Preventing Disaster: Quantifying Risks at the UP Diliman University Library

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Abstract. The field of cultural heritage has always valued the preservation and conservation of its materials: moveable and immoveable, tangible and intangible. As it is in any discipline, risk is a constant factor in any activity. Threats used in this study were based on Stefan Michalski's 11 Agents of Deterioration with some modifications to fit the local context. The findings revealed that fire and water, in whatever guise, are the biggest threats to library collections. Data from this study were then used to create a risk profile.

Background

The library system of the University of the Philippines (UP) Diliman is composed of 33 unit libraries and one 1 University Library. The 33 unit libraries with specialized collections serve the various colleges and units of the university, while the Main Library serves the entire university with its Filipiniana and general collection. The Main Library also houses the University Archives and Records Depository which contains the documentary heritage of UP. These materials have evidential, historical, research and/or symbolic value which are irreplaceable when lost. Existing preservation management programs must be reviewed and updated in view of major physical and organizational changes in the library in the last five years. A concrete, comprehensive and definitive disaster management plan is needed to efficiently and systematically prepare for, respond to and recover from natural, man-made and biological disasters. But before writing a disaster plan, risk assessment of possible threats or hazards should be performed first (Halstead, Jasper, & Little, 2005). The core and the foundation of any disaster planning and recovery strategy – any plan – is *risk management* (Levitt, 1997). Knowing the threats allows institutions to know what steps to take to protect their collection.

The Philippines is one of the most disaster-prone countries in the world. In 2000, it was *the* most disaster-stricken country, according to the Belgium-based Center for Research on the Epidemiology of Disasters (Ibay, 2004). Typhoon Ondoy (International name: Ketsana) in 2009 exposed the national government's lack of preparation, slow response and absence of coordination between local government units and the national government. Rescuers were unable to reach the victims in time due to lack of equipment and vehicles. Typhoon Ondoy increased the public's awareness and need for disaster preparedness, response, mitigation and recovery.

In 2010, the National Disaster Coordinating Council (NDCC), the government's arm in disaster response was renamed as the National Disaster Risk Reduction and Management Council (NDRRMC) to emphasize the agency's new thrust of not just responding to disasters, but also preparing for them. However, it should be noted that the NDRRMC's focus in disaster management does not include heritage collections or cultural institutions. The main function of the agency is the safety of the population and speedy recovery after a disaster. Based on its organizational structure, no official or member of the culture and the arts or heritage profession is involved in the NDRRMC.

In May 2010, Republic Act No. 10121, also known as the *Philippine Disaster Risk Reduction and Management Act of 2010* was approved under the Arroyo administration. It focuses on civil protection and enhanced cooperative efforts in preparing, responding and recovering from disasters. This Act, plus the re- orientation of NDRRMC further strengthened the government's commitment for a more comprehensive disaster management program.

While the Act aims to institutionalize disaster risk reduction from the level of the national government down to the local government units and to adhere to established international standards, there is no mention regarding the protection from disasters of cultural heritage institutions or materials

In the cultural heritage sector itself, the National Heritage Act of 2009 was passed and ratified by law in March 2010. Also known as Republic Act No. 10066, the act aims to provide

…for the protection and conservation of the national cultural heritage, strengthening the National Commission for Culture and the arts (NCCA) and its affiliated cultural agencies, and for other purposes (p. 1).

Furthermore, in Article III, Section 7, Item (d) of the Act, it specifically mentions that

In times of armed conflict, natural disasters, and other exceptional events that endanger the cultural heritage of the country, all National Cultural Treasures or national historical landmarks, sites or monuments shall be given priority protection by the Government. (p. 9)

Aside from this paragraph, there was no more mention of disaster management or disaster planning in the Act upon further review. While the passing of this Act was a great boost to the cultural heritage sector, the very general and vague phrasing of the paragraph leads one to question the method by which the specific provision can be implemented.

Information gathered from risk assessment can determine policies regarding pest, preservation and disaster management. In the National Library of Netherlands (Teygeler, 2005), it was determined that the biggest risks were flooding and security. Reconstruction of the National Library was then reorganized to include flood prevention and improved security in their Special Collections Section.

Risk assessment can also help in identifying priorities in the collection and guiding budgetary decisions accordingly. For example, risk assessment was used in determining whether current lighting conditions were harmful to a large painting on display in the National Gallery of Canada. It was determined that under current conditions, the painting would only fade one step in five hundred years of display (Michalski, 2007).

From a disaster management perspective, risk *management* and further on, *risk reduction*, is the lessening of the level of risk that any out-of-course event will occur and the risk that the event will impact the people, place and processes in the organization (Levitt, 1997).

Risk management was originally an insurance industry parlance, meaning a process that identifies loss exposures faced by an organization and selects the most appropriate or cost-effective techniques for treating such exposures. *Loss exposure* is any situation or circumstance in which a loss is possible, regardless of whether a loss occurs. In the insurance industry, a loss exposure can include a house being destroyed by fire, a car in an accident, an employee injured at work, etc. (Rejda, 2008). In other words, anything that threatens an insured/insurable object can be considered as a loss exposure.

Stefan Michalski (as cited by Waller, 2005) determined ten agents of deterioriation and three types of risks in cultural heritage institutions. These are: 1) Physical forces; 2) Fire; 3) Water; 4) Criminals; 5) Pests; 6) Contaminants; 7) Light and ultraviolet radiation; 8) Incorrect temperature; 9) Incorrect relative humidity; 10) Dissociation (custodial neglect). The types of risks are categorized based on their frequency and effect on the collection (Table 1).

Table 1

Types of Risks

Intensity	Frequency Constant	Sporadic	Rare
Catastrophic			Type 1
Severe		Type 2	
Gradual/Mild	Type 3		

Based on this information, earthquakes and fires are Type 1 risks (Catastrophic-Rare), criminals and pests are Type 2 risks (Severe-Sporadic) and custodial neglect is Type 3 (Gradual/Mild-Constant).

Risk, in its simplest sense, is the possibility of loss. Brokerhof (2006) states that risk is the product of the probability of an event happening and the consequence or severity of its effect:

Risk = Probability x Effect (R = P x E).

This is the simplest, most basic risk formula there is. While this formula is rather one-dimensional and limiting, considering that there are other factors that can affect the risk assessment in any collection, its simplicity means that any institution can embark on a semi-qualitative risk assessment of its collection, help it visualize the threats and guide its decisions as needed.

René Teygeler (2005) used the above formula to calculate the risks facing the Koninklijke Bibliotheek (KB) or the National Library of The Netherlands. The outcome provided the library with a rational order of events which was used in the formulation of a disaster plan (Teygeler, 2005).

Using a methodology similar to this study, KB staff members were asked to rate the possibility and consequence of the common agents of deterioration. The study revealed that KB's biggest problem was the threat of flooding. Netherlands is a country prone to flooding because most of its topography is below sea-level. To ensure that the findings were valid, results were compared with another study about risks in cultural heritage institutions in general. It was found out that the results did not depart far from the general report.

In his study, Teygeler determined that aside from flooding, the other threats are fire, theft, monitoring and discipline. Fire risk comes from contract workers employed by the library who are not aware of the strict no-smoking policy within the premises. Despite a government mandate restricting smoking areas in public buildings, cigarette butts have been found in the non-smoking areas of the library such as restrooms, storage rooms, depots, private offices and hallways. Since the library staff members are well aware of this no-smoking policy, Teygeler suspects the cigarette butts were left behind by contractual workers. He proposed enforcing a strict no-smoking policy in all new contracts to be entered into by the library and all contract workers should be informed of this accordingly.

Methodology

An important part of risk management is *risk assessment*. It is the collection, organization and analysis of information regarding risks (Matthews & Feather, 2003). Taylor (2005) combined risk assessment with condition survey to help determine priorities in an institution's collection management goals. He rationalized that while condition surveys recount the collection's history, risk assessment is a prediction of its future. Integrating the two helps build a picture of the relation between the current condition of a collection and predicted deterioration, and if it is an unacceptable level, make steps to decrease these.

Using the formula $R = P \times E$**,** the levels of risk can be determined using set qualifiers and quantifiers. This approach allowed the researcher to determine which hazard is most likely to occur and/or has the greatest impact.

The values for this study are patterned after the qualifiers used by Artlab Australia, the cultural heritage arm of the government of Australia. Putting in values and descriptors enabled the researcher to set parameters to the hazards and get fairly accurate numbers from the respondents.

The researcher modified or expanded Michalski's agents of deterioration to be more specific or applicable to local setting. Some agents were altogether excluded, due to the fact that the libraries in this study do not have the necessary equipment or wherewithal to maintain the collection in the prescribed temperature and relative humidity levels. In addition, two more risks were added, namely power outage and civil disturbance, as the researcher deemed it apt for the local setting.

Table 2

Risk Rankings

High	18.75 – 25.00	Risks that must be eliminated or significantly reduced
Significant	12.50 – 18.74	Risks that need to be monitored; mitigation plan must be in place to reduce risk

Moderate	6.25 – 12.49	Risks that need to be monitored, but less rigorously and are less urgent in nature
Low	1.00 – 6.24	Demand less attention, but not to be totally ignored

Once the risks ratings have been computed, the qualitative values can be assigned, i.e. *high*, *significant*, *moderate* and *low* (Cannon, 2003). Simple calculations yielded the ratings for each ranking (see Table 2). Since the maximum possible value to be derived from the risk rating is 25 and there are four ranges, by simple calculations, 25 ÷ 4, will yield 6.25, which is the range for each risk rating.

To further qualify the rankings and to visualize the results of the study, the researcher adapted the descriptors of the risk standard used by the Ministry of Agriculture and Lands in British Columbia (2010) as it was simple enough to understand and could be easily applied to this study.

Data Collection

A survey questionnaire (Appendix A) was used as an instrument. Respondents were asked to rate from one to five the *Probability* and *Effects* of the hazards derived from Michalski's (as cited by Waller, 2005) agents of deterioration. To obtain numeric value for Probability (P), it is given five levels:

1 -- Rare (1 in 100 years)
2 -- Sporadic (1 in 50 years)
3 -- Unusual (1 in 10 years)
4 -- Likely (happens every couple of years)
5 -- Almost certain (1 per year)

There are also five levels of severity or effect (E):

1 -- Insignificant (loss of ≤1 working day / no damage to collection / no injuries)
2 -- Low (loss of ≤2 working days / up to 5% damage to collection / no injuries)
3 -- High (loss of ≤3 working days / up to 10% damage to collection / minor injuries)
4 -- Severe (loss of ≤4 working days / up to 25% damage to collection / major injuries)
5 -- Catastrophic (loss of 5+ working days / up to 50% or more damage to collection / major injuries and fatality/ies)

The product of these numbers will give the rating of each risk; the lower the number, the lesser the risk. The following were the hazards which the respondents were asked to rate:

- Building damage/Collapse (possibly due to geologic activity, e.g. earthquakes, volcanoes; building construction, etc.)
- Civil disturbance (including conflicts, terrorism,wars)
- Chemical spills/leaks (possible due to gas leaks or improper storage conditions)
- Collapse of shelving (due to overloaded shelves)
- Fire due to arson
- Fire due to faulty electrical wirings
- Fire due to incendiary item
- Flooding due to faulty plumbing
- Flooding due to a leaky roof
- Insect/vermin infestation
- Mold outbreaks
- Pilferage (defined as the act of stealing small amounts of articles)
- Power outage
- Sewage leak (possibly due to faulty plumbing)
- Storm/typhoon damage
- Theft (defined as the act of stealing property)
- Tornadoes
- Vandalism (possible due to uninformed/disinterested users, inadequate security)

These hazards were identified based on the hazards used by Waller (2005) for the Canadian Museum of Nature (which was derived from Michalski's agents of deterioration) with some additions by the researcher to fit the local context. These additions include power outage and civil disturbances, which were considered hazards by numerous local and foreign publications regarding disaster preparedness, response and recovery.

Aside from the ten agents of deterioration, Waller (2005) further categorized these risks into three: Type 1, rarely occurring but with catastrophic effects; Type 2, occurring sporadically with disastrous effects; and Type 3, constantly occurring but with mild/gradual effects (See Table 1).

These categorizations, along with the data on common natural disasters occurring in the country, enabled this researcher to determine which among the agents of deterioration were applicable in the local setting.

Respondents were asked to rate the probability of the identified risks from occurring (1-5, low-high) and the severity of their effects on the collection (1-5, low-catastrophic). They were also asked to make suggestions on how to avoid these events from happening (if possible) or how to mitigate their effects should these occur. A blank space at the bottom of the list was provided for any addition to the risks that were not included in the list.

The average for Probability and Effects were computed and were multiplied, which resulted in the Risk Rating (Table 2). This method is not an established or an existing risk management methodology, but rather a simple scheme to quantify the unquantifiable.

In terms of probability of occurrence, the three hazards with the highest score are Power Outage (5.00), Vandalism (3.65) and Theft (3.45). It is worthy to note that two are forms of criminal activity. The three hazards with the highest effect ratings are Fire – Faulty Wiring (4.33), Fire – Arson (3.86) and Fire – Incendiary items (3.42). A rating of 3 or more means a *High* effect with damage to 10% of the collection and a loss of three working days (see Table 3).

Table 3

Rankings of Identified Risks

Event	Probability	Effect	Risk Ave.	Category
Fire - Faulty Wiring	3.05	4.33	13.21	Significant
Storm Damage	3.11	3.05	9.49	Low
Fire - Incendiary Items	2.44	3.42	8.34	
Flooding - Leaky Roof	3.15	2.57	8.10	Moderate
Vandalism	3.65	2.10	7.67	
Vermin	3.25	2.33	7.57	
Theft	3.45	2.10	7.25	
Fire - Arson	1.85	3.86	7.14	
Building Collapse	2.10	3.38	7.10	
Flooding - Plumbing	2.50	2.81	7.03	
Mold Outbreaks	3.15	2.19	6.90	
Pilferage	3.30	1.81	5.97	
Sewage Leaks	2.50	2.29	5.73	

Power Outage	5.00	1.10	5.50
Tornado Damage	1.68	3.20	5.38
Shelf Collapse	2.55	1.86	4.74
Civil Disturbance	1.80	1.90	3.42
Chemical Spills	1.60	1.95	3.12

Computing for the Risk, R = P x E, the hazard with the highest rating is Fire -Faulty Wiring (13.21), followed by Storm Damage (9.49) and Fire - Incendiary Items (8.36) (Table 3). These data reinforces the fact that fire and water are the biggest threats to library collection. The risk rating of 13.32 of Fire – Faulty Wiring means that it is a significant threat that needs to be closely monitored and mitigation plans must be in place to remove or reduce this risk.

Findings and Conclusions

Based on the value ratings for the risk factors, only Fire - Faulty Wiring garnered a *Significant* rating (13.21). This means that it is a big enough threat to the collections and the libraries are advised to evaluate existing measures in place to prevent such an event from occurring.

Most of the risks identified in the study are considered moderate or low risks. *Moderate* (6.25 – 12.49) and *Low* (1.00 – 6.24) risks are still threats to the collection, but on a lesser extent and libraries can choose to prepare for or respond only to those which pose danger to the collection. In fact, Storm Damage has a rating of "only" 9.49 and Fire -Incendiary Items has "only" 8.36. Moderate these risks might be, these will still need to be monitored and, if possible, mitigation measures implemented, though not as urgent as *Significant* risks. These mitigating measures must be reviewed not just periodically, but also when major changes have taken place in the library, e.g., new construction or installations and after major disasters.

On the other hand, it is up to the library whether hazards with low risk shall be addressed at all. Libraries can decide to accept these risks, i.e., nothing will be done and allow these risks to occur, especially if the effects are either minimal or negligible. On the other hand, libraries can choose to have basic risk reduction measures in place, especially if the measures are cost effective.

Another observation by the researcher is that of all the threats to libraries, there is only one *Significant* threat; the rest are only considered as *Moderate* or *Low* risks. It brings up the issue of how librarians perceive risks in their collection. It can be attributed to a belief or hope that perhaps, such disasters will not happen in their library because in all the years of the library's existence, such a disaster has not occurred -- or at least not in their recent memory. Hasenay and Krtalic (2010) mentioned that one issue keeping libraries from having a disaster plans is that librarians believe that such disasters will not happen in the end.

Another factor for the low perceptions is that there is a certain disconnect or detachment from the event. This detachment may have affected the respondents' perception of disasters. Certainly, a fire need not occur just to teach a lesson to all, and based on responses in the study, most libraries in the campus have already taken some measures to prevent fire from happening. However, since respondents have not experienced what it is like to have fire in their library, they do not fully comprehend how it is to suffer its consequences and the difficult task of recovering from it.

Consider this analogy of Typhoon Ondoy to residents of Metro Manila. There has been no flooding of such magnitude in the city, and residents were ill-prepared for such a disaster. After Ondoy, people were more conscientious when a strong typhoon threatens the city: they diligently listen to weather forecasts, check on their emergency kits and stock up on food. Prospective home-buyers now consider whether the area they would be moving to is flood-prone or not (Ong, 2009).

Identification of risks entails determining what risks threatens the library collection and how these occur. Analysis of the risks involves establishing preventive measures already in place and rating the probability and

effects of the risks. Finally, evaluation of risks requires calculating and prioritizing the identified risks. Once the risks have been identified, analyzed and evaluated, it is easier to create a basic template of risks to create a documentation that would jumpstart disaster planning in libraries.

The researcher created a risk template / form (Table 4) which librarians can use as a supporting documentation for a disaster plan. Information in the risk template includes:

- Name of identified risk
- Probability and Effect Rating (determined in the analysis phase)
- Risk Rating (determined in the evaluation phase)
- Priority Ranking (based on Risk Rating)
- Existing Preventive Measures (determined in the analysis phase)
- Mitigation Plan (actions to take to reduce risk)
- Contingency Plan (actions to take if the risk occurs)
- Monitoring Plan (periodic review of mitigation plan and updating or revising of plans, including documentation of risk response).Table 4

Sample of Risk Form

Risk	**Fire - Faulty Wiring**
Probability Rating (1-5)	3
Effect Rating (1-5)	4
Risk Rating (R=PxE)	12
Priority Rank	
Existing Preventive Measures	Fire extinguishers in various points in the library Automatic sprinklers in the stacks area of the archives Buckets of sand in various points of the library
Mitigation Plan	Periodic check-up of wall outlets and wirings No excessive use of any one wall outlet Report immediately when a faulty wall outlet is found Train staff how to operate fire-extinguishers, put out fires Only authorized / certified personnel can make repairs Install smoke detectors in stack areas
Contingency Plan	Use fire extinguishers to put out fire Call fire personnel
Monitoring Plan	Monitor semi-annually Update whenever training programs have been conducted and after inspection of UP-CMO
Tracking History	Initials: Date: Initials: Date:
	Initials: Date: Initials: Date:

Disaster plans at the unit level are more for the safety and security of the personnel; disaster plans for the library are focused on the safety and security of the collection. Now that libraries know which risks can affect their collections the most, it will be easier for libraries to plan activities that would alleviate the risks. Knowing is half the battle. It is hoped that the findings of this study will make it easier for libraries to formulate their own disaster plan.

References

Books

Cannon, A. (2003). Risk Management. In G. Matthews, & J. Feather, *Disaster Management for Libraries and Archives* (pp. 41-72). Hampshire, England: Ashgate Publishing.

Halstead, D. D., Jasper, R. P., & Little, F. M. (2005). *Disaster Planning: A How-to-do-it Manual for Librarians with Planning Templates on CD-ROM.* New York: Neal Schuman.

Levitt, A. M. (1997). *Disaster Planning and Recovery: A Guide for Facility Professionals.* New York: John Wiley & Sons, Inc.

Matthews, G., & Feather, J. (Eds.). (2003). *Disaster Management for Libraries and Archives.* Aldershot, England: Ashgate.

National Cultural Heritage Act of 2009 (Republic Act No. 10066). (2010). Manila: Senate of the Philippines.

Philippine Disaster Risk Reduction and Management Act of 2010 (Republic Act No. 10121). (2010). Manila: Senate of the Philippines.

Rejda, G. E. (2008). *Principles of Risk Management and Insurance, 10th ed.* Boston: Pearson Education, Inc.

Electronic Sources

Brokerhof, A. W. (2006). *Collection Risk Management - the Next Frontier.* Retrieved July 6, 2009, from Canadian Museums Association: www.museums.ca/protection/en/presentations/Brokerhof.pdf

Canada. Province of British Columbia. (2010, February 12). *Ministry of Agriculture and Lands: SDLC Standards: Project Management - Risk Management Standards Version 1.2.* Retrieved July 31, 2011, from Government of British Columbia: http://www.env.gov.bc.ca/csd/imb/3star/sdlc/8manage/risks/risk_principles.html

Ibay, A. C. (2004). *Mapping Vulnerability to Environmental Disasters: A Philippine Study*. Retrieved June 1, 2009, from Klima Climate Change Center: http://www.klima.ph/adaptation-article.html

Ong, T. V. (2009, October 1). *The Aftermath of Ondoy: Implications on Real Estate Philippines*. Retrieved 2 August, 2011, from Real Estate Philippines News Blog: http://www.realestatephilippinesblog.com/the-aftermath-of-ondoy- implications-on-real-estate-philippines/

Articles & Book Chapters:

Hasenay, D., & Krtalic, M. (2010). "Disaster and After": What Have Croatian Lilbraries Learned About Preservation and Disaster Management after the War Experience. *World Library and Information Congress: 76th IFLA General Conference and Assembly.* Gothenburg, Sweden.

Michalski, S. (2007). How Science Contributes to Risk Based Decision Making (RBDM) in Museum Lighting. In R. Varoli-Piazza (Ed.), *Sharing Conservation Decisions* (p. 127). Rome: Ograro.

Taylor, J. (2005). An Integrated Approach to Risk Assessments and Condition Surveys. *Journal of the American institute for Conservation , 44*, 127-141.

Teygeler, R. (2005). Writing a Disaster Plan: Identifying Risk. In J. G. Wellheiser, & N. E. Gwinne, *Preparing for the Worst, Planning for the Best: Protecting our Cultural Heritage from Disaster* (pp. 137-145). Munchen: Saur.

Waller, R. R. (2005). Seeking Balanced Risk Mitigation: Risk Assessment at the Canadian Museum of Nature. In J. G. Wellheiser, & N. E. Gwinn, *Preparing for the Worst, Planning for the Best: Protecting our Cultural Heritage from Disaster* (pp. 129-136). Munchen: Saur.

Appendix A

Questionnaire

RISK QUESTIONNAIRE
Please rate the probability of an event threatening our collections and its effect. Use the scale below:

Probability

1 - Rare (1 in 100 years)

2 - Sporadic (1 in 50 years)

3 - Unusual (1 in 10 years)

4 - Likely (1 every couple of years)

5 - Almost certain (1 per year)

Effect
1 - Insignificant (loss of less than or equal to 1 working day / no damage to collection / no injuries)
2 - Low (loss of less than or equal to 2 working days / up to 5% damage to collection / no injuries)
3 - High (loss of less than or equal to 3 working days / up to 10% damage to collection / minor injuries)
4 - Severe (loss of less than or equal to 4 working days / up to 25% damage to collection / major injuries)
5 - Catastrophic (loss of 5 or more working days / up to 50% or more damage to collection / major injuries and/or fatality/ies)

Hazard	*Probable Cause (add more causes if needed)*	*Probability (Rate from 1-5)*	*Effect (Rate from 1-5)*	*Suggestions for Preventive Action*
Building Damage/Collapse	☐ Geophysical activity (earthquake, volcanic activity, etc.) ☐ Activities that compromise building structure (e.g. tunnel			
Civil Disturbance	☐ Disgruntled library user ☐ Riots ☐ Terrorist activities			
Chemical Spills/Leaks	☐ Improper storage/use of chemicals ☐ Gas leaks			
Collapse of Shelving	☐ Overloading of shelves			
Fire	☐ Arson			
	☐ Faulty Electrical Wiring			

	Incendiary Items (e.g. cigarette butts, hot surfaces, lightning)			

Hazard	*Probable Cause (add more causes if needed)*	*Probability (Rate from 1-5)*	*Effect (Rate from 1-5)*	*Suggestions for Preventive Action*
Flooding	Burst pipe Faulty plumbing			
	Leaky roof			
Insect/Vermin infestation	Influx of infected items Attracted to food matter			
Mold outbreaks	Improper storage temperature and relative humidity Influx of			
Pilferage (defined as the act of stealing small amounts or articles)	Lax Security Uninformed users/staff			
Power outage	Weather disturbance Technical problems			
Sewage Leak	Faulty plumbing			
Storm/Typhoon Damage	Natural forces			
Theft (defined as act of stealing property)	Inadequate security			
Tornado Damage	Natural forces			
Vandalism	Uninformed/disinterested users Inadequate security			
Other Hazards (Please enumerate)				