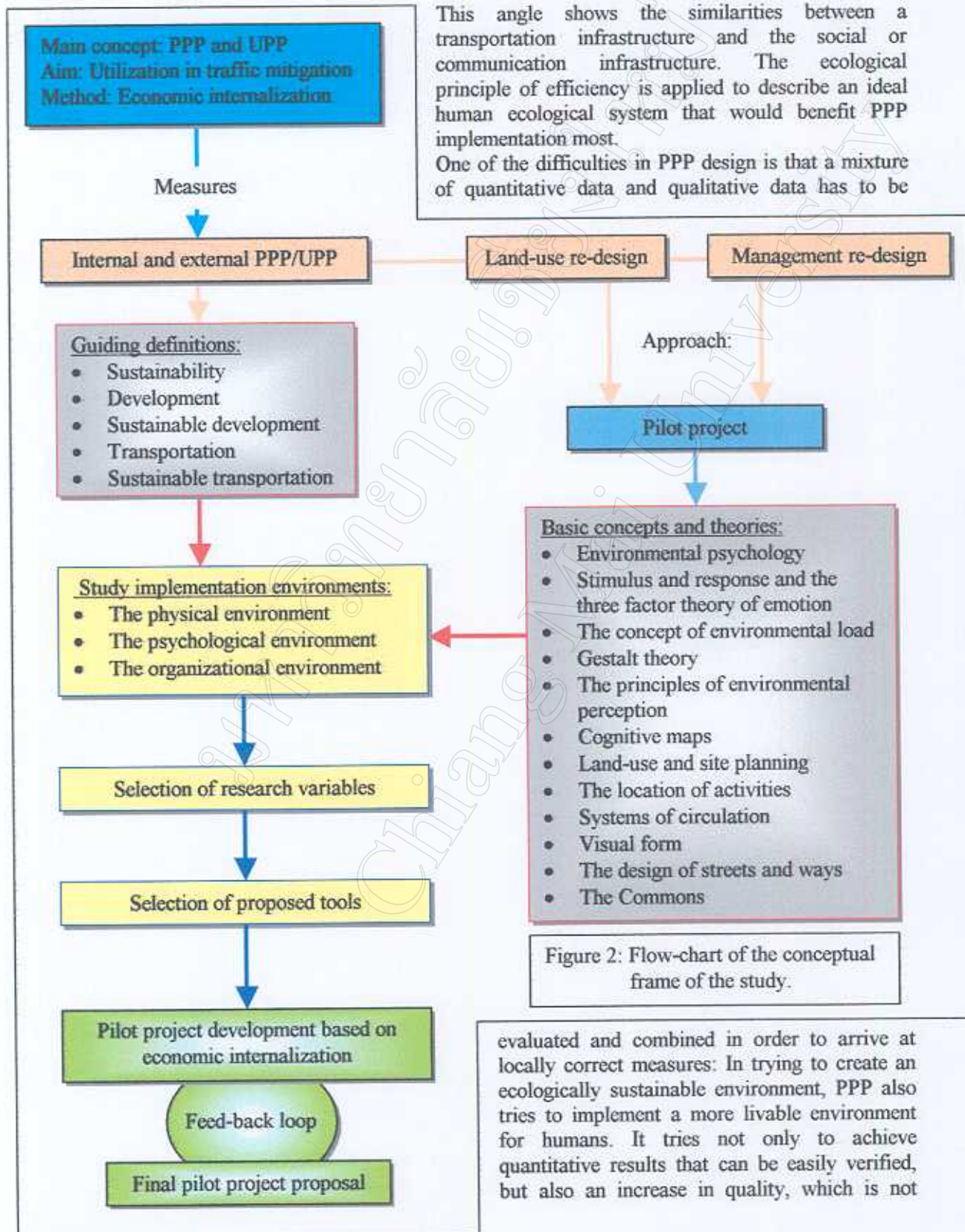
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<sup>11</sup> For a detailed introduction of the concepts, please appendixes, chapters A7 – A9.

### 3. Transportation and sustainable transportation

The final step in introducing the first angle of the study is to describe

### 4. Development, transportation and environment in human ecological systems



easily measured. This study therefore supports ambient standards, which allow the incorporation of human needs into the standard definition. To define a frame for those needs, we need to look at psychological factors within the created human environment.

The aim of PPP and the related concept of UPP<sup>12</sup> is to change consumption modes by employing economic internalization. Re-organizing the human environment, in which consumption takes place so that human behavior and decisions based on it become more efficient, can emphasize this change. To organize the environment in such a manner that 'people automatically do the ecologically right thing', means that occurring social costs are kept low and thus help keeping PPP fees at a lower rate. A second angle employed in this study, therefore, concerns environmental psychology. As traffic and commuting are a form of human behavior in a given environment, some theories of psychology provide an important basis to understand how our surroundings can shape our behavior.

They are<sup>13</sup>:

- **Stimulus & response and the three factor theory of emotion.**
- **The concept of environment load**
- **Gestalt theory**
- **The principles of environmental perception**
- **Cognitive maps**

By correctly employing them, PPP standards, tools and measures can be designed more effectively. They therefore represent criteria that can be used to select proposed physical changes to the human environment considering their implementation, practicability and potential to increase the efficiency and effectiveness of a management system.

A third angle employed by the study is based on the concepts and principles of land-use and site planning. Practical site design concepts, which result in layouts accepted by the user according to their designated purpose, are an additional tool to emphasize and encourage PPP implementation and keep cost for the user at a minimum. The variables addressed in the following concepts<sup>14</sup> are linked with the first two angles introduced and are the basis to decide on the type of traffic management system to be implemented:

- **The location of activities**
- **Systems of circulation**
- **Visual form**
- **The design of streets and ways**
- **"The Commons"**

By using a three-fold approach to traffic management based on PPP, this study builds an implementation frame that can be constantly adapted to any changes in resource availability. The concepts used here address all three types of environment that define the space in which transportation and traffic take place:

1. **The physical environment,**
2. **The psychological or attitudinal environment, and**
3. **The organizational/economic environment.**

Data collected at the study site is analyzed through the method of case triangulation<sup>15</sup>. This tool in development work combines quantitative and qualitative data to arrive at a set of basic

<sup>12</sup> UPP: User Pays Principle: a form of PPP that focuses more on consumption (see next chapter).

<sup>13</sup> For a detailed introduction of the concepts, please see appendix A10.

<sup>14</sup> For a detailed introduction of the concepts, please see appendix A11.

<sup>15</sup> Mikkelsen, B. (1997): *Methods for Development Work and Research*, Sage Publications India Pvt Ltd, 1995

knowledge used quantitatively to provide a basis for standards, measures and tools developed to mitigate traffic problems at CMU.

PPP implementation will increase the economic burden of users in the short-term. In order to fine-tune proposed measures a feedback cycle with stakeholders is initiated based on principles of people participation (PP) and, via semi-structured interviews (SSI) with key informants, participatory rural appraisal (PRA)<sup>16</sup>. The developed pilot project is then re-introduced for evaluation to the study groups. Their opinion will shape the final proposal of the pilot project.

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<sup>16</sup> As the campus is located within an urban structure, but in itself represents a relatively closed unit, it might be appropriate to call this method here PUA, e.g., Participatory Urban Appraisal.