3. *De Rham Cohomologies and Stratifications*

Complex Analytic de Rham Cohomology. III

By Nobuo SASAKURA
Tokyo Metropolitan University

(Comm. by Kunihiko KODAIRA, M. J. A., Jan. 13, 1975)

The importance of the idea of stratifying varieties in the study of algebraic and analytic varieties is well known. The investigation of stratification of varieties would involve basically the following steps*):

(1) To stratify varieties so that each stratum as well as the relations among the strata, e.g., incidence relation , $\cdots$, are of simple (or typical) forms.

(2) To obtain results of desired nature for each stratum or each series of strata, etc. with respect to a fixed stratification for given varieties.

(3) To piece together results from the step (2) in order to obtain results of a desired sort for given varieties and subvarieties, $\cdots$.

The steps {(1), (2)} and (3) might be reasonably called, respectively, localization steps (for given global problems) and globalization steps (to be applied to local results).

In [5], [7] we investigated certain quantitative properties of real analytic varieties. Results of [5] are used in our study of the complex analytic de Rham cohomology. Our investigations in [7] are carried out using steps (1), (2) and (3). Exact sequences of Mayer-Vietoris type are used repeatedly in our globalization steps. The basis of our arguments used in the globalization steps is algebraic in nature.

The main purpose of the present note is to introduce the notion of *cochain complex with incidence relations* (C. C. I.) *for a prestratified space*. (See n.1. and n.2. below.) The arguments used in the study of C. C. I. are generalizations, as well as abstractions, of those in [7]. When C. C. I.'s are related to de Rham cohomologies of certain types, the arguments applicable to C. C. I.'s in general clarify relations between 'local' and 'global'[1] data in the de Rham cohomologies in question. Actually the author's hope in introducing the notion of C. C. I. is to clarify relations between 'local' and 'global' data in de Rham

*) See R. Thom [8], H. Whitney [9]. The author learned the theories of stratifications in connection with his proposed approach to Complex analytic de Rham cohomology. (Cf. [4], [5].)

1) The terms 'local' and 'global' in this note should be understood in the sense explained at the beginning of this note.