## 4.2. *Phase I: Requirements elicitation and analysis*

Requirements elicitation is one of the critical parts in any software development, without which the developers are unable to produce expected system and comply with given regulation. Likewise in the LMIS design project, this phase was where developers attempted to define what the system should do. Using the framework illustrated in Figure 1 above, it can be thus explained that the process of requirements elicitation and analysis in the LMIS design project was started by reviewing related regulations and laws relating to the soil and land protection. Using legal text analysis, the developer team then identified and discussed law's elements that were transferable into technical or system specification. All the agreed requirements were then documented into Technical Requirement Documents such as System specification, Uses cases, DFD, CDM, and PDM. In some cases, the developer might receive feedback or additional information from the users that were useful for revising the requirements. Once the revisions were approved, the updated requirements documents were then used in the next phase for developing a working prototype as illustrated in Figure 2.
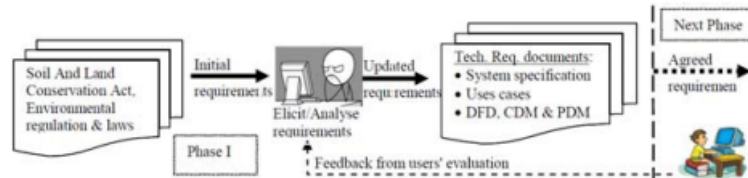
**Figure 2**. Phase I: Requirements elicitation and analysis process in LMIS design project.

### 4.3.  Phase II: Prototype development

Once the requirements were approved, the developer team started the second phase which aimed to develop a prototype. This phase mainly involved software building activities such as designing and developing architectural, database, module and user interface for LMIS based on the requirements specified in the technical documents. All the activities might be repeated until the software process design produce a working prototype which would be ready for internal verification by developer team. The prototype was modified if the result from the verification process was unsatisfactory. But, if the result was satisfactory and the prototype worked as expected in the requirements, the revised prototype then went through evaluation involving potential users (note: the evaluation process including how it was conducted and who are the participants will be discussed more thoroughly in section 4.4).

At the end of the evaluation, if the developer team and the user participants felt that the prototype was not satisfactory, then the software building process entered new iteration for aligning additional or new requirements as well as responding to feedbacks provided by users into the previous prototype. Having completed each development cycle, a newly evolved prototype was produced and sent to users for another round of evaluation. This cycle was still performed until the evolved prototype met the requirements and satisfied the users' needs or expectation. At this stage, if there were no more feedback or addition requirements to consider, the LMIS development was completed and ready to be delivered or released as shown in Figure 3.